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Wm Sharon

CHRONICLES

OF

THE BUILDERS

OF THE

COMMONWEALTH

Historical Character Study

BY

HUBERT HOWE BANCROFT

VOLUME IV

SAN FRANCISCO
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LIST OF STEEL-PLATE PORTRAITS.

VOLUME IV.

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CHRONICLES OF THE BUILDERS.

CHAPTER I.

MINES AND MINING—GENERAL REVIEW.

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COUPLED with the pride of discovery and conquest, the search for gold led hand in hand to the revelation of the new world, and was the key note to Spanish performance, as well as to many an Anglo-Saxon adventure. The Englishman moved slower but more strongly, as shown in his achievements compared with those of the Spaniard. The ultimate triumph of the former was due both to race and occupation, which, on the Atlantic side, was agriculture, while in the north the Spaniard delighted in mines. The difference in race characteristics are visibly displayed in mining, in the relative backwardness of Peru and adjacent regions, as compared with the North American Pacific coast, which advanced in all branches at a pace that, within a decade and a half, transformed it into a series of flourishing states. Men of the Latin race, judging from their past, would not in seven centuries have made the progress achieved by Californians in fifteen years.

The love of gold in the hearts of men is of transcendent influence, above fanaticism, or any feelings of humanity, above love of empire or patriotism, above family bonds or honor, overshadowing all things supernal or infernal, shriveling into insignificance far-

reaching trade and grasping fur companies, the opposition of savages or semi-barbarians, the lives of red men, missionaries, or even rum. It here began history anew.

The gold displayed by the natives to the crews of Columbus transformed itself into an ignis fatuus before the eyes of the Iberians, drawing them in hordes across the sea, whose long dreaded darkness and pictured monsters now faded before the visions of gold and silver, pearls and precious stones beyond. From the islands where gold was first seen, they were drawn in swift chase for it over the continent. Spreading from Panamá northward, and from Montezuma's realms southward, these avaricious gold hunters met in many a fierce contest for the spoils. Dissatisfied with the harvest gleaned, they seized upon the inhabitants as slaves, to seek compensation for the disappointment, compelling them to labor in the field, or dig in the ground for gold.

Mining among the aborigines was little understood, even by the semi-civilized Nahuas, as shown by the absence of iron in their manufactures, notwithstanding the abundant deposits of ore. Copper was carved out from the compact vein, and hardened with alloys for implements. Tin was also obtained, and a little silver, so little as to render it more costly than gold. The latter was almost wholly gathered from alluvial sources, here and in Central America. Northward even this easy method was ignored, partly because the metal was little esteemed. Nuggets were of course picked up occasionally, but it is doubtful whether the ancient stories of gold mining in New Mexico and Colorado should not be ascribed to the early Spaniards, rather than to the aborigines. The testimony in favor of the latter rests chiefly on the fact that they sought other minerals, such as copper, while in California they had recourse to cinnabar for ornamental purposes.

We might almost imagine them as instinctively

shrinking from the evil lurking within the precious metals. Bitterly they had to rue the time when finally it was uprooted, to scatter death and desolation throughout their land. The more civilized they were, the more they had to suffer. In Mexico and Central America almost general enslavement resulted, under the disguise of encomiendas and conversion, cloaked by royalty and religion. Thousands were driven from their homes and doomed to exhausting labors in the mines, so severe as to quickly undermine their constitutions, unused as they were to such experiences. Hunger and the lash added their quota to the appalling death record. The crown, while pretending to great mercy in the tenor of its laws, in reality added to their miseries, by the exaction of heavy royalties, and by conniving at any outrages which brought increased returns.

In due time even the oppressors began to feel the effects of the evil in its debasing influence, which overspread the entire peninsula and resulted in bringing about the debasement of Spain, from its lofty preëminence to a minor power, torn by dissensions, deficient in industrial activity, and steeped in superstition. Mark the disturbing influence of emigrations by gold seekers, chosen from the flower of manhood, and the loss in bone and sinew, and capital, to the communities whence they came. Gold hunting loosened moral restraint, engendered vice, and led to bloodshed, always fostering a gambling spirit with its attendant thriftlessness and extravagance. It was the means of consigning to desolation large districts, including fertile river lands, by covering them with hydraulic débris, and of polluting streams, and obstructing navigation therein.

These, and other glaring evils, as bred by avarice and its noxious train, provide certain grounds for the wide spread fashion of condemning the exploitation of the precious metals, and of pointing to their small

usefulness as compared with iron or copper, with coal or building stone. Nevertheless, gold and silver possess their value not only as commercial mediums, and for numerous arts and industrial branches, but are, in fact, of greater importance than most other minerals, aside from the above drawbacks. They open outlets for surplus population, and give impulse to trade and industries; they filled the northern wilderness of Mexico with bustling camps and towns, and developed the country into a series of rich states; they transformed the so-called deserts of the interior United States into flourishing settlements, built up and sustained by the workers and products of the mines. Even that most unpromising of sections, Nevada, was thereby exalted to statehood. Although unsightly holes, denuded hill-sides, and uptorn riverbeds tell here and there of devastation, yet fields and gardens have sprung into bloom through their instrumentality, and regions have been developed from feeble colonies, into populous and prosperous provinces.

Work of such magnitude and general benefit proclaim the might, as well as usefulness, of the metals. But for their aid California and Oregon might still be struggling border colonies, and the vast interior behind them, and north of central Mexico, would have remained a comparative wilderness, without the girdle of railways and connecting steamship lines, which link in profitable trade and stirring intercourse the eastern slope and Europe with Spanish-America, Australia, and the Orient, marking the half century leap forward of the great republic in commercial and political importance. Its western empire has, moreover, become the cradle for an energetic and powerful race, which is spreading abroad from one end of the continent to the other, and beyond the ocean, to plant the seeds of Anglo-Saxon culture.

It may be argued that if left to themselves the normal course of events would have brought about similar results in a more natural manner, and that the

world could well afford to wait another half century for their accomplishment; further, that the toil and enterprise expended in the search for gold, if applied to other pursuits, would have proved of greater value to mankind as well as to the laborer. But the stern facts remain that the condition of mundane affairs renders the exploitation of the precious metals inevitable; that, perhaps, no other incentive could have roused the large mass of gold-seekers to similar efforts; and that most of the evils alluded to apply only to the deceptive placers, and not to the more stable quartz-mining, which is attended by no worse phases than are exploitations for coal or iron, employs a superior class of workers, and sustains surrounding settlements in unbroken prosperity, besides contributing largely to traffic by the transportation of ore and material, to the business of manufactures by orders for powder and costly machinery, and of merchants by orders for supplies. Gold mining being inevitable, it is better that the labor required therefor should be directed into channels where such great advantages may be simultaneously achieved, as the opening of new regions sufficiently remote not to disturb too greatly the established order of older settlements, yet so accessible as to offer relief to their overcrowded centres and occupations—a relief which can hardly afford to wait a half century, and one which mankind will ever welcome.

Gold mining was no chance recourse. The Spaniards have pursued the industry to some extent since ante-Roman times, and could improve slightly upon the washing methods, first in the West Indies and then in Darien, whence they rapidly extended operations southward and toward the north. Central American deposits are not very rich, however, and in republican times civil wars have checked their development, so that the production has, on an average, been less than $400,000 annually, chiefly from Honduras. Of late it is improving under the stimulus of

foreign capital and appliances. The average yield of the province of Panamá in colonial days, was about $200,000. Of far greater importance to the Isthmus was the wealth, with its attendant traffic, which poured from the west coast of South America, especially from Peru, where one hill alone yielded $200,000,000, according to La Vega, and whence shipments in the seventeenth century averaged $11,000,000 a year.

In Mexico the hoarded treasures of Montezuma furnished clues that, in the fifth decade of the sixteenth century, led to the discovery of the silver lodes for which the country has been chiefly famed, and started the first great furor on the North American continent.

Gold fevers have had their periodic visitations since time immemorial, when Scythians mined in the Ural, and the desert of Obi lured the dwellers on the Indus; or when Ophir, the goal of Phœnician traders, paled before the splendor of Apulio. The opening up of America created a revival, but it required the disclosures of Cortés and Pizarro to turn it into the violent epidemic which raged for centuries, sustained by fresh discoveries northward at frequent intervals, and by the rumors of still richer lands beyond.

The first result in Mexico was the rapid extension of conquest and settlement north of the lake valley, from San Luis Potosí and Guanajuato over Zacatecas and Durango into Chihuahua and Sonora, with the subjugation or expulsion of the wild tribes which hitherto had overrun this region, and threatened the semi-civilized realms with invasion.

The world in general received the benefit of the invention here of the amalgamating process in gold and silver reduction, the economic value of which gave so wide a scope to mining as greatly to expand the field, and create a revival by making available lodes hitherto regarded as too poor for development. Excellent mining regulations were enacted under the

supervision of a board composed of miners, with bank, college, and tribunals, and with marked privileges. Their efforts gained for them many concessions, such as reductions in the royalty and in the price of quicksilver as determined by the crown monopoly, and lessened restrictions on general mining.

The result was that the production increased from $3,000,000 annually in the seventeenth century to $10,000,000 in the following, and to $23,000,000 by the opening of the present century. Most of the metal came from Guanajuato, San Luis Potosí, and Zacatecas. The revolution interposed a check to this development. Machinery was destroyed, many mines filled with water, and a shiftless system crept in which ruined many others. Foreigners were called in, and caused a revival, despite many early failures, and the interruptions arising from civil wars, the fomenting causes being the removal of the partiality and restraints of colonial days. Thus it was that the production between 1823 51 exceeded $400,000,000, of which more than one fourth was from Zacatecas, the states of Guanajuato and Mexico, with San Luis Potosí, Durango, and Jalisco also yielding largely. Under the firm rule of later days the industry has received a further impulse, and Chihuahua and Sonora swelled the returns so that by 1881–2 the coinage rose to more than $25,000,000. The effect of the large silver exports from Mexico, Peru, and other Spanish possessions on the trade and industries of the world was most beneficial, although the prices of the metal fell considerably.

Beyond Sonora and Chihuahua mining practically ceased so far as Spanish exploitation was concerned, and consequently the extension of settlement received a check. The occupation of New Mexico and California was prompted by political motives. The discoveries in Arizona were not then of enough importance to attract a sufficient number of miners to form a defence against the fierce Apaches.

Centuries passed, and the northwest coast, with its vast interior, lay almost ignored until 1848, when the discovery occurred in California which set the world in a ferment. It was the greatest of all the gold-fields found before that date, and the excitement was correspondingly intense. A series of events ensued, of vast importance, turning social and commercial currents into new channels, with a shock that affected almost every region of the globe. A migration set in by sea and land of such volume as to bring into the sparsely settled province within one season a population of more than a hundred thousand, and lift it to statehood without the usual period of territorial probation.

Conditions were ripe for such a movement. The world had become restive under the revolutionary turmoils in Europe, and a war of conquest in North America. The means for communication had reached a high degree of perfection by the addition of ocean steamers, while the fur trade of the northwest, and the invasion here of Anglo-Saxons, had opened other facilities. The excitement increased, and found so many vent-holes that it poured forth multitudes from every quarter, and of every race and color, even Malays from the remote Pacific archipelago joining with negroes and hitherto secluded celestials in the race wherein thousands succumbed to the dangers of the sea and deserts, or to hardship, sickness, and toil. There were fascinations in mining life, with its independence and unconventional intercourse with nature, and its gilded incentives in the hope of speedy enrichment. It had the tendency, however, to promote drinking and gambling, recklessness, the shirking of social responsibilities, and unsettled, roaming habits.

These tendencies became so conspicuous here because the field differed from the mining conditions so long existing elsewhere. Here were placers, or alluvial mines, which were quickly exhausted as compared with the permanent quartz lodes of Mexico. The

small claim worked out, the digger had to move onward in search of a new ground; and these immigrations frequently took the form of rushes to newly discovered districts, some rich, others meagre or wholly deceptive. Almost any rumor sufficed to draw a host of credulous miners to a spot however remote, distance indeed lending enchantment to their visions, and unscrupulous traders or express agents many a time taking advantage thereof to start a rush in their own interest.

The mainspring of this unrest lay in the general belief in a mother-lode, as the source from which came the fine gold of the river bars and banks, and this appeared to be confirmed by the increasing coarseness of the particles toward the head-waters. The miners loved the marvellous, and listened eagerly to the exaggerated stories told round the camp-fire, which pointed to huge discoveries that must be made at the fountain-head. Fired, moreover, by the spirit of adventure, they set out upon their search, some guided by fancy or report, others content with the smaller though surer rewards of the bars and ravines. And so within a year California was overrun, even to the summit of the range, whence followed naturally the exploration of the further slope, and onward.

The first momentous stir outside of California occurred in Australia, originally a penal colony, but since developed by the gold discovery and other influences into a great empire. Of great importance in this connection was the disclosure in British Columbia. Aside from the efforts of miners going from California, emigrants on their way thither and settlers in different districts elsewhere felt tempted to try the nature of the ground. As the result, auriferous indications were found in several directions, those of Fraser river in 1857–8 causing an excitement so violent, though brief, as to cloud for a while even the glories of California. Camps were deserted, property values fell, and the people predicted that Victoria

would soon supplant San Francisco as the Pacific coast metropolis. The province gained by the influx release from its dependency on a selfish fur monopoly; it was placed under separate governments, provided with roads, the avenues for further development, and made so prominent as to be solicited to join the Canadian federation, tempted with the offer of a transcontinental railway, and other advantages. The first rush of miners was premature, however, and the consequent reaction stamped the gold-fields as delusive, so that subsequent brilliant disclosures, as in Cariboo, attracted comparatively few persons. Deposits are of wide extent in this section, stretching from the south border to the Arctic sea, but as a rule they are not rich. Add to this the difficulty of access to the hyperborean labyrinth of mountains, through which supplies and machinery must be conveyed, the severity of the climate, which shortens the season, and the scarcity of game, and the causes for the limitation of mining enterprise are evident. Nevertheless, the province yielded $50,000,000 in twenty years, and gave a lesson to the world in deep placer operations, which here received their first scientific application. The above obstacles forbade, until recent years, the entry of prospectors into northern Alaska.

The effect of the Fraser river fever was to call attention to the intermediate region between that stream and California. Returning Oregonians accordingly struck the pick into their own soil, and developed a number of districts, particularly east of the range, the production of which reached $2,000,000 by 1867, though since decreased by nearly one half. The richest portions, assigned for a time to Washington, were segregated to form the territory of Idaho. The placers here soon gave way to quartz-mining, the first excitement in which occurred in 1863. Indian wars supervened, and the cost of traffic tended to bring about a long period of dullness. In the beginning of the present decade a revival set in that promises

greatly to swell the aggregate yield, which in 1890 was little short of $100,000,000.

All these revelations were surpassed by the treasures of Nevada, which ranks next to California in the total of its bullion product. Here the predominance of silver was first recognized after a long rejection of the ore, in ignorance of its nature. Mining pursuits were based on California experiences, which were for the most part confined to gold, and in Nevada and most other regions gold first presented itself to the prospector, capping to a great extent the principal deposits of silver. Hence the long delusion. The lowlands more recently emerged from the ocean, and alluvial channels, all along Central America and northward, display gold almost exclusively. On the plateaus, however, silver predominates, as observed in Mexico. In California, accordingly, the Sierra Nevada forms the border line between the two metals, gold prevailing on the western slope and silver on the east and beyond, into Colorado, although with occasional auriferous deposits. Further north the dividing line merges into the Rocky mountains, as exhibited in Idaho, where gold increases in the west, yielding somewhat to silver eastward. The same observation applies to British Columbia, although here the silver veins are narrow. Nevertheless, gold is more abundant in Wyoming and Montana, in the latter rather as a heavy capping, since silver is of late gaining the ascendency.

In Nevada much expense and loss of tailings were encountered before the problem of silver reduction was finally solved. Few regions have been subject to such fluctuations as that which centered in the famous Comstock lode, whose successive bonanzas have yielded over $300,000,000 within twenty years, the output during other years, and from a dozen outlying districts, adding an equal amount. Most of the mines were owned in San Francisco, which thus became enriched by a lavish distribution of money, but suf-

fered from the impetus given to the gambling mania by the establishment of stock-boards, chiefly concerned with the Comstock. A large proportion of the community was impoverished through assessments and fluctuations, the latter culminating at times in disastrous panics, which overwhelmed banks and industrial enterprise, and ruined many innocent people. Instance the fever of excitement and the subsequent collapse caused by the developments in Consolidated Virginia and California mines, whose stock advanced from a total valuation of $10,000,000 to $159,000,000 within a brief period, and then declined within a few days to about $50,000,000. Many stupendous enterprises and novel methods attended operations in this section.

In Colorado there was the utmost difficulty in extracting the metal from the tenacious rock matrix. Its gold period lasted only a few years, and in ignorance of the real wealth here existing, people were rapidly abandoning the country. The experience of Nevada helped to explain the nature of the ore, as essentially silver; but it proved so refractory that after long and costly experiments the industry threatened to collapse. Recourse to Europe brought methods which solved the problem. Then a revival set in, and the product was rapidly augmented to nearly $30,000,000 in 1882, of which $16,000,000 was from the Leadville district. The first immigration to this state followed close upon the heels of the Fraser river excitement, with similar results. The rush of treasure-seekers was the largest that ever swept over the continent in one season, stimulated as it was also by industrial and political disturbances. Finding only a small gold field there disclosed, and inexperienced in the task of searching for others, more than half the number turned back the same year. The remainder achieved success for themselves and the state.

The movements to Montana followed that into Idaho, which extended into the former territory, and upon the gold fever followed the silver excitement of

1866, the yield of the two epochs, 1862-9, being over $100,000,000. The dwindling of auriferous placers was marked by an exodus, and a decline in yield for 1870–7 to $45,000,000. Greater stability was imparted by those who stayed and reaped the advantages of the ensuing revival.

In Wyoming a slight gold exploitation served as a foothold to a few settlements, and her traffic was increased by the opening up of the mines in the Black hills in Colorado. The success of the adjoining territories overruled the objection of the Mormon leaders to the search for precious metals, as tending to attract a gentile population. Several silver districts were accordingly opened, which combined with railways and transit to break in upon the seclusion, and to assist with their production of $50,000,000, in fifteen years, to benefit the settlements.

In New Mexico mines had been worked to some extent during the first Spanish occupation, and the oppression thereby imposed upon the natives, led to the expulsion of the taskmasters. After its re-conquest but few mines were reopened. In early times placers were found yielding as much as $250,000 a year, but a check was given to extension by Indian hostilities, and the cost of supplies. Since operations started afresh, however, with the aid of mills and hydraulic methods, the production augmented to over $3,000,000 for 1884, the greater portion coming from three counties.

Arizona has ever had the name of being rich in metals, but the dreaded Apaches, until late years, thwarted all attempts to enter the country and develop mines. In one direction a foothold was obtained for a time, and thus was furnished material for fascinating tales of lost mines and golden hills. The resolute Anglo-Saxon did penetrate at last, however, and by 1865 the region was created a territory of the United States. The lever of progress proved to be the Tombstone bonanza, which, in seven years,

produced $30,000,000, or about half of the total for the territory. Other rich developments are reported, and the mining prospects here rank with the foremost of Pacific fields.

Colorado leads in silver production, and, indeed, surpasses of late all the states in the amount of bullion, California standing third, although unapproached in the yield of gold. Montana ranks second, with a total output in 1890 of $21,000,000, against $25,000,000 for Colorado and $12,000,000 for California.

In gold mining the varied form of the metal is remarkable, in flour, flakes, threads, grains, and the like, some confined to particular localities, as is its dissemination in benches, bluffs, and hills deposited in successive and remote stages of the river currents, or lifted by convulsions of nature. The most peculiar sources are the ancient river-beds, notably in California and British Columbia, that once ran parallel to the present streams, and have been covered by the wash from the mountain slopes, at times to the depth of several hundred feet. Such deposits are reached by shafts and tunnels. A singular demonstration of the changes overtaking these beds is presented by the Table mountain of San Joaquin valley, which consists of the lava once pouring into such an ancient river bed. The banks for miles around were gradually worn away by the ejected waters, leaving the lava isolated and raised above the valley. Among the débris washed upon the former valley surface is gravel, massed in deep and wide banks, or more or less broken deposits. They are impregnated with gold, in sufficient quantity to make hydraulic mining very remunerative. The injury inflicted on river navigation and on farming lands bordering on streams conveying the muddy mining water, has of late brought a legal check upon such operations in some quarters.

In almost every territory are spots which challenge

comparison for extreme richness, such as Wood creek in California, parts of Cariboo in British Columbia, and notably the chloride deposits in Nevada, Colorado, and other quarters. Some of these have yielded $40,000 per ton for large quantities, and even $160,000 per ton, selling in the crude state, as excavated, for $4 per ounce. Nuggets, although numerous enough, have rarely been of such a size as to enrich the finder, or become a special object of search. Silver has presented itself in this isolated form in many directions, notably Arizona, and even in British Columbia. The washed gold varies in quality with such regularity that its source can generally be determined by experts. Thus in California the Kern river metal ranged as low as 60 per cent. in fineness, while that from Butte county came within one per cent of absolute purity. And so in Colorado, where some qualities sold for $12 per ounce, while others realized twenty dollars.

In hydraulic washing we behold the perfection of economic alluvial mining. Step by step the ingenious Yankee overcame the successive obstacles presented to him in California, the pan and rocker giving place to the tom, and the tom to the sluice, while the latter was supplemented with the pipe, which takes the place of excavator and truck, and reduces the cost of washing a cubic yard of dirt from several dollars to a fraction of a cent.

The result was a revolution in mining, greatly enlarging the field and reviving the industry in different parts of the world, wherever permitted by law. Herein is one of the appliances of universal benefit invented by Californians.

An immense reduction has been secured also in quartz mining, which first began, north of Mexico, at Grass Valley, California. So crude were the earlier methods that even rich ores failed to pay expenses, and for years much metal was lost in the tailings. Many districts were abandoned as worthless, as was

the case also in Colorado and other parts, owing to the refractory nature of the ore, which called for different treatment from that applicable to ordinary quartz. Indeed, processes varied with every change in the ore, each superintendent of a mine claiming some secret specialty. On the Comstock a departure was early made from dry to wet crushing, with ten-fold gain. The perseverance of certain experimenters overcame one obstacle after another, suspended operations were resumed, and the field rapidly enlarged. The Comstock in particular, became conspicuous for the magnitude of its operations, with huge pumping and hoisting machinery and immense mills and novel reduction works, to which we may add its system of crib-timbering, suggested by the unparalleled width of its ore bodies, and proving a boon to mining in general. The appreciation of these ideas is shown in the large orders for mining machinery received at San Francisco, even from abroad, notwithstanding its greater cost. Mexico is fast renewing the exploitation of abandoned districts, with the aid of such methods and appliances. A lesson has also been given in the construction of the Sutro tunnel, a stupendous enterprise for the drainage and cheap conveyance of ore from the Comstock lode, which permits the profitable reduction of an immense low-grade body hitherto passed over.

With the decline of surface placers and the increase of machinery for the successful working of deeper ground, and of poorer deposits, the individual miner has been largely obliged to retire in favor of cooperative bodies or corporations, or else to engage as a wage laborer. Such expensive preliminary work as ditch construction, for bringing water to placers and mines, formed an intermediate step toward the change in placing miners under tribute. The concentration of efforts for the control of large undertakings has been beneficial in so far as to give to the industry a more stable and scientific development, of more last-

ing value to the settlements depending upon it, with a greater benefit to manufactures and commerce, in preparing machinery and conveying ore; it has, also, served to diminish the roaming tendency, with its attendant train of ills.

A deplorable feature connected with the progress of mining has been to foster the spirit of gambling in general, to the impoverishment and demoralization of large masses of the community. Here has also been a shameless system of manipulation among mine owners and stock brokers, some 'bearing' the market with false insinuations against the quality or management of the mine, to create a panic for their own benefit; others 'bulling' it with glittering reports in order to induce credulous buyers to take worthless shares off their hands. Assessments are levied in addition to support a useless staff of officials, or to purchase needless machinery in the contracts for which managers are interested; or such exactions are imposed to 'freeze out' poor stockholders from a promising concern. Where mines are productive the profits are mostly absorbed in extravagant expenses for work appliances and litigation, the larger proportion of which falls into the pockets of the manipulators, who control mills or make arrangement with manufacturers, lawyers, and others. Non-resident owners carry away another proportion.

California has also obtained recognition for its reforms and amplification of mining laws, or rather for the framing of a new code cast in practical moulds by men of high common sense and varied experience, and freed from the incubus of time-honored and useless regulations, to become an example for new and reviving regions.

California has been a foster-mother in many ways, to regions even beyond the Pacific, and not least so in sending forth the miners reared under her wing, to impart her experience by practical example.

To this mission they have been driven partly by glowing reports, and visions of a mother lode, partly by diminished profits in the original field. As early as 1852 the average earnings of miners in California had fallen to two dollars a day, under the large influx of participants and the lessened value of the placers. In British Columbia the average reached latterly barely more than one dollar. Deducting from these sums the better returns of the more fortunate, the scantiest means for subsistence was alone left to the majority. Yet a large proportion continued to struggle along, buoyed by the hope of stumbling upon a prize.

In their search for new fields and larger gains, they became unwittingly pioneers of civilization, opening new regions not alone to miners with the attendant trade and traffic, but to other industrial classes, so that upon the decline of mining, agriculture and manufactures have taken its place, or grown up apace to provide a sound basis for progress. This is strikingly illustrated in California, where mining, though still productive, has been eclipsed by the culture of cereals and fruit. The interior states are more limited in their outlet for agricultural products, and in their facilities for manufacture, and there mining will longer maintain the ascendancy. The mining era, indeed, has almost an endless prospect, so far as hydraulic and quartz mining are concerned, which, under the constantly cheapening processes of extraction, are increasing rather than diminishing in extent and importance.

The more useful metals are found throughout all this region in abundance, and will provide, in due time, a frame-work for growing manufactures, which are so far in their incipiency, and depend largely on imported raw materials. England still demonstrates that the most solid foundation for industrial development lies in the possession of iron and coal; but

England has the advantage of cheap labor and ready accessibility for traffic, in raw and finished material, together with tributary colonies which assure a large and permanent market. These facilities are lacking in the Pacific domain, though they possess abundant resources. We are hampered here, moreover, by iniquitous railway manipulation, which, by unjust discrimination and monopolization, crush to death many otherwise valuable manufacturing and mining developments.

The dividing line between gold and silver deposits in California marks also, in a measure, the line between other groups. Thus quicksilver, coal, sulphur, and other substances are confined to the west range of the great valley, while the eastern branch of the Coast range, here known as the Sierra Nevada, contains the precious metals and certain other materials. Elsewhere the distinction is less pronounced. In the Rocky mountains the minerals are closely intermingled, but north of the Columbia coal beds, occasional iron deposits, with other metals, fringe the ocean shore, forming outcroppings from the Coast range, which here approaches the sea.

Iron exists in almost every state from the Isthmus to the Arctic ocean, in some sections in great abundance. Several territories, like Idaho, Montana, and Durango, boast of special iron mountains. That of Idaho contains the metal in so pure a form as to permit it to be cast into dies for stamp-mills. The aborigines failed to solve the mystery of its production, and the Spaniards gave little encouragement to its exploitation, even where presented in so ready a form as the iron mountain. In republican times more determined efforts were made. Development in the United States has been retarded as above mentioned, and restricted to a few regions with little more than a local demand. Thus the deposits of Nevada are utterly overshadowed by those of Utah and Wyoming, yet these are respectively obstructed by the scarcity

of good coal and the refractory nature of the ore, so as to limit the exploitation. None of these difficulties interfere with the abundant and excellent deposits of Colorado, provided as it also is with good coking coal, and the industry has consequently attained a promising start.

Copper is likewise widely distributed, and presenting itself in conspicuous and compact masses, it was mined by wild as well as semi-civilized Indians, from Alaska and Lake Superior southward, and hardened with alloys to answer the purposes of iron, to them an unknown metal. Intent on other wealth, the Spaniards hardly improved upon these efforts, confining themselves to a few rich ore bodies, as in New Mexico. The latter have, together with others in Arizona, been energetically taken in hand since 1855 by a more enterprising people, and made to yield 35,000,000 pounds during the following thirty years. Some work has also been done in Nevada, Colorado, and Utah, the last having sent from its northwest fields a thousand tons between 1870–83. In Wyoming several districts have been formed, and one company alone produces five hundred tons a year. Idaho promises soon to swell the total, and even Alaska displays lodes which have attracted investments. In California this industry has undergone several vicissitudes, as indicated by the rise, decline, and revival of Copperopolis, with its special railway.

The copious admixture of lead with silver assures almost limitless supplies. The production is liberal in different quarters, Utah, for instance, contributing about twenty thousand tons annually since 1870, yet the Eureka, in Nevada, and Leadville, in Colorado, rank as the greatest lead-producing districts in North America. Tin exists, but is neglected, and Australia supplies most of the demand. In Nevada are deposits of this metal, and also of nickel and antimony, which are worked. Mica is extracted in Utah and New

Mexico. Wyoming produces plumbago, graphite, and asbestos.

In salt there was a large trade in ancient Mexico and southward, and the Spanish crown so appreciated the value of the trade in this commodity as to monopolize the sale for a long period. In Idaho 1,500,000 pounds were extracted from one spring in 1880. Similar springs in Colorado have been abandoned through railway importation. Nevada has reaped benefit from her soda and borax fields.

The seismic and volcanic features of the coast show evidence in the sulphur deposits found in every state. In Idaho the quality ranges as high as eighty-five per cent in purity. In connection with it a number of territories contain quicksilver, but rarely in remunerative form. In Mexico it was long suppressed by the crown monopoly, and when finally worked proved to be of little value. In California, however, exists the richest mine in the world, with several of minor importance, the control of which exerts no little influence over mining in general.

Superior to all these in value is coal, the companion of iron, and which is present to add to the wealth of nearly every state. Yet California, whose traffic and industrial aspirations demand it most, has comparatively little, and obtains her supply from Washington territory and British Columbia, as well as from Australia and England. This is also the case with Utah, which is largely supplied from the several large mines of Wyoming. In Colorado the fine coking coal swelled the output to $6,000,000 in 1886. Vancouver island exports to San Francisco alone over 300,000 tons, owing to her shipping facilities and the quality of the beds. The fault with deposits elsewhere is partly in their inferiority, but chiefly in their narrow seams. Petroleum is beginning to receive attention in several quarters, and one district in California is already deriving a considerable revenue from it.

Lime, marble, and other building material form a

source of considerable income in several sections. Even precious stones are sought. The chalchihuite and other treasured varieties of ancient Mexico deluded the conquerors awhile before sinking into neglect. Honduras prides herself upon opals; New Mexico yields turquoises; Montana displays a great number of stones, notably moss agates and amethysts; fine crystals and pebbles are found in California and elsewhere, and Colorado boasts of one of the few jet mines in the world. In its southwest corner have been found a few rare stones, sufficient to give color to the great diamond-field swindle of a decade ago, from which the public were saved by the opportune report of official geologists.

Wm Sharon

CHAPTER II.

LIFE OF WILLIAM SHARON.

MEN OF THE NEW HESPERIAN GARDEN—ANCESTRY AND EDUCATION OF WILLIAM SHARON—STUDY OF LAW—OPERATIONS IN SAN FRANCISCO—MARRIAGE—FAMILY—DEATH OF MRS SHARON—RELATIONS WITH RALSTON—ON THE COMSTOCK—BANK OF CALIFORNIA—IN THE UNITED STATES SENATE—DEATH—FREDERICK W. SHARON—FRANCIS G. NEWLANDS.

THE cause and effect of the important events of a community form the subject-matter of history, and, so far as such events are inspired or influenced by its individual members, the history of such individuals becomes an important part of and essential to the true history of the community. As the history of a war or of a military campaign is chronicled not by its results, but by the qualities, plans, and movements of its leaders, so is it with the civil history of a people. The great events of the period, and the impulses, intelligence, and action of the chief actors in those events are what constitute civil history.

California and especially San Francisco have formed no insignificant part of the history of the United States during the past thirty-five years. Far removed from the other populous and enterprising regions of the country, California might, under other than its peculiar conditions, have repeated the slower and less romantic growth and history of all new sections.

But, as the theatre of action growing out of the marvellous production of precious metals in this and

adjacent states and territories, and of the commercial advantages which San Francisco possessed in relation to the trade with the Pacific regions, the events of those thirty-five years compose a history whose importance has been felt, not alone on the scene of action, nor limited even to the nation of which this state and city are a part, but the uttermost limit of commerce and civilization have thrilled under the electric movements of the Pacific coast and of its active, energetic men.

The expanded financial conditions of the world, the gigantic enterprises that have been achieved, the accumulations of private capital that have had no equal in historic time, the increase in the demand for and the compensation of labor, and many of the greatest advances in physical science owe their origin and success to the events and to the men who have directed the events of this hesperian garden of the continent.

To no one man exclusively belongs the claim of this generalship of affairs. There have been here many and varied fields of operation, and many able and recognized leaders. Some still live and are potential guides of practical affairs, and some have fallen, leaving behind them records of achievement and victory, and a developed campaign for others to perfect.

Among the bravest, most intelligent, and unwavering of those whose names and deeds are woven in the warp and woof of California history, the name of William Sharon is indelibly fixed—none more conspicuously, none more indispensably.

He was born January 9, 1821, at the town of Smithfield, Jefferson county, Ohio. That state, then almost the western verge of civilization, was distant more than half a month's journey from the Atlantic, though now it is reached in less than twenty hours. Not a line of railroad had been built in the United States. Indiana and Illinois, which had just then been admitted into the union, were the only other western states; and the three together had not a population

greater than about one half the present population of California. But it was a hardy and courageous people, experienced in the events of border life along that meridian line from which the savage sullenly withdrew to the remoter west.

Pennsylvania, being the adjacent eastern state, supplied the greater part of the early population of Ohio. Among those who had migrated from that region were the ancestors of Mr Sharon's parents. Those on the paternal side were not of quaker lineage, as has been generally supposed, but were descendants of that sturdy race of Scotch settlers in the province of Ulster, in the north of Ireland, familiarly termed the Scotch-Irish—a race which for characteristics of sturdiness, integrity, and patriotic ardor stands unrivalled in America. One William Sharon, a well-to-do farmer from Ayrshire, Scotland, a stern, rigid dissenter, and a man of no mean ability, was among the early Ulster planters. His eldest son, James, married early in life Eleanor Finley. Like many others of the Scotch-Irish in Ulster, they were dissatisfied with the home of their adoption. There were no ancestral ties which bound them in fealty thereto, and when the invitation came from the New World, they were not loath to leave. Although a few settled in New England and New York, the great majority went into Pennsylvania, the laws of that province granting greater privileges than any of the other colonies. James Sharon, with his wife and their sons, Hugh and William, located in the Cumberland valley, not far from the North or Blue mountains, in 1737.

William Sharon, whose wife was Margaret Chambers, died March 2, 1751, leaving seven children—five daughters and two sons. The eldest daughter, Isabel, married a Calhoun, and from them descended the South Carolina nullifier, John Caldwell Calhoun. The younger son, William, resided in what is now Fermanagh township, Mifflin county, Pennsylvania.

It was at his house the men of that locality met in 1776, when the company of Captain John Hamilton was raised, and in which William served as ensign, doing duty upon the frontiers. It was here also that the backwoodsmen organized themselves for defence against the British and their Indian allies, who were threatening the West Branch valley.

Hugh Sharon, the son of James and brother of the first-named William, settled north of the Kittatinny or Blue mountains, where he became a highly prominent pioneer. Of his children we have only the record of his son Samuel. He was a patriot of the revolution, serving as lieutenant of a company of associators, who were in active service in the New Jersey campaign of 1776. He was also a justice of the peace for many years. His wife was Sarah Russell, and to them were born four sons and three daughters. The eldest son, James Russell Sharon, born in 1775, was a presbyterian minister of prominence, and, for a period of almost thirty-six years, ending with his life in 1843, was the pastor of the old Paxtang church, one of the landmarks of Scotch-Irish settlement in Pennsylvania. He was a man of eminent piety, was greatly beloved by his congregation, and was universally respected for the purity of his faith and the integrity of his moral character. The historian of this church quotes the recollections of a friend of the devoted minister, who says: "The tall, lank figure of Mr Sharon was one of the fixtures and features of Paxtang. His soft, white, delicate skin, blue eyes, dark hair, narrow chest—his soft, weak, but clear voice, hacking cough, etc., marked him as one short for this world. Yet he was punctual in his duties, preached good, sensible sermons, attended all the christenings, marriages, and funerals. With all odds against him, he lived his threescore and ten, and at last was gathered to his fathers, ripe for the harvest, with eternal sunshine on his head."

Samuel, the next brother in age to James Russell,

married Sarah Davis, a daughter of Joshua Davis. This family were connected with the Lincolns, Mrs Davis being a Lincoln—a cousin of President Lincoln's grandfather. Robert, the third brother of James Russell, died young. William, the youngest brother, was a prominent personage. He was elected to the state legislature of Pennsylvania in 1830, and was reëlected in 1831, 1832, 1833, and again in 1851.

The great-grandfather of Senator Sharon was James Sharon, the son of William Sharon and Margaret Chambers, the last-named William being the grandson of the Ayrshire, Scotland, farmer of the same name who settled in Ulster, as before stated. James was an elder in the presbyterian church, and was also a revolutionary patriot. He was an active partisan, and commanded a company of Cumberland county associators in the campaign around Philadelphia in September 1777. He had, among other children, Hugh, James, and William, the latter being the grandfather of the senator. Hugh and William inherited their father's several tracts of land in Fermanagh township, Mifflin county, Pennsylvania, whither he, James Sharon, had removed upon the death of his father. This land was sold in 1793, previous to which time James' son William had removed to western Pennsylvania. Before leaving for that locality, he married Mrs Sarah Whitaker, a daughter of George Smiley, of the Juniata valley. They reared a family of four sons, James, William, Smiley, and John, who were all born in western Pennsylvania. In 1798 they left Pennsylvania and settled in West Virginia. They remained there several years, and about the year 1802 removed to Wells township, Jefferson county, Ohio, near the town of Smithfield, where the parents resided until their death.

William, the second son and the father of Senator Sharon, was born in 1793. He married Susan Kirk, who was a Quakeress of Scotch descent, an intelligent, kind-hearted woman, and very proud of her children.

As she died very shortly after the birth of her last child, her children were left at tender years in their father's care. Although his mother was a presbyterian, he was of the universalist faith. In temperament he was grave, strong, and determined, but withal of a kindly disposition. He was affectionate in his family relations, and exceedingly fond of his mother, of whom he delighted to speak at all times. He was politic and shrewd in his business transactions, and in the later years of his life, by industry and frugality, amassed quite a competency. From 1817 to 1844 he conducted a tannery, after which he devoted himself to farming. His great integrity and firmness of purpose earned for him the esteem of his neighbors and associates. For twenty years he was justice of the peace of Smithfield township, and from 1865 to the time of his death, in 1875, having reached the ripe old age of eighty-three years, he was a director of the First National bank of Smithfield. Seven children were the issue of his marriage with Susan Kirk, four sons, John, William, Lewis, and Smiley, and three daughters, Mary Ann, Sarah, and Susan.

William Sharon, the son, was about twelve years old when his mother died, and in Ohio, between organized and unorganized humanity, was the field of development of the acuteness and strong will in the early years of the youth whose destiny was to achieve his triumph and find his last resting-place at the very ultimate western limit of that *terra incognita* upon whose eastern boundary he had been born. Small and slender in stature, nervous in organization and temperament, imaginative and vivid in emotion, persevering and resolute in will, he possessed the very best physical and mental qualities likely to develop the ambitious, enterprising, and successful man. To a great extent, his force of character was inherited from his father, but was broadened and developed in after life by the nature of the pursuits and struggles in which he was engaged.

As a boy he was a leader among his mates, but his individuality was too pronounced to make him very popular. He was pugnacious, aggressive, and self-assertive, though more in action than speech. Although his boyhood's surroundings were mainly such as pertain to the industrial and material advancement of a new and sparsely settled community, young Sharon, being more fond of study than of play, found time and opportunity to acquire a good scholarly education, and to train his mental powers for a wider field than that of his frontier birthplace. He received a common-school education until he was about sixteen years of age, and then entered Athens college, in the adjoining county of Harrison. His father, being unable at that time to provide him with money for his collegiate expenses, gave him the use of a small farm to cultivate on his own account, and from the profits of which he was to bear the cost of his college education. This William tilled, working at the plough during his spare hours. In this manner he paid his way without other aid, and coincidently with his mental development he was acquiring a physical strength which was marked in after life, and which carried him safely through long periods of excitement and mental strain. He applied himself closely to his studies at college, was a ready debater, and fully able to cope with his fellow-students; but circumstances prevented him from completing his college course.

After leaving college he returned to Jefferson county, and for a short time gave his attention to farming. But this life was distasteful to him. He had fastened his hopes upon the legal profession, and as a student of the law entered the office of Edwin M. Stanton, then a prominent member of the bar in the town of Steubenville, and afterward secretary of war under President Lincoln. He applied himself diligently to this new study. He familiarized himself with the philosophy and history of the law, and the causes from which legal principles had from age to age

developed into guides and rules of human conduct, and into forms and systems of enlightened government. He read the Pandects of Justinian and learned the philosophy of the Roman law by making himself familiar with the history of the empire and of the Latin race. In like manner he studied, as became a student, the origin, principles, and growth of the common law of England, and the progress of English government. History, ancient and modern, and the writings of philosophers and poets, were his delight. In due time he was admitted to the Steubenville bar, but his health weakened under the strain of close confinement and mental action, and he was compelled to rest from intellectual labor.

Finding a change of occupation an imperative necessity, he engaged in merchandising on the Ohio river. As this proved to be an unprofitable venture, and his poor health continuing, he again turned his face to his old home on the farm, where he remained until he recovered his bodily vigor and strength. But longing for an opportunity to use his abilities in the more ambitious arena of the legal profession, he migrated to St Louis, Missouri, a city which during his lifetime had grown from a mere trading-post to an incorporated municipality of about 50,000 inhabitants. He practised here for a while, but an affection of the throat, and the lack of physical ability to endure the demands of study and the confinements of sedentary life, again forced him reluctantly to abandon the hope of distinction as a jurist, and to engage in some other pursuit better adapted to his organization. Had he followed up the profession of the law, he would, without doubt, have become a leader at the bar, for his taste, inclination, and temperament were well adapted to the profession.

His elder brother, Dr John K. Sharon, had been for several years established as a prominent merchant in Carrollton, Green county, Illinois. To that place he went, and forming a partnership with his brother, he

devoted himself energetically to commercial business and trading. To the new sphere of action William applied himself—as it was his natural impulse to do in every undertaking—keenly, energetically, faithfully. He so continued until the spring of 1849, improving in health and experience and prospering financially. By this time he had accumulated a small capital, amounting to a few thousand dollars. He possessed the faculty of making money, although in those less active days, and in that then sparsely settled western country, it was more difficult to earn and save than it is now.

About this time occurred the gold discoveries in California, the termination of the war with Mexico, and the cession of the golden land to the United States. Gradually the news drifted east that the rivers of the new El Dorado were teeming with gold, and that the few Americans who had happened to be in the country were gathering the precious metal by the pound, and accumulating fortunes with a rapidity that rivalled the fabled stories of old.

The hearts of the young and striving men of all sections of the union thrilled with excitement and desire to fly from the dull, plodding pursuits of ordinary industry, to reap the golden harvest which nature had lavishly spread along the slope of the Sierra Nevada.

The press, while it chronicled the facts of the important discoveries, cautioned the youth of the country against the dangers of the fascination. The perils of the journey by land or sea were stripped of romance; the hardships and toil attending the manual labor of mining were shown up in their uninviting reality; the possibility of sickness, starvation, and death, in an unknown country and among eager and unsympathetic treasure-hunters, was discussed at the domestic fireside and preached in the Sunday sermon. It was of no avail. The young, the hopeful, the ambitious, the energetic, threw aside all fears when such a prize invited them.

By thousands and tens of thousands they surged across the continent, a moving army, whose line was almost unbroken from the Missouri to the Sacramento river.

Sharon, then twenty-eight years old, was of the age, temperament, and ambition to feel the inspiration of the occasion. Closing out his business in Carrollton, and gathering together his accumulations, he and his friend and fellow-townsman, J. D. Fry, joined companionship, and together, about the 1st of April, 1849, fell into the marching column.

No general commanded that army of 30,000 men, no commissary provided its subsistence, no guide directed its course. Every individual was his own protector, his own master, his own servant. Severed from all established forms of government and law, simple and informal agreements pertaining to convenience of travel and to defence against savages were independently adopted by the fractional parts of the moving mass. Like youthful soldiers newly enlisted and marching to the field of battle, that army set out upon its four months' journey with enthusiastic hearts, with joyous shout, and with buoyant hope of success. A week's travel from the outposts of organized society revealed the practical difficulties that had been undertaken. The great caravan was composed of a thousand, perhaps many thousand, small groups of comrades, each group forming a mess by itself, and depending for sustenance upon the supplies which it had provided for the journey. These supplies had to be borne in wagons drawn by mules, horses, or oxen, and as grass for the team was not to be expected at all points, much of the animals' feed had likewise to be carried. It was with few exceptions a journey on foot for man as well as beast. Both were unaccustomed to such an undertaking, and both soon felt its effects. Footsore and weary, the human and the brute travellers crept toward the setting sun. The latter probably suffered less than the former, since at

the day's end the tired beast had but to rest and eat, or fast when food was wanting, while his master harnessed and unharnessed and tethered or fed the team, gathered fuel and searched for water, cooked his own food, and kept diligent watch, during his hours of sleep, against the assaults of Indians or their theft of his animals.

Routes along the zone of travel were unalterably determined by the fording places on the streams, by the locality of springs and their supply of wholesome water, and by the pasturage to be found.

It was but a few weeks when all the natural feed within reach had been consumed by the advance portion of the migration. The soil was ground into powder by the thousands of hoofs and wheels that passed over it, and rose in clouds of impalpable alkaline dust. In such a suffocating atmosphere, men and cattle alike suffered from impregnation of the lungs and tormenting thirst. The weakly ones of both grew weaker daily. It was a test of the survival of the fittest; one long, unceasing, daily, nightly war with nature. When the exhausted brute was no longer capable of keeping the slow pace of advancement, he was loosened and left to die, and the wagon jetsoned of so much of its load as would adapt the remainder to the weakness of the survivors. When all had succumbed, then wagon, tools, and such provisions as could not be carried upon the owner's back were abandoned. To the sick and exhausted but little help could be given; and sympathy was almost smothered in the thoughts of self-preservation and in dreams of the inevitable. When the fainting soul passed away, a shallow hole received the body, and a small mound and a little stick or piece of a box-cover marked the spot where a thousand hopes lay buried.

From the dangers and difficulties that arose retreat was impossible. Apprehension of peril to come caused less timidity than did the thought of retracing the field of desolation that was behind.

Silently, almost sullenly, those columns of men moved onward, like a glacial drift of destiny, marking an epoch in the world's advancement, leaving after it a moraine of human graves, bleaching bones of cattle, and fragments of abandoned wagons.

Considering the slight physique of Sharon, and the apparent inaptitude of his organization for manual labor, it would have seemed a rash and almost fatal expedition that he had undertaken. But it is not the giants in physical structure who are most enduring, or who achieve most in contests with natural and moral impediments. His closely knit, sinewy structure grew into fibres of steel, and his strong resolution expanded to an unflinching, unconquerable will. He was unconsciously gaining that discipline of body and mind which was to make his career and name and the history of California and Nevada inseparable.

Having prepared at Carrollton an outfit consisting of mules, camp equipage, and provisions for the overland journey, Sharon and his companion Fry took with them three other young men as aids, and proceeded to St Louis. At that place Sharon invested his limited capital in general merchandise, including a frame building fitted for immediate erection, and shipped the same, via New Orleans and Cape Horn, to San Francisco.

From St Louis on the eastern to St Joseph on the western boundary of Missouri was the initiatory chapter of the expedition, a training, hardening stage, preparing mind and muscle for the greater efforts beyond. St Joseph was then the outpost of civilized settlement on that line of latitude. West of it lay the ocean of prairie, mountain, and desert that separated the states of the union from the land of gold. The voyager across that ocean was as completely severed from the home and friends behind him as though he were afloat upon the deep. Between him and them no electric chord then pulsed. The whole earth, except the spot on which he might be standing,

was to him as silent and uneventful as the unknown mysteries of another planet.

Midway across this wild expanse the Rocky mountain range stretched from north to south, and was passable at but two or three known points, which had been discovered by ancient fur-trappers, or by military exploring expeditions a few years previously sent out as path-finders to the Pacific by the United States government.

The peaks of that American Alps were among the clouds and hidden in almost perpetual snow. Its passes were six thousand feet above the sea, and about 250 miles west of its summit was the Great Salt lake, upon whose borders the Mormon church had established its oligarchy, under the conviction that the spot was most inaccessible to and least likely to be invaded by the probable movements of American emigration.

Before leaving his home in Carrollton, Sharon had, by study of the overland expeditions, made himself familiar with the practical routes of travel across the passes of the Rocky mountains. Hence, after a few days' journey with the vast caravan which had made St Joseph their point of departure, he and Fry selected from their outfit a pair of good saddle-animals, and a pair on which they packed their necessary supplies, and giving directions to their wagon party to continue with the main body, and to meet them at the sink of the Humboldt, on the eastern base of the Sierra Nevada, 1,600 miles away, diverged northward from the slowly moving dusty column, and pushed on at faster pace to the South pass, and thence to Salt Lake City. In about fifty days they had traversed that 1,000 miles of distance, and without accident or disagreeable adventure had reached the Mormon city. Here they remained a week for rest and change of diet, and then moved on across the alkaline plains and by the brackish springs of Nevada, meeting their former companions at the place of appointment, and

with them proceeding to the Carson river, whose pure and refreshing waters, flowing down the eastern slope of the Sierra Nevada, were to the thirsty travellers a benison more precious than the golden treasure held in the grasp of the giant mountain that frowned before them.

It was the middle of July when Sharon and his little party camped upon the border of that stream, at a point near where is now the entrance to the Sutro tunnel.

Not a vestige of civilization or of organized humanity was to be seen. Here and there along the banks were small rancherías of the Washoe tribe of Indians, whose exclusive possession no one envied, whose right no one disputed.

In front westward uprose from the very camping-spot the mountain wall which he had come 2,000 miles to scale, and whose farther slope was furrowed with the Pactolian streams he had come to seek. To the northwest, a spur of the main ridge, along whose southern base the Carson flowed, pushed down eastward into the desert, and from its crest, about five miles distant, a sharp high peak marked its outline upon the sky. This is now Mount Davidson. Had he then been told that on the nearer slope of that high peak there would, within the succeeding twenty years, be standing a prosperous city of twenty thousand people, lavishly sustained upon the wealth yielded by the rocky ridge beneath their feet; that within his lifetime a single lode would there have yielded and added to the circulating medium of the world more than four hundred millions of dollars, and made the Comstock lode a name never to be forgotten; that upon and along that mountain brook on which he was encamped there would be huge mills and mining machinery, employing thousands of men, and reducing daily thousands of tons of ore brought to them from the shafts of that lode in long trains of cars upon an iron tramway; and that he, now but a weary,

hopeful immigrant, would be the moving genius of that city's prosperity, and of the great developments of that lode, and the master mind that owned and carried on those works of ore reduction, and that constructed and owned and operated that railroad, and the one chosen by that people to represent the state of Nevada in the senate of the United States—he would have fancied that a dream was painting its hallucinations, or that his travel-worn body had its counterpart in the vagaries of a wandering mind.

A few days' rest of his party and his animals sufficed to prepare for the last stage of the journey, the crossing of the Sierra. The route taken was by the Johnson pass, and thence down the south fork of the American river to Placerville, where they arrived in the latter part of July. They found the banks of the river-bed, and each ravine and gulch that emptied into it, swarming with thousands of other argonauts who were in California at the time of the gold discovery, or who had subsequently reached it by the quicker and less laborious route via Panamá. The pan and the cradle rocker were the rude appliances in use, and the product of a day's labor ranged from ten to a thousand dollars. The necessaries of life brought fabulous prices, ten times their cost in the Atlantic states. Good order and honesty prevailed, and all who labored were prosperous. To every new-comer it was a marvellous, exciting scene. To Sharon, trained in the school of western plodding industry, and accustomed to its gradual results, it was a revelation of possibilities to be accomplished by human energy and ambition. He well knew that his own physique could not endure the great muscular labor and the incessant exposure to the almost tropical heat which were unavoidable by the successful miner. But he learned that, in addition to the great immigration with which he had started across the continent, fully fifty thousand more were on their way through Texas, by the Isthmus, and by Cape Horn; that those

by sea were, at the rate of almost a thousand a day, reaching the Golden Gate, and that the little hide and tallow trading-post of Yerba Buena had in three months' time become a seaport of twenty thousand people, who were actively busy laying the foundation of a commercial emporium, and of future metropolitan importance. His intelligent prescience foresaw that the wealth which hard labor in the mines was creating must of necessity stimulate a much larger future immigration, and build up at the only good port on the Pacific one of the great cities of the continent. San Francisco was therefore the field for his effort and for his ambition.

Actuated by these reflections, he pushed on without delay to Sacramento, and arrived there in August 1849. It contained at that time about five thousand inhabitants, and was the distributing point to all the then known mining placers. It was a town of canvas and tents, lumber for building purposes costing about six hundred dollars per thousand feet, and obtainable only in very limited quantity.

Population was pouring in in a ceaseless stream by day and by night, and the streets were alive with groups of men and trains of pack-mules fitting out expeditions to the mines. The American fever of real estate speculation had broken out, and lots conveniently situated for business were increasing in value at the rate of a hundred per cent a month.

Sharon and Fry quickly sold at good prices their overland animals and outfit, and with the proceeds purchased a lot upon which they constructed a tent house for residence and business.

The goods shipped via Cape Horn having reached San Francisco, Sharon made his first visit to this city to receive and dispose of them. He returned temporarily to Sacramento with a stock of merchandise suited to the local demand, and for a few months carried on an active, prosperous business in merchandising and real estate operations. The floods of

winter and the unprotected situation of Sacramento determined him to establish himself without further delay in San Francisco, and to devote his means and abilities to real estate operations there.

San Francisco then was all comprised within the north half of Yerba Buena cove, to wit, from Telegraph hill on the north to California street on the south, and extending westward from the beach at Montgomery and Sansome streets up the sloping ground as far as Powell street. At California street, and far to the southward, long, high ridges of sand hills, covered with scrub-oak and manzanita, stretched at right angles to and across the projected lines of Dupont, Kearny, Montgomery, and Sansome streets, and terminated at the beach on the bay. Market street, where the Palace and Grand hotels are now standing, was the most southerly of those ridges, and beyond it was the narrow, feverish swale, which under some inspiration of irony had been designated Happy valley. The Plaza, as it was then called—now known as Portsmouth square—was the centre of the populous part of the city, and upon it stood the old adobe Mexican custom-house, which was being used in a like service by Colonel Collier, collector of customs under the United States. A few relics of the former residents under Mexican rule, consisting of about a dozen adobe dwellings, were standing upon Montgomery, Washington, and Dupont streets. In every direction within the limits above mentioned, an improvised town, built of every conceivable and available material—of boards brought from Boston and New York, of deck-cabins from the ships that brought the boards, of brush-wood cut from the adjacent hills, of canvas sails and tarpaulins stretched upon skeleton frame-work, and of tents of all shapes and sizes—furnished shelter and business conveniences for about twenty thousand busy, thriving people. Two hundred vessels lay at anchor along and within the line of what is now the water-front, and a few had been

run inland and sunk close to the beach, where they were doing service as lodging-houses or for storage of merchandise.

A form of municipal government, patterned after the Mexican system, including the offices of prefect, acalde, justice of the peace, town council, and surveyor, had been organized, and exercised authority over public affairs. The demand for lots upon which to erect habitations, as well as the universal desire to acquire ownership of real estate that gave promise of great future advancement in value, led to the extension of the surveyed limits of the town, by the projection on paper of the existing streets and the sale at auction of the lots mapped out.

Sharon, for the first time in his life, found himself upon a field of action to which his nervous, energetic temperament was well adapted. Here was a community, ninety-five per cent of whom were young men in the very prime of life, who had cut adrift from the fogyism and extreme conservatism of the careful wiseheads of home, and burning their bridges behind them, had brought hither brawn and brain, and the will and courage to put them to good service. It was a picture of vital force, unalloyed with weakness, unfettered with the shackles of poverty. The weak had remained behind or had died by the way. Strength and activity were the twin founders of the new city.

Sharon was an acute observer, quick in judgment and prompt in action. He was impressed by the manifest energy and power that were exhibited in every direction. He declared his conviction of the future greatness of California, not alone as a mining but also as an agricultural state. He prophesied that, within the lifetime of many of those then here, San Francisco would become one of the most important manufacturing and commercial cities of the world, and would number its population at a million, and that before many years a railroad would span the continent.

He at once opened an office and entered actively into real estate operations, buying property judiciously, and always selling when he could realize a good profit. In 1850 he began to speculate in this business in partnership with Beverly Miller. In 1851 he became associated with Henry S. Fitch in the auction and real estate business, their copartnership continuing for about a year. After that Mr Sharon carried on his operations alone. He soon became one of the largest and most daring operators, and about 1862, when he began speculating in mining stocks, he had accumulated a fortune of $150,000. He erected the first building at North Beach, where it was thought the chief shipping interests of San Francisco would be concentrated.

California having in November 1849 adopted a state constitution and elected officers of state government, and the state legislature having established a charter for the city of San Francisco, under which a mayor and legislative body were to be chosen by the people in 1850, Sharon, who had become influential in the community, and had taken prominent part in all its public affairs, was elected a member of the city council, and there performed his first official duties. He was not nominated by either one of the old parties, and made no effort to secure the office, but was placed on the independent ticket by friends, and elected by an overwhelming majority.

He was one of the ablest members of the city council, upon which body rested the labor and responsibility of organizing and putting into practical operation all the departments of the new municipal government. The work was of an arduous nature, and required the skill and judgment of a superior mind. Sharon was well fitted for the task. He distinguished himself by exhibiting a clear insight into the needs of the new city government, and maintained such a high ideal of the rights of the community that he was urged to stand for reëlection, but his business

affairs pressed so heavily upon his attention that he declined to permit his name to be again put before the people.

His operations in real estate had drawn his attention to the fact that the source of titles to property was uncertain, and liable to lead to confusion, dispute, and possibly to serious trouble. It was uncertain whether San Francisco was, by right and title derived from the Mexican government, vested with ownership of lands, or whether under general laws of the United States she had the right to a specified area, or whether, by reason of the fact that California had not been admitted into the union, all the municipal area was public land, to which the peaceable possessor might have paramount right. More than a thousand grants of lots had been made by local officials, and even between them disputes of authority to grant were rife.

As a means of gaining light upon the subject, Sharon prepared and secured the passage of an ordinance appointing a commission to ascertain what lands and property belonged to the city, to examine the archives of the former authorities and all other available records and laws relating to land titles, and to report to the council of the city the result of such investigation, with a history and synopsis of all grants of lots within the city limits, whether made by Mexican or American officials. After several months' investigation the commission made a full and valuable report. This was the first official proceeding relating to that subject, and the data thus obtained have been the basis of the subsequent legislative and judicial determination of San Francisco titles.

Sharon was of that class of intelligent Californians who, although drawn hither by the common desire to accumulate wealth, appreciated the importance and advantage of systematic government, of good order, and of judicious public policy. Hence he

became not only active in general affairs, but influential as well. It was through the aid of such men that the machinery of political organization throughout the state and city was so speedily constructed and so admirably set in motion. It was through such influence that a hundred thousand immigrants, each his own commander, and each stimulated by the most exciting of all human purposes and expectations, the rapid acquisition of wealth, had like a myriad of ants poured into this almost uninhabited wilderness, where there were neither established industries, nor roads, bridges, boats, machinery, lumber, farms, fences, nor habitations, excepting a few widely scattered adobe huts on ranchos near the borders of the sea, and had like magic and without confusion transformed the scene into a picture of every enterprise and improvement of modern civilization, created order out of chaos, and made nature subservient to art and industry, and organized government founded on established forms of law.

The millions of dollars which from the mountain placers flowed monthly into San Francisco widened its commercial and mechanical industries, stimulated its growth and improvement, and rapidly advanced the value of real estate.

But there were temptations and pitfalls as well as prosperity here. Gambling and dissipations of every sort kept pace with increasing abundance of gold, and many whom fortune favored with unaccustomed abundance wasted their harvest as fast as it was reaped.

Sharon was not of these. He was by nature, early education, and experience an enterprising, prudent, resolute man. He had come hither without habits of dissipation, and free from those vices which undermine the weak when prosperous. He confined his business to operations in real estate, and made money steadily. Within two years the population of San Francisco had increased to 40,000, and the conveniences and

comforts, even the luxuries, of life had become part of the social system. Those newly arriving came almost exclusively by the steamers which, on the Atlantic and Pacific, made semi-monthly trips to the isthmus of Panamá.

The immigration lost its exclusively masculine character. Young wives came with their husbands, and middle-aged fathers and mothers brought their children.

Among the families who had thus come to stay was Mr Murphy, with his wife and step-daughter, Maria Malloy, a native of Quebec, Canada, and daughter of a noted ship captain. She was less than twenty years of age, of medium height, of graceful form, and expressive features, of gentle nature and refined manners.

Sharon formed an attachment for her, and in 1852 they married. She died in 1875, after having borne to her husband five children, of whom but two survive, Frederick W., aged thirty, a graduate of Harvard college, who was by him made one of the trustees of his vast estate, and Florence E., who in 1880 became the wife of Sir Thomas Hesketh, an English baronet.

Another daughter, Clara A., now deceased, was on November 20, 1874, married to Francis G. Newlands, then a rising young lawyer, later one of the most successful and distinguished members of the San Francisco bar. Mrs Newlands died in 1880, leaving three children.

For eight years after his marriage the prosperity of Sharon kept pace with the growth and prosperity of California, so that when he had been a resident of ten years he had realized a moderate fortune.

During that decade another young man, with whom Sharon's future career and fortunes were to be intimately associated, had come to San Francisco, and had established and prosperously conducted one of its early and most successful banking institutions, William C. Ralston; he had met and married the niece and ward

of Sharon's friend and overland companion, Colonel Fry.

Through that connection Sharon and Ralston grew into close social relations, and became much attached to each other. They were, in disposition, temperament, and mental powers, suited to companionship and harmony, though they were in many respects totally unlike. Both had keen perceptive faculties, were good judges of men and character, wilful and ambitious, yet kind-hearted and generous, ardent in feeling, and steadfast alike in friendship and in hate.

But though both were bold and self-reliant in operation, Sharon planned and deliberated in advance, while Ralston relied upon his intuition, impetuously made his moves, deliberating afterward. Ralston was impatient, Sharon persistent. Both prized the admiration of the public, Sharon finding satisfaction in his reputation for ability, Ralston in popular belief of his invincibility. Ralston took pride in doing brilliant and what were deemed to be impossible achievements, Sharon in accomplishing results which flowed a priori from his plans and operations. Yet though methodical, he had much sentiment and poetic feeling. Each had great confidence in and admiration for the other, but no business association had then existed between them, the one having confined himself strictly to banking, the other to real estate operations.

At the end of the decade referred to, California then having a population of about 300,000, the mines began to diminish in their aggregate production, which up to that time had been about sixty millions of dollars per annum. Many of the rich placers had been exhausted, and restless and unsuccessful miners were wandering across the Sierras, prospecting in search of new discoveries.

Early in 1859 a small party of such prospectors, who had been working placers on the eastern slope of the Sierra Nevada range, among whom was Henry Comstock, passed along the spur on which Mt David-

son stands, at whose base Mr Sharon had camped upon the Carson river in his overland journey to California. That party made the discovery of the rich surface ore of the Ophir mine, although for several years prior to that time a little placer gold working had been carried on by a few miners at the mouth of Gold cañon and Six Mile cañon, near the Carson river. The results of that discovery created in California, and especially in San Francisco, an excitement similar to the enthusiasm which had been aroused in the eastern states by the gold discoveries in the days of '49. The ore was vein material, not placer, and yielded gold and silver to the amount of hundreds and in some instances thousands of dollars per ton.

A rush of claim locators, miners, and hotel and store keepers followed the discovery, the Comstock lode was staked off and located into numerous claims, aggregating nearly five miles in length, and the town subsequently known as Virginia City was laid out at its northern end. Steam-hoisting machinery and reduction-works being indispensable, and large capital being required in the mining operations of the lode, corporate organizations were formed in San Francisco, to which the mining claims were sold or exchanged for shares of stock, and systematic mining of the lode was begun. Large dividends were earned and paid, the shares correspondingly advanced in value, became favorite securities for investment of money, and were daily bought and sold through private individual negotiations in the San Francisco open market. The impression and belief prevailed that the rich ore bodies would be inexhaustible, and the press teemed with arguments and illustrations in support of that belief, and based upon the history of other great silver lodes of Mexico and South America which had in earlier times produced thousands of millions of dollars.

For three years the results seemed to justify the

belief and to convert hope and faith into conviction. Fortunes were rapidly accumulated, and regular monthly incomes, measured by thousands of dollars, were received by many on whom fortune had never before smiled.

The most conservative of enterprising and ambitious men were infected with the allurement. All shared in the prevailing excitement. Sharon, whose fortune had been acquired by operations in real estate, which were speculative in their character, and based upon a judgment of values increasing with the growth of population, was not insensible to the inducements offered by the Comstock shares. Influenced by this acquired speculative habit, and by the seeming and generally believed probability of permanence of the ore bodies of the Comstock, he left the path of operations in which he had always been successful, and entered upon the one in which he had no experience, and which in every age and country had led its votaries to fortune or to ruin.

It was the first and only great business mistake of his life. His little fortune dwindled away much more rapidly than it had been acquired.

The expenses of mining, which in Nevada were enormous, increased with depth of work, the ore became less tractable and less profitable to reduce by the imperfect machinery and processes in use, dividends became smaller, and the value of shares decreased. Still speculation and hope of improvement stimulated the public. Transactions in shares by purchase and sale, and as collateral for loans, had become so extensive that it was found desirable to establish a stock board, where, under an organized system, the business could be carried on and a market value ascertained and realized.

Accordingly, on the 11th of September, 1862, the San Francisco Stock and Exchange Board was organized, consisting of fifty members. The Comstock shares were formally listed, and thenceforth were

there daily bought and sold. The facilities thus afforded for operations increased the speculative character of the business, gave opportunities for combinations and stock-jobbing manipulations, and resulted in great fluctuations of market values.

Before the end of that year, all but a few thousands of Mr. Sharon's accumulations had melted away, and he found himself but little richer, except in experience, than when he had first established himself in San Francisco.

The early bonanzas of the Comstock became worked out, the stock of the various mining companies were almost valueless, the mills were idle for want of ore, the expense of prospecting and dead work at the depth of five hundred feet was enormous, the possible results were doubtful, the population of Virginia City was diminishing, and it seemed as though the Comstock had, like a brilliant meteor, blazed and disappeared.

Nearly all of the Comstock companies, both corporate and private, had built and then owned one or more reduction-works or mills. Nearly all were run by steam, at a cost for fuel of $15, and in times of stormy weather, even of $25 to $30 per cord.

Some were run by water power, and were on the Carson river, thirteen miles distant from the mines. To these ore was transported in wagons drawn by six and twelve mules, at a cost of five to eight dollars a ton.

The cost of milling, when done by contract mills, was twenty dollars and upward per ton. Timbers for the mines and lumber cost $40 to $50 per thousand feet.

Several firms at Virginia City, bought, at ruinous rates to the mines, the bullion produced, and made advances of money at rates of interest ranging from three to eight per cent per month.

Early in 1864 the Bank of California, with D. O. Mills as president and W. C. Ralston as cashier, had

been incorporated, with a capital of two million dollars, afterward increased to five millions, and had taken the business and place of the banking firm of Donohoe, Ralston, & Co., in which firm Mr Ralston had held the like position of cashier.

Neither institution had had any branch at Virginia City, though all the important mining incorporations kept their deposit accounts with and paid their dividends through the bank in San Francisco. The bank became the almost exclusive financial agent of the entire business relating to the development and working of the Comstock lode and to the milling of the ores.

At times a large part of its capital was thus temporarily employed, and the mining companies were nearly at all times largely its debtors.

In August of that year, two of the largest private firms dealing in bullion in Virginia City failed, owing the Bank of California a large amount of money.

Thus, upon the exhaustion of the ore bodies, the financial outlook assumed new importance, and even danger to the bank. Unless other discoveries should be made, the companies would be unable to pay their indebtedness, and if the bank should refuse to continue its financial aid, the companies would be unable to go on with the work of exploration.

Ralston, though nominally only cashier, was in reality the manager and autocrat of every department of the bank. Its officers and directors had the same unbounded faith in his genius and masterly methods that was accorded to him by public opinion, and which he seemed to have merited by his success in making the Bank of California the foremost financial power of the coast. His was the leadership to which all looked for the successful inception and conducting of every great local enterprise.

Sharon knew and understood the whole situation of the Comstock mines, and their relation to the Bank of California. Though his experience with the min-

ing shares had cost him nearly all his prior accumulations, it had opened to him a field of study from which he gathered knowledge, and from the knowledge, influence and power which ultimately brought to him fifty times the fortune he had lost. He had visited Virginia City at the request of Ralston, and carefully and thoroughly examined the mines and every industry connected with them. With the aid of the most competent mining experts he had inspected and made himself familiar with the lode, and wherever it had been mined, with its formation, its ore bodies, and their relation to the barren portion, as well as their relative positions to each other. He had studied the details of the system and the cost of mining and timbering, of operating hoisting-works and other mining machinery, the sources, cost, and methods of procuring fuel, timber, and water, the means of transportation of ore to the mills, and the methods and cost of ore reduction. He had given due attention to the extent and methods of general business in the town, and of its financial outlook and facilities. No man on the coast, not even Ralston, had so clear an understanding of the general outlook of the Comstock, and of the difficulties under which it was being mined, or was better fitted to devise plans which might be advantageous to it and likewise beneficial to the bank.

The intimacy which existed between himself and Ralston, and their mutual confidence in and regard for each other, gave Sharon the opportunity and the right to confer with Ralston, and to offer suggestions as to the policy of the bank with reference to so important an interest as that of the Comstock.

He urged the necessity of establishing at Virginia City a branch of the Bank of California, which should carry on a general banking business of deposit, discount, and exchange; that by this means the parent bank would at all times know the exact status of the local mining operations, and of all collateral and de-

pendent industries and enterprises. The financial pulse of the Comstock would throb under the finger of the bank, thus indicating its phases of debility or plethora, and enabling the bank to give or withhold aid upon an intelligent system. He declared his faith, and the reasons for that faith, in the permanence of the great lode, and in its development of other bonanzas. He pointed out modes of retrenchment in cost of administering and operating the mines, and in the reduction of ores.

He insisted that it was the right and duty of the bank, while taking the risk attendant upon its financial relations with the mining companies, to know every detail of their operations, and to have the power to control them; that this could be accomplished only by and through the method suggested; that if the bank would establish the branch and give him the management of it, he would move to Virginia City and devote five years to such service.

Ralston determined to do so. The action of the directors of the bank was of course necessary. They favored the project of the branch, but they did not favor the appointment of Sharon as its manager. They were technical in their theories of men, and as Sharon had but just now lost his own fortune, he was, in their opinion, scarcely the proper person to administer the affairs and fortunes of another. Ralston knew better. He knew that Sharon was shrewd and intelligent, though bold and enterprising; that his life and business operations in San Francisco had been characterized by great steadfastness of purpose and careful deliberation; that his misfortune had been the result of circumstances that no one could have foreseen and that no one had anticipated, to wit, the exhaustion of ore bodies on the great lode, which all had believed to be inexhaustible, and whose unexpected lessened production had affected the bank itself.

He determined that Sharon should be put in charge of the proposed branch, and as an unanswerable argu-

ment to the directors, he declared his readiness to be personally responsible for Sharon's successful administration.

As was usual, the directors yielded to him, and the project was adopted in its entirety. On the 6th of September, 1864, the branch bank was established, and Sharon was given its entire management. Few men would have had the courage and self-reliance to assume so great a responsibility in the face of the existing circumstances. Experience in his new field of action soon demonstrated to him that he had underestimated the difficulties of the situation. The mining work had reached the depth of what was called the water level, where the additional expense of pumping would have to be incurred; population was emigrating to other mining districts, and had diminished fifty per cent; none of the mines were in bonanza, and some were being abandoned; the old dump piles and the remnants of ore bodies near the surface were being searched over for scraps of pay ore; the prevailing feeling of the community was one of discouragement; and the conviction had become fixed that Virginia was, in miners' parlance, "a played-out camp."

The ebbing tide was almost as swift as had been the flood. To check the ebb was Sharon's purpose and his confident expectation. The directors of the bank in San Francisco began to regret the organizing of the branch, and became as despondent as were the owners and miners of the Comstock. A dozen or twenty mills had been turned over to the bank for advances made, and the assets of other debtors failed to realize a tenth of their liabilities. Some of the directors proposed to close up the whole Virginia City business, abandon further effort there, realize what could be got for the almost valueless assets, and charge up the deficiency to profit and loss.

Mills and Ralston visited Virginia City to look into the state of affairs and to advise what should be done. It was the crisis of Sharon's influence and of the

Comstock's future. He listened to Mills report of the views and half-formed determination of the directors of the bank. Then fortified with data and statistics, he exhibited in figures the enormous extravagance under which, in every department of administration and of operation, the affairs of the Comstock had been conducted while producing ore, and which extravagance had been continued at the expense of the bank after ore had failed. He demonstrated that it was the duty and in the power of the bank, being so large a creditor of all the mining companies, to fix and control every expenditure of administration of affairs above ground, and to better and more economically systematize the mining operations; and that the practical way to accomplish such reform was for the bank to obtain from the mine-shareholders their proxies, and elect boards of directors whose management should be wise, just, and satisfactory. He went into detail of numerous methods of diminishing the cost of prospecting, mining, and milling. He brought into the conference the most intelligent and experienced mining superintendents of the lode, and fortified his own expressed belief in future developments by their opinions and the reasons on which those opinions were based. He declared his conviction, and was supported in it by the superintendents, that a lode so extensive in its length and breadth, and which had yielded so many millions in its first 500 feet in depth, would be an anomaly in all mining experience if it should fail to disclose greater bonanzas at greater depth. He pointed out the benefits which would be derived to the bank and to the whole Pacific coast if such bonanzas should be found and should be judiciously and economically worked. He urged that if the bank were to withdraw its aid at this critical moment, the whole Comstock would be abandoned, Virginia City would be a ruin, the bank would lose every dollar already in jeopardy, and San Francisco would not escape its share of the financial catastrophe.

He proposed that the bank would stand behind him and permit him to take in hand one or two of the most promising shafts on the lode and sink to a greater depth, at the same time working economically such remnants of ore as had been left in the upper works, thus diminishing the cost of the deeper explorations; and suggested, as points favorable for such prospecting, the Chollar shaft and one of the Gold hill group.

Mills expressed the opinion that the board of directors would not consent to take the risk. Ralston acquiesced in Sharon's views, and at once declared that he would agree to be personally responsible for any loss that might result to the bank by its adoption of Sharon's plan. The declaration was illustrative of Ralston's faith in Sharon, and was in conformity with his business habits. Whatever pursuit he felt justified in recommending, he was ready to indorse and guarantee.

Mills, who had previously had but slight personal acquaintance with Sharon, returned to San Francisco full of respect and admiration for his lucidity, his energy, and his courage, and expressed his confidence in him by declaring that he was the right man in the right place. Ralston, though he had always esteemed and liked him, came back his avowed, immovable friend.

The directors passively yielded to the will-power of Ralston and to Mills' favorable opinion of Sharon. Ralston and Sharon, with the financial aid of the bank, undertook the programme thus mapped out for the restoration of the Comstock and the recuperation of the apparent losses of the bank.

The work of sinking and prospecting in the Chollar and the Yellow Jacket mines was continued steadily and economically; while at the same time, in all the mines over which the bank or Ralston and Sharon had secured control, the old ground was worked over, and the profits of such work were used toward liquidation of liabilities.

The people of Virginia City generally had but little confidence in ultimate beneficial results, and regarded the new movement as the effort of a forlorn hope, giving only a spasmodic vitality to an exhausted lode. Sharon felt keenly the responsibility of his position, and the necessity to avoid mistakes or disaster. In addition to the administration of the affairs of the local bank, he looked after every detail of the mining and milling operations, devoting all his spare time and energy to the task which he had assumed. For more than a year the only improvement in the situation was in the more systematic method of work, in the diminished expenditures proceeding from judicious economy, and in the small profits derived from ores obtained from the old ground. Still even this much was advantageous as preparatory to greater profits from new bonanzas, should such be discovered.

Among other explorations which he had undertaken was the extension of a drift into the Kentuck mine from the 230-foot level of the Crown Point, which joined Kentuck on the south. A shaft had been previously sunk on Kentuck to the depth of 100 feet, but had found no ore; Yellow Jacket, lying next to and north of Kentuck from the level mentioned. So firm was his belief in favorable results, that he and Ralston purchased nearly all of the Kentuck ground.

Before the end of 1865 Sharon had found his first bonanza.

The people of Virginia City no longer thought him visionary; the directors of the bank grew confident of his judgment, and Ralston triumphed in his success. The ore discovered was followed to a depth of several hundred feet, and yielded two millions of dollars.

A controlling interest in the stock of Yellow Jacket and Chollar was in like manner secured, and the explorations in those mines vigorously pushed. In both, large bodies of pay ore were found, many millions of dollars were produced, and the payment of dividends was resumed. For several succeeding years the three

mines named kept alive and encouraged public faith in the Comstock, and stimulated exploration by other companies at other points upon the lode.

Before four years had expired Sharon had become a millionaire, and was popularly styled both in Nevada and California the king of the Comstock. He no longer found it necessary to persuade or to solicit approval. His opinions and his suggestions met ready acquiescence and adoption.

But with his experience and wealth he had acquired broader and more comprehensive views with regard to the Comstock.

He believed that other rich ore bodies would continue to be found so long as the work of exploration continued to be practicable. But he was also convinced that the existing system could be beneficially modified in many respects. Chief among these was in the milling of the ores, and in the cost of their transportation from the mines to the mills. The latter were scattered about upon the hillsides and in the ravines in almost every direction, and, being run by steam, were often in the winter season compelled to stop work for want of fuel or ore, owing to the impassable condition of the roads. Transportation and fuel were therefore important items in the cost of reduction.

To meet and overcome both the impediments, Mr Sharon proposed to organize two corporations, one of which should purchase from the Bank of California all its mills, move them to the Carson river, unite several into one, change their motive power from steam to water, and contract with the mining companies for the milling of their ores at reduced rates; the other to construct a railroad from the mines to the Carson river, whereby at all times ores could be transported at great reduction on existing rates, and mining timbers and fuel for the hoisting-works be brought back as return freight.

Both propositions met with prompt favor, and

organizations followed to put them into action. The Union Mill and Mining company was incorporated, with a capital of $1,500,000, in 15,000 shares, owned by Sharon, Ralston, Mills, and others, but subsequently all acquired by the three named. The mills owned by the bank were purchased by the corporation, were moved and modified as suggested, and when completed had a capacity and facilities for reduction of 2,000 tons per day. The Virginia and Truckee Railroad company was next incorporated, and its entire stock became the property of Sharon, Ralston, and Mills. These enterprises, projected by Sharon, were so conducted by him that Ralston and Mills were called upon for but little pecuniary aid, and before the year 1875 the Union Mill and Mining company had netted Mills over two millions of dollars, and Ralston and Sharon over four millions each. In recognition of the public benefit to be derived from the proposed railroad, the state of Nevada, through the influence of Mr Sharon, granted the corporation a liberal subsidy in money, and many of the mining companies of the Comstock advanced to it large sums, to be repaid in the transportation of freight.

The road was constructed and well equipped at a cost of about $1,250,000, and was subsequently connected with the Central Pacific at Reno, at a further cost of $1,750,000. It was a success from the beginning, and notwithstanding its schedule of charges caused a reduction of more than fifty per cent in the freight of ores, and of twenty-five to fifty per cent in the cost of fuel, timbers, and other materials returned to Virginia City, it yielded, and it still yields, to its owners an enormous revenue.

Although each of these great enterprises brought large profits to their owners, and greatly lessened the cost of mining operations, it was not for those reasons alone that Sharon rejoiced. It was because he felt that he had thus acquired the means to demonstrate the correctness of his early predictions, to wit, that

the Comstock lode had only begun to yield its hidden treasures. No power now stood between him and the exercise of his own indomitable will. Hitherto, ores that did not yield thirty dollars and upward per ton would not justify the cost of mining, hauling, and milling. Hence when ores of higher grade were exhausted, prospecting for other deposits involved the necessity of loans from the bank or assessments from stockholders, both of which were impediments to thorough mining and possible development. Now it would be practicable to work the vast bodies of low-grade ore left in the mines, and of which there were thousands and tens of thousands of tons, and in so doing to possibly discover richer ores, or at least earn something to pay the cost of deeper prospecting.

All along the Comstock more active work was resumed, not alone in the mines under Sharon's control, but also in others that had for a long time been dormant. The population of Virginia City began again to increase, and all the local industries became more active and prosperous. With his aid and promised patronage companies were organized for supplying the mines with lumber, timbers, and fuel at reduced rates; timber-lands in the forests of the Sierra were secured from the United States; saw-mills were erected; roads, tramways, and flumes were constructed; and wherever an industry beneficial to the Comstock operations could be devised or promoted, there his influence and means were actively employed. Through these channels of economy Mr Sharon was enabled, after the exhaustion of the ore bodies discovered by him in Kentuck, Yellow Jacket, and Chollar, to continue the work of exploration, and to facilitate exploration by others.

He had become the leading influential man of Nevada in its social, industrial, and political affairs. Ambitious men sought his favor and support, and solicitations were pressed upon him to allow his name to be chosen to represent the state in the senate of

the United States. He declined all political honors so long as his purpose to effect a thorough and deep exploration of the Comstock remained unfulfilled.

He had devoted six years of untiring effort in that direction, and had brought forth from three of its principal mines more than twenty millions of dollars, which but for those efforts might never have been added to the bullion of the world. Still he had not achieved what he believed it was possible to achieve; and for that reason he persevered. Others too, encouraged by his results, had pushed mining operations into the depths, so that at the end of those six years many of the shafts had penetrated to the depth of a thousand, and one or two to the depth of eleven hundred feet. Among the latter was the Crown Point, under the control of Alvinza Hayward and J. P. Jones; the group later known as the Con. Virginia, under the management of Flood, Mackay, Fair, and O'Brien; and the Belcher, under his own direction and operation. The Crown Point was in search of a continuation of the ore body which he had already exhausted in the Yellow Jacket and the Kentuck.

Meanwhile in San Francisco Ralston, following out his ambitious and generous efforts for the advancement of California industries and for the development of his resources, had used his personal means in aid of many enterprises which to him had seemed legitimate projects for the increase of local prosperity.

He had helped to found and had fostered the Mission and Pacific woollen mills, the Kimball Carriage Manufacturing company, the Oakland Watch company, and the Culp Tobacco company of Gilroy, and had advanced a fortune to Harpending, which was used in the construction of the Harpending block of stores and the Grand hotel on Market street. He had also invested another fortune in the project of opening New Montgomery street, and in the purchase of the street-way and of the lots upon each side of it, and in erecting costly rows of buildings upon

them. But most of these projects were not warranted by existing conditions. The cost of labor and coal was high, and it was impossible to start manufacturing enterprises to compete with eastern establishments. Ralston's ventures were attended with great loss and expense, and the enormous amount of money swallowed up by them had absorbed the profits which Sharon had made for Ralston in Nevada.

To meet these drains for money, and to preserve his own credit from becoming impaired, Ralston had availed himself of his position and influence with the bank to obtain temporary pecuniary assistance. It followed as a natural result that when the new ore bodies opened by Sharon in the Kentuck, Yellow Jacket, and Chollar had become exhausted, and the burden of indebtedness to the bank at the same moment hung over Ralston, anxiety and alarm as to the consequences siezed both the creditor and the debtor. Ralston turned to Sharon for some comforting hope of other Comstock developments. He revealed to him the peril which threatened himself and the bank. He informed Sharon that unless the Comstock should come to his aid with a new bonanza he could not liquidate his large indebtedness, and the bank would be compelled to suspend.

Sharon bade him not despair, and reminded him of the crisis through which the bank had safely passed in 1864. He infused into him his own faith in developments of ore certain to be found. He encouraged him with his own hope that work then progressing in the deep levels of Crown Point and Belcher would not be fruitless. The profits of the railroad and the mills, from low-grade ores, of which there was abundance, were large, and he urged Ralston to rely upon these until the needed bonanza could be found.

Strengthened by Sharon's courage, faith, and friendship, Ralston gathered his energies, and set himself to work at recuperation. He realized what he could from the enterprises with which he had be-

come entangled, closing out those which were unsuccessful, and withdrawing from those which could stand without him. The danger of the financial catastrophe remained a secret, and a torturing one, to all concerned, but before it reached the point of explosion the relief came. Sharon's expressed hope had proved a prophecy. The Crown Point found the ore body of which it was in search, while at the same time the stock of the Belcher mine, which was next adjoining, was selling in the market at only one dollar per share, or about ten thousand dollars for the entire capital stock. Mr Sharon and Mr Ralston purchased nearly the whole of it, upon the judgment of the former that the ore discovered in Crown Point would extend into the Belcher ground.

Work of exploration was rapidly pushed, and in a few months the greatest bonanza which the Comstock had thus far produced was uncovered. Ralston was himself again, and the bank argosy sailed once more in placid waters.

Million upon million in a constant stream of bullion flowed from the Carson mills into the Bank of California. Nevada throbbed with excitement and resounded with activity; the population of the two towns of the Comstock swelled swiftly to 30,000. In the Stock and Exchange board shares of Comstock mines rose in market value as though each mine were, or soon would be, another Belcher.

Mr Mills had retired from the presidency of the bank, and Ralston had succeeded him. The directors, who in 1864 had been doubtful that Sharon was the right man to take charge of the branch bank, now invited him into the directorship of the parent institution.

The great product of that bonanza fell, primarily, to Sharon and Ralston, they being the principal owners of the Belcher stock. But the sudden acquisition by them of so much wealth taxed and tested their ability and ingenuity to use it wisely.

Influenced by his escape from existing embarrass-

ment and by the great accession of his fortune, Ralston entered upon a fresh career of adventure and extravagance that dazzled the community. He built a princely residence in San Francisco at a cost of three hundred thousand dollars, and at Belmont, in San Mateo county, another, which with its grounds and furnishing cost a million. He entertained with regal magnificence every distinguished visitor to the state, and excursion parties that came out from the east to behold the wonders of California. So noted was his fame for hospitality that no one who visited the Pacific coast felt that he had seen its wonders unless he had been a guest at the Belmont palace. Liberal and generous to a fault, he became the victim of imposition by many who had no personal nor business claim upon his kindness.

He was thoroughly imbued with the idea that he could stimulate the growth of California, and force development of its wonderful natural resources; and he had an unbounded ambition to be the head and front of any undertaking to that end.

He was willing and eager to be the Atlas on whose shoulders might rest the state in its glory and its growth. Illustrative of his credulity as well as of his generosity, he was induced through the devices of one Arnold, and the influence of Harpending, whom Arnold had fascinated with his deception, to invest a large amount of money, and to persuade his personal friends to do likewise, in the purchase and acquisition of the so-called diamond-fields of Colorado.

Upon the discovery of the fraud that had been practised upon him, he not only philosophically accepted the loss of his own investment, but with magnanimity restored to all his coadjutors every dollar they had paid. The aggregate of this loss to him was not less than five hundred thousand dollars.

He invested not less than a million dollars in shares of gold, silver, quicksilver, gravel, and hydraulic mining companies, in steamboats and canal stock.

Upon the large Market street lot he conceived the idea of erecting a hotel that should have no rival elsewhere. Upon estimates which he had made, that its entire cost, including the cost of the lot which he and Sharon had purchased, should not exceed $1,750,000, he persuaded the latter to join him in the enterprise. Before the foundation of the structure had reached the level of the street the estimated amount had been exhausted.

As an adjunct to the hotel, he organized and supplied the money for the West Coast Furniture company, its main purpose being the manufacture of the furniture for the great caravansary.

Sharon, though a participant in the hotel speculation, had too much pride to withdraw after the commencement of the undertaking. Having abundant means of his own, and believing that Ralston was as strongly fortified, he yielded its construction wholly to Ralston's administration. It was carried to completion as regardless of cost as might an Egyptian king have built a pyramid. Its foundation walls were made twelve feet in thickness, and beneath its huge central court was constructed a reservoir containing 650,000 gallons of water supplied by four artesian wells below it. Above the basement seven stories were built, the lowest twenty-seven and the uppermost sixteen feet in height. It contained a total of 755 rooms for guests, nearly all of which were twenty feet square, and to all of which every modern improvement for comfort and convenience was supplied. Thirty-one millions of brick were used in its construction, and three thousand tons of iron in the bolts and rods and bands which extended through every floor in both directions from side to side, binding its walls to each other. Five elevators, in addition to four broad stairways from street to roof, supplied the means of ingress and egress. Its furnishing was appropriate to its structural magnificence. When opened to public patronage it is

said to have cost six million five hundred thousand dollars.

Considering Ralston's previous experiences and perils in financial yachting, one might suppose that he would have avoided the shoals and reefs on which he had before so nearly wrecked. That he did not do so can only be attributed to a delusion that his extravagance would so promote the growth and prosperity of the state as to create support to his enterprises, or was because his faith in Sharon's Comstock success infatuated him with the belief that fate would send him a bonanza when he should need it.

In the midst of these extravagances occurred the discovery of the Consolidated Virginia, the greatest of all the bonanzas, and the top of which was struck at about 1,200 feet from the surface. This mine was in the control of and operated by Flood, O'Brien, Mackay, and Fair, all men of moderate fortune at the date of the discovery. Their work of deep exploration had been due to, or at least mainly encouraged by, Sharon's successful developments at depths below a thousand feet.

Upon the opening of this bonanza and the development of it northward through the California ground —which was also in the control of the same four parties—to the south line of the Ophir ground, Ralston, whose supposed money power was in danger of eclipse by the greater wealth of the new firm, was induced to believe that the Ophir contained the richest part of the great bonanza.

Contemporaneously, Mr Sharon, finding his health impaired by ten years' constant attention to multifarious duties at Virginia City, and having consented to permit his name to go before the legislature of Nevada for the United States senatorship, was in January of 1875 elected by that body as senator for the succeeding six years. He immediately surrendered his agency of the affairs of the bank at Virginia, and of the other business interests of which he

had been in charge, and the brother of Ralston was substituted in his place.

Sharon knew comparatively little of the management or condition of the parent bank. He trusted its conduct to Ralston, in whom he had a profound confidence, and for whom he felt a very sincere affection, almost down to the hour of Ralston's tragic death. Up to August 1875, the bank had a severe struggle for existence, and was many times on the verge of suspension, if not failure, but was brought through its difficulties from time to time by the desperate courage and methods adopted by Ralston, and which were wholly concealed from Sharon and most of his associates in the bank. Indeed, so great was his confidence in its stability and in the good management of Ralston, that early in the summer of 1875 he consented to become a purchaser of a considerable quantity of its capital stock, at a premium of $35 per share, when the stock was in fact practically worthless, and the bank on the verge of bankruptcy.

Ralston determined, notwithstanding the loss of Sharon's presence on the Comstock, to secure the control of the Ophir mine and its imagined bonanza. In fact, he now realized with dread foreboding that another bonanza was imperatively needed to keep up the extravagances and enterprises by which all his means had been absorbed, and from which he could not withdraw without disaster. Besides, he had borrowed large amounts from Sharon, and had drawn largely on the resources of the bank, and its solvency once more depended upon his success.

Other parties entered the field of contest for the Ophir, until its market price ran up to over three hundred dollars per share, the capital stock consisting of 108,000 shares. The available assets of the bank became exhausted, Ralston could neither sell the shares which he had purchased nor sustain their market value, the stock broke to less than fifty dollars per share, there proved to be no bonanza in the

mine, and on the 25th of August, 1875, the Bank of California, unable to pay its depositors' checks, closed its doors, with liabilities exceeding fifteen millions of dollars, and with less than thirty thousand dollars of coin on hand.

San Francisco shuddered as with the tremor of an earthquake. The pulse of the body politic was paralyzed, its limbs were motionless, and a solemn silence betokened dread of some invisible evil.

Thus the enterprises entered upon by Ralston with the best of intentions ultimately became not only the destroyers of his own fortune, but also the destroyers of the bank, and led him into a course of action which subjected him to the danger of criminal prosecution. But he was a man of great pride of character, strength of will, and rare secretiveness, and had great control over men, and for a long time he succeeded in concealing the condition of the bank from the directors, and maintained up to the very day of its failure an appearance of absolute composure.

But when the crash came the directors called Ralston to account. He met them, and made no concealment, no excuse. He was debtor to the bank over four millions, to Sharon two millions, and to others about three and a half millions, a total of nine and one half millions of dollars. His assets amounted to about four and a quarter millions. They were amazed, none more so than Mr Sharon. They were excited and bewildered, but none less so than he. They requested his resignation in writing, and with the utmost composure he complied. Life to Ralston now was nothing without the confidence and respect of his fellow-men, and he determined to end the struggle. On the day after the closing of the bank's doors, and even as its directors sat in perplexed deliberation, he calmly walked through the side door into the street, thence to his accustomed bathing-place at North Beach, and in an hour was found floating upon the water, dead.

Pity, sympathy, and gratitude took him tenderly and laid him gently in Lone Mountain.

The gloomy tragedy of his death has been eloquently referred to by Francis G. Newlands, in his remarks as attorney for the defendant in the suit of the Odd Fellows' Bank against the Bank of California. Said he: "A wave of emotion swept the city, involving all classes and conditions of life. The forces of society, which, had this unfortunate man lived, would have gathered themselves into a wave of indignation against him, in the face of that sad death gathered into a wave of destruction for his enemies, and finally sank into a deep and quiet swell of pity and sympathy, securing oblivion to his faults and remembrance only of his virtues."

The stranded bank seemed hopelessly lost. Its capital was five million dollars; the deposits amounted to about seven millions more; all these accumulations were involved in the failure. As the other banking institutions in the city were in a manner allied with the Bank of California, their suspension was certain unless the latter was restored, and if it were not restored the state would be in liquidation for many years, and enterprise would be paralyzed. In this condition of things, when all men were hopeless and discouraged, when the business of the entire coast was about to sink into apathy and despair, and when the bank, under the advice of counsel, was about to go into bankruptcy, Sharon, accustomed to emergencies, and quick in mental action, devised a plan for restoring the bank. His idea was to form a syndicate which should take all the stock of the bank at a small valuation, restore its capital, guarantee the depositors against loss, and redeem and carry on the business of the bank. He called the directors together to lay this plan before them. With earnest eloquence, appealing persuasion, and prophetic promise, he addressed that disheartened body.

"Whatever there may be in the internal adminis-

tration of the bank to condemn," said he, "it is not the work of this moment to investigate or portray. Every one present is, directly or indirectly, allied in interest with the Bank of California. What this bank has been and what it has done in the service of the interests of this coast, you all know. Founded in the earlier days of our ambition, it should live the lasting monument of our sagacity, our energy, and our just pride. A month ago such seemed to us a certainty. To-day this bank and all its fair credit appears ingulfed in total loss. This hour will decide whether your opinion shall be united with mine, that it is worthy of perpetuation, and whether the pillars of this edifice, weakened by this heavy strain, shall totter and fall without promise, or whether we shall give to them our united aid and support.

"In financial affairs it will be well for us to remember that courage has its hour of trial, and victory its sufficient joy. But submission to defeat is to invite greater misfortune, and to multiply miseries.

"With our fortunes let us reëstablish this bank upon an absolutely safe foundation. Let us make up by new subscriptions its lost capital, make its name and credit stronger and surer than it has ever been, and give fresher and healthier vitality to the vast interests of the people who are to-day palsied with fear and apprehension. The power to so do is with us, as is the duty. Shall we not be men worthy of California? Here I offer to you a subscription paper for that purpose, and to it I put my name for a million dollars. And if that do not suffice, I will risk all I have of fortune or of life so that the bank be reëstablished."

It was a proud moment for him, the hero and orator of that occasion, when one by one those directors, whose combined fortunes equalled a hundred millions, gave their approval and their names to that subscription list. Seven million eight hundred thousand dollars was the sum total thus guaranteed.

A month sufficed to arrange the details of rehabilitation. On the 2d day of October, 1875, the doors of the bank were reopened in the presence of thousands of citizens of San Francisco, and amid the congratulations of the public, and the renewed and redoubled confidence of its patrons, whose deposits on the first day of the reopening aggregated nearly $1,500,000. The whole coast was saved from bankruptcy, and to-day the Bank of California is the leading institution of its kind on the Pacific coast.

It is believed that the history of banking enterprises does not exhibit a parallel to the case of the Bank of California, and the infinite credit given to all those who participated in this rehabilitation of a completely bankrupt institution was mainly due to the wisdom, courage, and personal and pecuniary sacrifices of Sharon. It would be difficult to describe the extraordinary effort of mind and physique involved in this work. During the period which followed the closing of the bank to its recommencement of business, he scarcely ever rested. He labored day and night to resuscitate the bank. His vitality seemed to be intense. He was the controlling spirit, everywhere guiding, exhorting, and sometimes threatening. The courage, endurance, and powers of leadership shown by him during this emergency were remarkable, and on the evening of the day following the reopening of the bank, a thousand people gathered in the brilliantly illuminated court of the great hotel, and with cheers and music signified their admiration of the triumphant man. He responded to this ovation with a speech that was characteristic of his modesty, and exhibited his warm regard for his friend and associate who gave up his life as a sacrifice for the consternation he had wrought. He said, in part:

"I should fail in a duty I owe to you if I forbore to express the emotions and kindly sentiments which I am proud to say this day have been awakened in your hearts as well as in mine. This has been a great

day for San Francisco, for California, and for the entire Pacific coast. It has been a day of triumph, which belongs to no single-handed conqueror, over adverse circumstances. It is rather the property of every citizen who has been faithful and hoping during the past thirty days of financial doubt and dismay. Yet, in the crowning hour of victory, in the presence of the grand witness of your skill in the mechanical arts, in this glorious temple of hospitality, amid all this flood of light and music, I experience a sense of almost overpowering sadness. I miss, as you do, the proud and manly spirit of him who devised this magnificent structure, and under whose direction and by whose tireless energy it has mainly been reared. I mourn, as you do, that he is not with us to enjoy this scene of beauty, and I offer here with you the incense of regret and affection to his memory. Peace be to his ashes! Whatever is or may hereafter be said of his career, one thing is certain, his energies were exerted for the development of this city and the state, and are the pride of his fellow-citizens."

The task of settling the confused personal affairs of Ralston, which was devolved upon Sharon, was itself not an easy one. His sudden death left his estate hopelessly embarrassed. His assets were of unknown value, and not easy to define. In a sense, his estate was liable for all the debts owed by the then insolvent Bank of California. From the chaos of this business Sharon also brought order. He handled the assets with infinite address. The complications in his own affairs arising out of these difficulties were neither few nor slight, but he emerged successfully from them all, but not without sustaining a loss to himself of over $2,000,000.

From that time Mr Sharon devoted himself wholly to such business of the bank as demanded his attention, to his political duties in the senate of the United States, and to the settlement of the claims against and the realization of the assets of the estate of his

deceased friend Ralston. Nor did he forget the widow. For her he made in property and money a liberal provision, which, added to the sum of $60,000 paid to her as insurance upon the life of Ralston, placed her in position to enjoy the luxuries of life to which she had been accustomed.

In the senate, Sharon, being a man of action rather than of words, did not seek prominence as an orator. He was anxious and willing, however, to take an active part in legislation, but, as he himself explained to that body, he was prevented from doing so by the urgent necessity of his exercising a watchful care over his interests which were so deeply involved in Ralston's dealings. It is for these reasons that the *Congressional Record* does not show that he took much part in the discussions of the questions which were before the senate, but what is disclosed by it is interesting, as exhibiting his views on several problems which are yet unsolved, and will perhaps always remain so. His remarks with regard to them also show that he was sincerely desirous of protecting the interests of his constituents in Nevada, and that were he permitted to do so he would have materially aided in settling in their favor the questions in which they were concerned.

As his term in the senate was about drawing to a close, Sharon deemed it proper to explain to his colleagues the cause of his inability to participate in their councils, and to express his regrets therefor, which he did in the following words:

"Before I take my seat, I wish to allude briefly to another matter, simply personal to myself and to the senate. When I was elected to a seat in this body, I supposed that all around me was financially smooth and clear. Just after my election I found that an associate and friend had involved myself and the community in millions. It was a question with me whether I should then continue in the senate or resign. I confidently expected to arrange my affairs

immediately and be continuously present. This pleasure and duty was denied me. I would have been proud to have participated more in your deliberations.

"I know that there has been private and public comment upon my absence. Nothing but the vital necessities of the occasion and the large complications in which I was involved could have kept me away. I know as well as any senator in this body my duty, and its privilege. I know my duty to my state and my country, and nothing but these great difficulties could keep me from performing that duty.

"I wish to say one word more. These complications again call me away for three or four weeks, and I ask the kind indulgence of the senate on account of my absence. I have said all the time that should my constituents demand my resignation it is in their hands."

Notwithstanding his enforced prolonged absence from the senate, he was credited by the people of Nevada with being a faithful and an able representative of the interests of the state. He was a strong and helpful ally of senators of the other Pacific states in all matters that pertained to the prosperity of this coast, and although he was attached to Nevada and California as the foster-parents of his maturer experience and of his great fortune, yet no man in that august body at the seat of government was more thoroughly American or less tainted with sectional prejudices. Hence he won and kept among his senatorial associates as great respect and influence as had always been accorded to him by his business associates on the Pacific coast.

At the expiration of his term he withdrew from politics, and being then about sixty years of age, sought the peace and enjoyment of private life, exercising generous and fitting hospitalities, and so wisely systematizing the administration of his vast estate that every department seemed to govern itself almost automatically.

In San Francisco, the field of his pioneer days, he invested the greater part of his rapidly accumulating fortune, until he became the largest tax-payer in the city and county, his individual taxes amounting to one fiftieth of the whole city revenue. He retained for his country seat the former Ralston property at Belmont, and kept for future requirements of suburban population the 800 acres of the Burlingame tract.

He made judicious investments in other parts of California, and also in the District of Columbia. He became a large shareholder in the Spring Valley Water Works company of San Francisco. But among all his properties, those to whom he adhered with the greatest pride and whose prosperity gave him satisfaction far beyond the large income which they brought to him were his shares in the Bank of California, in the Virginia and Truckee railroad, in the Carson and Colorado railroad, and in the Union Mill and Mining company; these being the offspring of his genius.

Sharon had keen gray eyes, which in moments of excitement or interest illumined his otherwise impassive face, a mouth that denoted firmness of purpose, and a high, dome-like forehead. His dress was universally black, and his habits were as simple as his dress. In his business transactions he was cool and self-contained, dealing in few words, making but few inquiries, reaching quick judgments, and holding to them. He was bold in the conception and execution of his undertakings, and was neither elated by success nor cast down by reverses. His distinguishing characteristic was his generalization. He was impatient of details, and would rarely listen to them. Given the result, he had instinctive insight into the details, and was thus capable of carrying on at the same time many enterprises of importance, and of accomplishing a great deal. He rarely made a mistake in his analysis of men, trusted absolutely to his subordinates, and in return had their unwavering loyalty.

Although he was small in stature and light in weight, he would oppose himself without hesitation, if the occasion called for it, even to the point of physical contest, with men of superior strength. He never seemed conscious that he could be defeated in any controversy in which he might be engaged, and without being vain or self-assertive in speech, his whole action was so aggressive and determined that men instinctively gave way to him. His firmness of purpose in what he believed and knew to be the truth was such that he would have remained steadfast, even to the sacrifice of his fortune if necessary.

The knowledge which he exhibited in his business career was largely the result of self-development, wide observation, and thorough familiarity with the springs of human action. He was the thinker instead of the mere reader. In matters of public interest he was well informed. He had thought much on all important subjects, and his mind was self-reliant and little impressed by the ideas of others. In his business enterprises he was ever on the alert for his own gain, yet he won the respect of his competitors as a fair and manly contestant in the race to win. His inherent self-poise, calm bearing of mental strength, and apparent confidence in himself, without arrogance, ostentation, or obtrusive superiority, reflected a character of most marked individuality. His judgment on matters of business seemed to be absolutely unerring. Whatever he did was clearly marked out beforehand, and the course he laid down was followed with a marvellous perseverance, not to be turned aside or thwarted by circumstances or by men. Few men have lived who exercised a stronger influence upon financial and business circles than Sharon.

In social moments, however, one could hardly recognize in Sharon the man of business of a few hours before. He was fond of social life. He entertained a great deal, and his demeanor on such occasions was genial and attractive. He almost invariably took the

lead and directed the conversation. He was bright, humorous, and instructive, delighting in philosophical and social questions. It was a study to observe how his mind kindled into action as the evening advanced. Oftentimes the sentimental and poetic were indulged in by him to so great an extent as to make one skeptical of the practical nature of the man. He delighted at all times to quote from Shakespeare, Byron, and Pope, as well as from the bible. His great diversion was to make trips to his home at Belmont, which he made the scene of a very expanded hospitality. He entertained there all the distinguished people who visited the state, so much so that a trip to Belmont became almost a part of every prominent person's tour.

During these periods of social diversion, it was almost impossible to engage him in any conversation relating to business. His mind seemed to be in an exalted state, and religion, philosophy, science, and poetry alternately secured his attention, and were the subject of discourse, serious as well as witty. He was also fond of nature, and found much to interest him in his horses and his dairy at Burlingame. Hunting was another favorite pastime of his.

All who sustained intimate relations with Sharon were impressed with his great sense of justice, his kindness of heart, and the delicacy and refinement of his physical and mental organization. His sense of obligation was of the highest. No man ever conferred a favor upon him which he did not recollect in after life. He was warm in his affections, true to his friends, and absolutely faithful in all his engagements. To those who were not in close touch with him, he appeared cold and unfeeling, but those who were near to him knew that within him there beat a warm heart, as was often attested by his unostentatious acts of charity to the poor and needy. He was considerate in his treatment of all the numerous persons in his service, and attached them to him strongly.

Notwithstanding the management of his estate re-

quired of him very little personal care or labor, his threescore years, half of which had been passed under great mental strain, brought finally much pain. In 1881 an attack of neuralgia of the heart confined him to his bed, and alarmed his friends and family. He was never afterward other than delicate and sensitive to atmospheric changes. Although he grew older in appearance than in years, he continued clear and vigorous in mind and resolute in will.

The last years of Sharon's life were clouded by a litigation which absorbed all his energies. A woman named Sarah Althea Hill brought suit against him, claiming to be his wife, upon a written contract of marriage. The alleged contract was in her own handwriting and was also signed by herself, and a signature which she claimed was Sharon's was affixed to the document.

She employed in her case a number of lawyers who were prominent in politics, and whom the prospect of large contingent fees urged to desperate activity.

This litigation finally reached the dimensions of the Tichborne case and other celebrated cases. It was fought with great energy on both sides; it taxed the powers of Sharon to the utmost, and was doubtless the cause of his death. The case was finally decided in the courts of both the United States and of the state of California in favor of Sharon and his heirs, and the document was declared to be a forgery.

For two years prior to his death Sharon was aware that his health was precarious, and had many unmistakable warnings that his earthly career would soon end. In the spring of 1883 he had an attack similar to that which ended his life, namely, of angina pectoris. In October 1885 he was again severely attacked by this malady, which sent him to his bed, from which he never arose alive. From almost the beginning of this illness it became apparent to his physicians and himself that his recovery was improbable. During this attack his conduct was singularly

Frederick W. Sharon.

characteristic of him. His pain was intense, yet he bore it with stoicism. Day by day his innate vital force and his unconquerable will battled with disease, and, to the amazement of his friends and medical attendants, held death at bay. Knowing that his dissolution was impending, with his habitual method in business affairs he arranged all his earthly matters. After making certain provisions for various charitable institutions in California and Nevada, and providing a fund from which the buildings of the children's play-ground in Golden Gate park were erected, he executed to his son and son-in-law a deed of trust, which had been prepared under his instructions, of all of his estate.

For one week he lay on a bed of pain and suffering. The action of his heart became so feeble that a clot formed in one of the blood-vessels of his right leg and shut off the circulation. Conscious that death was at hand, he exhibited no sign of impatience. His friends called upon him in great numbers, and against the remonstrances of his attendants he insisted upon seeing them. All who called received from him appropriate words of appreciation of their friendship and devotion. Many were moved to tears, but his calmness and composure were unbroken.

As he grew weaker physically he became unconscious, life lingering with flickering light that seemed for days to find fuel for its flame in some latent energy of his wasted frame.

On the 13th, at 3:32 P. M., the last spark brightened for an instant, and then gently and painlessly went out.

Sharon, though for more than twenty years a citizen of Nevada, was preëminently a Californian. His achievements in the former state gave to its mining history a record and a name never to be forgotten, as they also gave to other men greater fortunes than his own. But it was in California that his most intricate and masterly powers of business capacity were shown,

and it was there that the arduous labors of his Nevada life had fruition.

For this twenty years of courage, faith, and perseverance the nation, even the whole world; is his debtor; since but for him it is more than probable the product of the great lode would have ended in the gloom that he dispelled.

So long as the Pacific coast shall be remembered in connection with the product of that lode, so long will he stand forth as the Colossus of two states during the eventful period of Comstock history.

Having no fancy for and not having participated in public life, there is but little to be said in this place concerning Frederick W. Sharon, the only son of the man whose life's story has been attempted to be told in the foregoing pages. His educational training was very thorough, his studies, including a course in law, having been pursued in Paris, at Beaumont college, England, at Exeter, New Hampshire, and at Harvard college. He has travelled extensively, and has been a keen observer of the habits and customs of different countries and the characteristics of their people. A man of pronounced social attractions, witty in conversation, genial in manner, highly esteemed by his many friends, possessing much vigor and precision of intellect, a well-balanced mind, a decisive character, pronounced ideas, and a capacity for expressing them with force and clearness, he is well fitted to take a prominent part as a man of affairs. But the delicacy of his fibre and refinement of his nature have caused him to withdraw himself from that activity of practical or public life which secures public prominence. Excepting the efforts which he has made to arouse the public sentiment of San Francisco with reference to public improvements on a broad and comprehensive scale, he has preferred the quiet and repose of private life, and the pleasures of literature, art, architecture, music, travel, out-door sports, and the society of congenial

friends. He is not content to be idle, however. He gives some attention, in a general way, to the business of his father's estate, and also seeks the varied activity of devotion to literature and the fine arts.

His development at school and college was equal and harmonious. He studied with a fair degree of zeal, became very proficient in athletics, sustaining throughout his course at Harvard the position of champion light-weight boxer, and in the social life of the institutions which he attended was prominent and popular. Although he lacked the stimulus which necessity creates, he applied himself to his studies conscientiously, and graduated *cum laude.* His future was not a matter of anxiety to him, and he had no views of professional work, or of any particular line of activity. He took up the study of law at the solicitation of his father, for which profession he was fitted by mind and training, but he did not care to pursue it beyond the acquirement of its principles.

In 1884 he married Louise Tevis Breckenridge, daughter of Lloyd Tevis. While on a trip to Europe after his marriage, he was recalled to San Francisco on account of the ill-health of his father, at whose bedside, during his last days, he watched with unceasing tenderness and devotion. He was made a trustee of his father's estate, and entered upon the discharge of the duties of his position with energy and intelligence. He possessed both the faculties of detail and generalization, and could take up the whole or the parts of a transaction with equal ability; but circumstances arose which made it necessary for him to resign his trusteeship, leaving his brother-in-law, Francis G. Newlands, as sole trustee.

In 1888 he made his residence in New York city, where he has a beautiful home, every detail of which was conceived by him, and bears witness to his refined and artistic tastes. There has been born to him a son, named Henry William Tevis Sharon.

The biography of William Sharon would be incomplete without being supplemented by a memoir of Francis Griffith Newlands, one of the ablest lawyers and among the foremost men of affairs on the Pacific coast, and upon whom, as sole trustee of his father-in-law's vast estate, rests the arduous duties of its care and management.

He was born of Scottish parents in the neighborhood of Natchez, Mississippi, on the 28th day of August, 1848. His father, James Birney Newlands, a graduate of the University of Edinburgh, was a physician. He was a man of large stature, distinguished appearance, great intellectual attainments, and wide experience, acquired by years of extensive travel. Marrying young, he started, as a matter of adventure, for the new world. He chose the city of Troy, New York, then one of the social centres of the empire state, and the home of many of its oldest families, as the sphere for the exercise of his profession. Here, with his wife, he was cordially welcomed. They attained much social prominence, for both were of genial temperament, and possessed of manifold accomplishments. He had great skill as a physician and surgeon, and although in the receipt of an ample income, his restless disposition was constantly urging him to a change of scene and place; and as he had no difficulty in establishing himself readily and acquiring a leading rank in his profession wherever he chose to cast his lot, he was able to gratify his spirit of adventure. The persuasions of southern friends induced him to stay in the south, but Mrs Newlands, being dissatisfied with the want of educational advantages there for the children, induced him to remove with his family north. He finally went to Quincy, Illinois, where he ended his days, leaving his family in straitened circumstances, the income which he had derived from his practice, and the patrimony which he and his wife had received, having been spent in a liberal life.

Francis G. Newlands.

Newlands' mother, Jessie Barland, was a native of Perth, a woman of singular personal attractions, noted for her stately presence, cultured, intellectual, and highly accomplished in music. She was also a woman of great decision of character, ambitious and energetic, and early sought to impress upon her children the earnestness of life, and the importance of going through it with a fixed purpose. Newlands was but three years old when his father died, and at that tender age he began to observe the great struggles and exertion which his mother had to make for the maintenance and education of her family of four boys and one girl. This, coupled with her efforts to make him appreciate the seriousness of life, caused him to early realize how essential it was to toil if he wished to advance, and made his boyish and school days more than ordinarily earnest and serious. A second marriage of his mother with Eben Moore, a banker and mayor of Quincy, did not relieve the straitened condition of the family, for all that was brought to them by this union was lost in a short time in the panic of 1857.

Newlands determined when quite young to follow the legal profession. To secure the necessary education was a matter of great anxiety to his mother, and it was only by her self-sacrifice that he was enabled to acquire it. He attended school at Quincy and Payson, Illinois, and the high school at Chicago, and subsequently was trained for Yale college by a private tutor in Washington. His earlier education was inclined toward the classics, and at sixteen he entered Yale, being with one exception the youngest man in his class. Though an apt and fairly diligent student, he did not aim at distinction as a scholar. He devoted a great deal of attention to literature, the writing of college essays and compositions, and took part in the debates in the college societies, in which he made his mark as a fluent and ready speaker. He also took an active part in the social life of Yale, and formed there

many strong attachments which still endure. But when he reached his junior year he found himself without funds to complete the course. Friends offered him assistance, but he declined. He resolved to make money instead of borrowing it, and to this task he immediately devoted himself.

He proceeded to Washington, where his parents then lived, his step-father being one of the treasury officials. Through the influence of Governor Griswold of New York, he secured a position in the civil service, which enabled him to pursue the study of the law and attend evening lectures at the Columbian university law school. A year or two later the care and support of the family was largely devolved upon him, through the death of his step-father. Upon being admitted to practice in the supreme court of the District of Columbia in 1869, at the age of twenty-one years, he determined to try his fortune in San Francisco. After making such provision for the family as his slender means and a kindly loan of money by a friend permitted, he started for the west, and arrived in the Pacific coast metropolis in 1870. Presenting his letters of introduction, which were numerous and to persons prominent both in business and social circles, he was everywhere most cordially received, but having no practical knowledge of his profession, he found it difficult to advance himself. After spending a few months in making himself familiar with office work and the practice of the courts, he finally obtained permission from a prominent lawyer to occupy desk-room in one of his offices, with the privilege of displaying his name on the door as attorney and counsellor at law; but still the clients came not. His youth and inexperience seemed to prevent him from acquiring business, and his pecuniary affairs were at so low an ebb that it appeared as if he would be forced to abandon his profession and seek other means of earning his bread.

As a last resort, he endeavored to gain a footing by volunteering to act as counsel for the defence in criminal cases, and thus make himself known to the judges and jurors. His first case was that of a burglar, which was tried before Judge Delos R. Lake, whose legal attainments were as much respected as his caustic sarcasm was feared. Although Newlands was so much satisfied of the prisoner's guilt that he refused to permit him to testify because of the likelihood of his committing perjury, he conducted the case with such ability that not only was his client acquitted, but he was afterward engaged by two members of the jury as their attorney. He continued to pursue these criminal cases with great energy and success, notwithstanding they brought him no fees. During this time, Judge Lake, before whom, as judge of the county court, he had been conducting these cases, accosting him on the street, made such inquiries concerning his antecedents and educational training as manifested his kindly interest in the struggling young lawyer's welfare. It was, he said, a mistake for him to follow the practice of criminal law, for it would eventually impair the morals of the best of men. Young Newlands replied that he found it as distasteful as it was unprofitable, but that as soon as he could secure a civil practice he would gladly abandon it. "Well," remarked the judge, with his customary facetiousness, on taking leave, "my advice to you is not altogether disinterested; for in my own court you have been altogether too successful in defeating the cause of justice." Within a few days he sent to Newlands a client, from whom he received his first fee, and also recommended him to prominent lawyers, who caused him to be retained in small cases, and as assistant counsel in others in which they were engaged.

And now Newlands was fairly on the road to success, such success as sooner or later comes to him who is content to toil and wait. His practice rapidly in-

creased, his real clients at first being mainly among his brethren of the bar, who manifested toward him much kindness and interest. Within the second year after his arrival in San Francisco his practice brought him an income of several thousand dollars, and each year thereafter it kept largely increasing in extent. It was very general in character, embracing all varieties of cases in the state and federal courts, involving large interests and questions of much moment. Thus it grew from the unremunerative criminal to a highly profitable civil practice, and from assistant counsel he became the leading attorney in a large number of important causes involving not only vast fortunes, but also the gravest constitutional questions. For many years he enjoyed one of the most lucrative and influential practices in San Francisco, among his clients being numerous mining companies, the Spring Valley Water Works, the Bank of California, and other quasi-public corporations. They were involved in an immense amount of litigation, in all of which Newlands distinguished himself by his thorough grasp of all the points in dispute, his unrelaxing pertinacity, his attention to the minutest detail, his devotion to the interests of his clients, and his rare forensic ability. These qualities were so conspicuously displayed in all his cases as to place him in the front rank of jurists.

Among his most important cases were those in which he appeared for the Spring Valley Water Works. They kept his active mind busy for many years in polemical discussions in the courts, in the press, and before the public in general. The published reports of these cases in the official records of the decisions of the supreme court of California alone bear testimony to his energy and industry. By the adoption of the new state constitution in 1879 the water company became further and more deeply involved in litigation. Under the original law the

power of fixing the rates for water was vested in a board of commissioners, but by the new constitution this power was placed in the hands of the board of supervisors of the municipality. The company was thus made subject to the control of the political representatives of the water consumers, from which embarrassing position it struggled to free itself. At frequent intervals during eight years Newlands appeared before the water committee of the board of supervisors to protect the immense interests and vested rights of the company. The labor which was devolved upon him by the necessity of making clear to the supervisors the limits of their power and the rights of the company was great. He made to them exhaustive arguments, supported by facts and statistics culled from all available sources. The discussions were not always free from displays of passion and prejudice. Few men amidst the tumult which prevailed could have resisted the temptation to indulge in recrimination, but throughout Newlands carried himself with a dignified, calm demeanor, which added weight and impressiveness to his cause. He used no other weapons than the clearest logic and impartial analysis of facts and figures. The most memorable and important of the multitude of actions in which the water company was involved was that brought by it against Antone Schottler and others. It was claimed by the water company that the new state constitution was in conflict with the constitution of the United States, in that it deprived the company of its property without due process of law, and changed the obligations contained in the original charter. This case was elaborately argued in the state courts, and was then carried to the supreme court of the United States, where it was discussed by Newlands in conjunction with Mr Fox of California and Senator Edmunds of Vermont. It was contended by Newlands, among other things, that by the

new constitution it was sought to deprive the plaintiff of its property in the water which it supplied, for to compel a vendor to sell property at a fixed price was virtually a deprivation of his property; that this was done without due process of law, for process of law implied parties, an impartial tribunal, and an opportunity to be heard; that the judiciary is a coördinate department of the government, and that no state constitution or statute can be regarded as consistent with the federal constitution, or with a republican form of government, which does not recognize the coördination of these powers and the separate sphere of each. His argument was a most lucid and scholarly dissertation, well worthy of a place among the classics of the law. The case, however, was decided against his client, but a partial victory was secured, as the decision of the court modified the extreme doctrine laid down in one of the so-called "Granger cases," that the power of regulation was a legislative power which could not be interfered with by the judiciary. The court now held that this power, though intrusted to an inferior legislative body, was quasi-judicial in its character, and must be exercised reasonably, and not oppressively—being the first of a series of decisions which gave greater security to property affected by a public use.

Perhaps no case ever attracted more general attention in financial and business circles in California than that of the Odd Fellows' Bank versus William Sharon. The trial in the superior court of San Francisco was conducted with great earnestness by eminent counsel on both sides, and covered a long period of time. Newlands appeared for the defendant, and in an exhaustive argument made a thorough analysis of the almost irreconcilable evidence. The events which occurred during the excitement attendant upon the failure of the Bank of California were connected with this case, and in sketching them, his argument,

although mainly devoted to a logical elucidation of the evidence, afforded a most brilliant display of forensic advocacy. His vivid and picturesque description of these tumultuous scenes, reaching the highest plane of eloquence, has become a part of our local literature, and has often been quoted by the press in treating of the history of this great financial institution.

The most exciting case in which Newlands participated was the divorce suit of Shimmins versus Shimmins. He appeared for the plaintiff, who charged her husband with cruelty, and he in turn accused her of adultery. The trial was conducted for three weeks with closed doors, and the evidence was of such a character as to attract great attention, as portions of it were published in the press. The case resulted in favor of Newlands' client, and as soon as the decision was announced he was attacked in the court-room by the defeated husband, who seized him by the throat and threatened his life, but was interfered with by the by-standers. For some days he was in pursuit of him with a pistol, and finally blew out his own brains, thus relieving Newlands of his embarrassing position.

In the famous case of Sarah Althea Hill versus William Sharon, no part had been taken by Newlands up to the time of the decision of the lower court in favor of the plaintiff, a decision which it is safe to say shocked the community as much as the defendant, but in the proceedings supplementary to this decision Newlands determined to dismiss all feelings of personal delicacy, and to take an active part in the defence of his father-in-law against the conspiracy, whose success seemed almost assured. His argument was the most dignified of all the discussions in this *cause célèbre*, and perhaps its most noticeable feature was the great strength of character which he, as the son-in-law of the defendant, dis-

played in separating his personality from his position as advocate, treating his adversaries courteously and dispassionately, as though the cause were not his own. When attacked by the counsel for the plaintiff for his participation in the proceedings, Mr Newlands gave vent to his feelings in words of eloquence which thrilled his hearers.

"In the veins of my children," he exclaimed, "flows the blood of this defendant, transmitted through their chaste mother. I come here to defend, not simply an individual who has been wronged, but a family that has been violated, and a society that has been outraged, not voluntarily by your Honor, but by crimes innumerable which have been imposed upon a court of justice. The gentleman has brought my personality into the case. I am here with every pulse beating, with every nerve thrilling with indignation, and I propose to be in this case to its end, from this time on.

"I trust that I shall conduct it without personal feeling. I trust that I shall conduct it without assaults upon counsel. I trust that I shall not have occasion to cast reflections upon the distinguished counsel who have conducted the plaintiff's case so ably. I know that causes, however bad, from time immemorial, have had honorable advocates. I do not propose to identify the counsel with their cause, nor that the cause shall take character from the counsel. I invite the gentlemen to a discussion of this case upon broad principles, without obtruding into it either his personality or my own. He has made it necessary for me to defend my motives for appearing here. I trust he will conduct this case with that moderation, candor, and courtesy with which it should be conducted, and that we will stand here, aiding the court in the administration of justice, conscious always that we are not antagonists on the battle-field, but officers of the court, priests in the temple of justice, bound

by the nature of our obligations to see that its ceremonies are conducted with dignity and decorum."

From this time on Newlands was an active participant in the case, until it was ultimately decided in favor of Sharon in both the state and United States courts.

Mr Newlands continued in the active pursuit of his profession until 1885. By the deed of trust executed by his father-in-law prior to his death, all his property was conveyed to Newlands and Frederick W. Sharon, in trust, for the beneficiaries named in the trust deed, and as the latter shortly afterward resigned, leaving Newlands as sole trustee, the care of the large estate compelled him to retire from his profession.

About two years after his arrival in California, when the tide of fortune had begun to set in his favor, he found himself able to secure for his mother a home in which to pass her declining years, and to make some recompense, as became a devoted son, for the sacrifices which she had made in his training and education. He brought her and his sister from Washington to his San Francisco home. His brothers James and William also came to San Francisco (the latter having graduated with the highest honors at the medical school in Washington, and been assigned to duty as a surgeon in the army at the presidio), and so the family was substantially reunited. In November 1874, Mr Newlands became the son-in-law of William Sharon, marrying his eldest daughter, Clara Adelaide, whose decease occurred in 1880, leaving in his care three infant daughters, from two to five years of age. In September 1888, he took for his second wife Edith, the daughter of the late Hall McAllister, for many years the leader of the San Francisco bar. The ceremony was solemnized under a special license from the Archbishop of Canterbury at the parish church at Easton Neston, Northamptonshire, the country seat of Sir Thomas Hesketh, a

brother-in-law of the bridegroom. To a son, born to them in 1890, was given the name of Hall McAllister Newlands.

During his active career as a member of the bar of San Francisco he manifested a fondness for the discussion of questions involving the legal and political rights of the community, and his speeches and writings upon these subjects are permeated with a spirit of fairness and desire to aid in measures calculated to redound to the welfare of the public. His practice was of such a character as to enable him to acquire an intimate knowledge of questions of a public nature. At one time the supreme court of this state was much concerned over the question whether or not municipal elections should be held in the city and county of San Francisco. Mr Newlands appeared as "*amicus curiæ*," and aided in clearing the contradictions of the conflicting laws. When a board of freeholders was chosen in 1882 to frame a new charter for the government of the city and county of San Francisco, Newlands on several occasions laid aside his attitude as the attorney for great corporations, and addressed the board as a private citizen having at heart only the cause of good government, and gave its members the benefit of his wide experience with men and affairs of local concern.

In the community in which he has his home, Newlands is noted for his attachment to the place, and desire to make it a source of pleasure and pride for all. During his residence in San Francisco he was always identified with movements looking toward the improvement of the city. In March 1887, a lengthy communication from him on this subject was published in one of the local papers. He suggested in comprehensive phrase many feasible plans for making San Francisco one of the most sightly cities in the world, which met with so much approval among the leading merchants and capitalists of the city that a

memorial reiterating, in substance, the views expressed by Mr Newlands was addressed by them to the mayor, and printed in the newspapers. A further step in the direction of liberal and extensive public improvements was the calling of a mass meeting of public citizens at Metropolitan Temple on June 23, 1887, to consider Newlands' proposition, which brought together a large assemblage of representative men. In order to set the example, and deeming it the best use to which could be applied the Sharon bequest of $50,000, "to be expended on Golden Gate Park in such manner as should be most conducive to the happiness of the people," he united with his then co-trustee, Frederick W. Sharon, erecting there for the little ones of San Francisco and dedicating to their exclusive use the children's pavilion.

In his youthful days Newlands was an ardent admirer of Abraham Lincoln, his residence in Washington during the stirring times of the civil war having afforded him a good opportunity to study that great man. But when Lincoln died, his indignation was aroused by the stern and repressive measures resorted to by congress in its dealings with the people of the south, in whose midst Newlands was born, and he joined the democratic party, in opposition to the policy of the republican party. Therefore it was that from the time of his arrival in California he was identified with the democratic party, and was one of its strongest supporters. He was a member of the executive committee of the democratic state central committee in the Hancock campaign of 1880, when the state was carried for that candidate.

But in 1886 an incident occurred which caused him to waver in his allegiance to that party. In the summer of that year a gathering was held, which has since become famous in political annals as the Stockton convention. It was a restless and turbulent assemblage, aggravated by fancied wrongs, impelled by

malicious motives, and under the guidance of a clique banded to control the party, and to malign and traduce the men who gave it tone and character. Before the convention was held it was known that a savage assault would be made upon a most eminent and honored citizen of this state, Stephen J. Field, whose upright and fearless administration as a justice of the supreme court of the United States, extending over a quarter of a century, has been crowned with successful efforts in behalf of constitutional law and individual right. Resolutions denunciatory of him were read with much declamatory effect, and their adoption moved amid the clamor of the infuriated mob. In that assemblage of over six hundred men but one man was brave enough to defend the maligned justice. Newlands stepped to the platform and asked to be heard. His voice was drowned by the yells and catcalls of the throng. He stood unmoved, and met with unflinching gaze the glare of the frenzied multitude. He waited his opportunity, and when order was restored he began his address; but at the first words, "I am the friend of Mr Justice Field," his voice was drowned by yells of derision. Still he held his ground, undisturbed by insult and intimidation, and although constantly interrupted, he continued with his remarks. It seemed that the impassioned spirit of the assemblage, which appeared to have lost all idea of fairness, was determined not to give him a hearing, but at length his intrepid bearing and the intelligence and vigor of his remarks aroused a sense of decency among the few orderly members of the crowd. With their aid silence was at length secured, and the courageous speaker and loyal friend was allowed to proceed. His speech will live in the annals of the political history of this state. It was delivered under such trying difficulties, and before such insurmountable obstacles, that few would have dared to pass through the ordeal; few would have dared to voice his sentiments amid

the outcries of rage and execration from such an insensate and ruffianly mob.

In the same year in which this convention was held, another gathering met at Sacramento to discuss the Chinese question. Newlands was also a member of this convention, and on this occasion he displayed a conservatism of views which has won for him the admiration of all right-thinking men. The outcry in this state against the Chinese has been such that even intelligent men have been led to urge irrational measures, in order to appease the public feeling, and the tenor of the remarks at this convention was of a radical and revolutionary nature. Resolutions ordering the boycott against the Chinese and their employers were adopted, and measures were inaugurated for violently driving the Chinese out of the state. Newlands stood out conspicuously by the temperate character of his speech. He appealed to the assemblage to remember the sanctity of treaty obligations, and while he was willing and anxious to relieve the people from the blighting effect of Chinese competition, he urged the use of legal methods to secure this end.

It was due, perhaps, more to his fearless attitude at the Stockton convention than to any previous incident in his political career that Newlands was esteemed by men of all parties as one fitted to take a more prominent part in the affairs of state, and when the legislature convened in January 1887, he was prominently mentioned as the one upon whom would be conferred the honor of a seat in the United States senate. His failure to secure the coveted place was almost entirely due to the fact that he did not take an active part in the vigorous contest which was made by other candidates. His qualifications for the office were fully recognized, and from the press of the state he received many high encomiums. Says a prominent journal, referring to his candidacy: "In Mr Newlands California may find a representative in the highest

legislative body of our country of whom she may be proud. A cultured and honorable gentleman, a man of wisdom gained by experience, as well as of knowledge gained from books; essentially a man of affairs, yet not a mere business man; too keen-sighted to be hoodwinked, too independent to be led, too intellectually strong to be driven, and impossible to be bought—the interest and dignity of the state of which we are so justly proud will be safe in the hands of Mr Newlands."

Returning to the Pacific coast from a twelvemonth tour in Europe, Newlands found that his party had committed itself to the doctrine of monometallism, whilst the republican party had declared in its platform, as one of its principles, in favor of bimetallism, and that the statesmen of the democratic party in the north had joined hands with their southern brethren in an open attack upon the manufacturing industries of the nation, in opposition to the protective policy of the republican party. He declared that he could no longer adhere to the democracy, and in December 1889, openly disavowed his allegiance to it and associated himself with the republican party, whose principles were in accord with his views on all the great questions of the day.

About this time Mr Newlands' attention was attracted to Nevada by the magnificent field for enterprise afforded by the undeveloped resources of the western portion of that state, and that part of California lying east of the Sierra Nevada. The succession of large and productive valleys extending from Inyo on the south to the Oregon line on the north, surrounded by mountains rich in pasture, timber, and mines, were largely neglected by labor and unnoticed by capital. Throughout a large portion of this region the Sharon estate has extensive possessions in mines, mills, lands, and railroads, and determining to promote a systematic development of the state, he removed his

family to Nevada and established himself as one of her citizens. He selected Reno for his future home, and upon a commanding site on the south bank of the Truckee river he built a residence. Hardly before he was settled in his new home, with his natural taste for the beautiful, which has been developed by a liberal education and extensive travel, he began an active campaign for the improvement of the town.

But the object to which he gave his most devoted attention was the saving of the flood-waters at the sources of the Carson and Truckee rivers, to be used in irrigating the lands in the valleys adjacent to those rivers. He employed competent engineers and surveyors to ascertain the possibilities of the enterprise, and the investigations which he made were published in an elaborate pamphlet, accompanied with maps, and disclosed the raw materials for the founding of an empire. To him is due the credit of being the first man in the history of Nevada who united the brains to understand and the enterprise to demonstrate the state's capacity. His efforts led to the storage of the waters of Tahoe and Donner lakes, securing from drought the thousands of acres of land in the Truckee meadows, and making it practicable to irrigate the higher lands, and thereby trebling the population and wealth of that section of the state. They also led to the acquirement of facilities for conducting a similar work on the Carson river, which will reclaim vast areas of the most desirable land, and regulate the flow of the stream, so that it will afford sufficient power for the mills along its banks to crush the ores from the mines without interruption, and thus secure constant employment for the miners. He induced the Central Pacific Railroad company to make a survey of the Humboldt river, and to treat the people of Nevada in other respects with greater liberality. He aided in securing legislation authorizing the formation of a system of water districts, making enlightened

action tending toward the systematic development of the state possible. By his faculty of forcing men to action, and of making others share his enthusiasm, he has aroused the energies of the people of the state, and with his assistance creameries, flour-mills, and similar enterprises have been established. A state board of trade has been formed, with Newlands as its president and leading spirit, and has done much to awaken an interest and confidence in Nevada, and inspire her citizens with greater pride and hope with respect to the future.

On account of the large investments which were made in the District of Columbia by Senator Sharon, and the still more extensive ones which have been since made there by Mr Newlands, he has found it necessary to spend part of his time within the last few years at the national capital. Handsome residences have been constructed there by the estate under his direction, and a vast amount of money has been expended by him in the purchase of large tracts of surburban property, and the construction of an electric road over seven miles in length, running the greater distance though lands owned by the estate and Senator Stewart of Nevada, and crossing two magnificent iron bridges, one of which is over seven hundred feet long and spans a beautiful stream, Rock creek, at the southern end of the Zoölogical park, at an elevation of over one hundred feet. The enterprise also contemplates the extension of the road to the capitol and the treasury department building, which will increase its length about three miles; the construction of other branch lines; the establishment of a park or pleasure-ground at the terminus of the main road; and the erection of the town of Chevy Chase, in Maryland, near the boundary line of the District of Columbia, the latter project involving the grading and opening of streets, the construction of thorough systems of sewerage, water supply,

electric lights, and all the other features of a modern town.

Newlands purchased from ex-President Cleveland as a summer residence the beautiful piece of property known as Oak View, situated about two miles from the White House, and commanding a splendid view of the capital city from its broad verandas. That pre-eminent characteristic of Mr Newlands of identifying himself with the material interests of every community with which he may came in contact has also been manifested in Washington. He is there recognized as a liberal-minded, progressive-spirited man, and is highly esteemed both in business and social circles. His breadth of mind has been characterized as being as broad as the continent. He is a leading member of the board of trade of that city, and has been selected to act on committees of that body which have in view the improvement and development of the city. He and his handsome wife have gathered about them there a wide circle of friends, among whom are numbered many of the leading men of the nation.

While in the east, Newlands is in constant communication with the numerous agents of the Sharon estate. No step is taken by any of them without consulting him. He is quick in comprehending the most intricate situations, and although he never descends into trivial detail, he overlooks nothing. His memory is remarkable. He is able to rely upon it to a very great extent in the most involved transactions. Every step that he takes is marked with deliberation and conservatism. But notwithstanding the varied and scattered interests of the estate are sufficient to engross his whole time and attention, he takes a lively interest in all matters of public concern. He is particularly interested in the solution of the silver problem, and is one of the most earnest and active workers in behalf of the white metal. The subject is upper-

most in his mind, and there is nothing which delights him more than to be involved in a controversy upon that topic. He grows warm and animated in such discussions. He has all the historical and statistical data relating to the question at his finger-ends. He is thoroughly practical as well as logical in argument, and is fully able to cope with the most experienced economists, financiers, and statesmen. His interest in the silver question may almost be characterized as a hobby, and no matter what business he may have on hand, or in whose company he may be, he is always ready to seize any and every opportunity to launch upon the controversial sea of finance. His earnestness and activity in the discussion of the silver question have brought his name into prominence both in the east and the west, and his councils are always sought by the silver advocates. He has made speeches in different parts of the country upon the subject, and numerous interviews with and communications from him have appeared in the columns of the leading journals of the United States, and even the newspapers controlled by the single gold-standard advocates, which, as a rule, rigidly exclude all matter favorable to the opposite cause, having frequently recognized the force of his arguments by publishing and commenting upon them. His writings and speeches have been published in pamphlet form by silver organizations. His views also appear in reports of committees of congress before whom he has been invited to state them, and have thus received a very wide circulation.

Newlands was chosen by the governer of Nevada as a delegate from that state to the silver convention which was held in St Louis in 1889. It was then that his interest in this question was fully awakened, and from that time he became a devoted student of the financial problem. The readiness with which he grasped its subtleties and the originality of his ideas

are remarkable. His abilities were immediately recognized. He was made vice-president of the national executive silver committe—the outgrowth of the St Louis convention—and at once became and has remained the leading spirit of the committee, whose membership comprises some of the ablest statesmen and financiers of the country. So effectual was the work of the committee in creating a sentiment in favor of the remonetization of silver that its opponents endeavored to break the force of the arguments put forth by it by trying to cast suspicion upon its purposes. Mr Newlands was singled out as the head and front of the so-called conspiracy of the "silver barons" to enhance the value of the product of their mines. The press was filled with sensational rumors and charges from irresponsible sources of "silver pools" and schemes to influence legislative action. A committee of investigation was appointed by the house of representatives. Vague suggestions were made that an inquiry into the operations of the national executive silver committe would bring forth startling developments. Mr Newlands courted investigation. He was summoned before the congressional committee. He was closely and rigidly questioned as to the work of his committee. The result of the whole affair showed that its plan of campaign was purely one of education, involving only a small outlay to pay the expenses of printing and distributing pamphlets and circulars. The gold men were chagrined and mortified. In the second session of the 51st congress, the house coinage committee had under consideration a silver bill which had passed the senate. A number of bankers and business men were called to give their views in regard to the measure. Their statements were received in a formal way, but much prominence was given to Mr Newlands by the particular attention that was paid to his presentation of the questions, and by the efforts of the friends of the

gold men on the committee to weaken the force of his arguments. He was kept under fire by the committee for a number of days, and came out without leaving a weak spot in his armor.

The result of the constant agitation which has been maintained by Mr Newlands and his associates is that the public has been made to realize the importance of the silver question, and to take an interest in it second only to the tariff question; a law was passed by congress in 1889 which largely increased the use of silver in the United States, and in the last session of the 51st congress a bill was passed by the senate providing for the free coinage of silver, and only failed of passing in the house through a resort to parliamentary delays and devices to prevent its receiving consideration; party lines have been drawn upon it, and there is every indication that a free coinage bill will yet be passed, and that the stagnation in business caused by the clandestine demonetization of silver in 1873 will give way to an era of the highest degree of prosperity this country has ever known. When silver is restored to its rightful position as a money metal, Mr Newlands will feel that his greatest task is performed.

He has also devoted much attention to tariff legislation. He is a firm believer in the principle of protection to home industry, and has lent the weight of his name and voice in support of that policy. In the discussion of the extent to which the general government should go in the development of the arid regions by irrigation, Newlands naturally takes a deep interest. He has sought every opportunity to inform the officers of the government of the necessity of some immediate steps being taken to reclaim the desert wastes in the west, and provide homes for settlers there, and has done everything that a private citizen could do to bring about governmental action. He has addressed commercial and other organizations

on the subject, urging them to assist in devising and carrying out some comprehensive plan of action, and as a delegate from Nevada he took an active part in the deliberations of the irrigation convention which was held in Salt Lake City in September 1891. In short, he is a tireless worker for the development of the west.

It would be strange if such a man as Newlands should escape the call of politics. Affable, approachable, energetic, well-educated, cultivated, with clear-cut features, a well-knit frame, ready eloquence, and easy manners, he is naturally adapted to public life. His name has frequently been mentioned in connection with political honors, yet he has never been a candidate in the popular sense, nor has he ever held any public office. He has thus far been content to labor as a private citizen in behalf of the public weal, and has held himself above the machinations of class or faction. He is devoted to the cause of the republican party as a whole. In August 1890, he was urged in a public communication from a number of the most influential citizens of Nevada to allow his name to be used as a candidate for governor or member of congress, believing that as the leading spirit in the movement for the development of that state his candidacy would command the support of all her people. He replied that for the present he preferred to take an active part in measures rather than in politics; but as his friends refused to consider his declination as being final, he appeared before the nominating convention which met soon after, and in a speech full of expressions of the noblest sentiments, he once more positively refused to allow his name to be presented as a candidate for any office. In the campaign which followed, he made a thorough canvass of the whole state in behalf of the republican ticket, which was carried in the election by a very large majority. Since then his name has been quite generally used in

connection with Nevada's representation in both the house of representatives and the United States senate. With a thorough desire for the adoption of measures which would promote the material interests of all the people, he would make a most valuable representative. With youth, wealth, talents, a high social position, tireless energy, and enlightened views and knowledge of her wants, Nevada would have cause to congratulate herself upon securing his services in the national legislature. She needs such a man to aid her in the upward course upon which she is just starting, and which he has done so much to mark out.

CHAPTER III.

MINES AND MINING—CENTRAL AMERICA AND MEXICO.

ABORIGINAL USE OF METALS—CASTILLA DEL ORO—GOLDEN REGIONS—THE FIRST MINES WORKED ON THE CONTINENT OF AMERICA—DEVELOPMENTS OF THE SPANIARDS IN CENTRAL AMERICA—OPERATIONS OF THE AZTECS—THEIR GREAT GOLD GATHERING AND THEIR FINE GOLD WORK—THE MINES OF MEXICO—JUNTA DE MINERIA—EFFECT OF THE REVOLUTIONARY WAR ON MINING—PRODUCTS—MINT STATISTICS—GENERAL DEVELOPMENT.

GOLD and silver, previous to the Spanish conquest, were used by the aborigines of the Mexican table-land in various forms. As soon as La Española was fairly in possession of the conquerors, the hapless natives were forced to provide the much coveted metals. By the labor of Indian slaves each task-master obtained from 6 to 250 castellanos per day. Two hundred thousand castellanos of gold went to the bottom of the sea with the ships of Bobadilla, the royal commissioner, infamous for his ill treatment of Columbus. Golden ornaments and pearls were procured at Darien in 1501 by Roderigo de Bastidas and Juan de la Cosa from the nude savages, in exchange for hawks' bells and glass beads. Along the coast of Honduras Columbus heard of realms where gold was so abundant that the commonest utensils of the people were made of it. The natives wore ornaments of an inferior gold. The pure article was not found till the discoverers reached the bay of Caribaro, in Costa Rica, where the inhabitants wore it in plates suspended from their necks. It was here that the first information was received of Veragua, a land of gold; upon reaching which, the adelantado, Bartholomew Columbus,

was despatched early in February 1503 with a party of armed men to explore the gold region. All that the new comers had heard of the wealth of Veragua was more than confirmed; whereupon the admiral resolved to plant a colony on the spot, this being the first attempt to form a settlement on the mainland of North America. But the quibian, or sovereign of the country, having shown a decided hostility to his European visitors, the project was abandoned.

During Queen Isabella's reign but little gold entered her treasury, the Spaniards preferring to obtain it by trade with the natives rather than to dig for it. But after her death the system of repartimientos and encomiendas of Indians—originally intended by the crown for the protection of the natives, but made by the settlers the means of their enslavement—was revived, with the result of largely increasing the yield. According to the historian, Herrera, 450,000 ounces of gold passed through the four foundries of Española in 1506. The jealousy of the crown guarded its perquisites, among which were included all minerals, and though private persons were permitted to work the mines, a royalty had to be paid into the king's treasury, which at first was two thirds of the proceeds, and subsequently one fifth. In every audiencia district was established a melting-house. Diego de Nicuesa on being appointed governor for ten years of Castilla del Oro, so named because of the great quantities of gold which it yielded, was granted the privilege of working the mines of the province by paying one tenth of the proceeds the first year, one ninth the second, and thus decreasing to one fifth of the product of subsequent years.

The bachiller Enciso heard in 1510 of the gold producing province of Zenú, east of the gulf of Darien, where the mountains were impregnated with the precious metal, which in the rainy season was carried down by the swollen streams; the natives gathering in nets the coarse pieces, some of them as large as

eggs. Zenú was the burial place for all the tribes of that vicinity, and in its graves were the precious ornaments buried with the dead. This excited the cupidity of the Spaniards, who did not, however, attempt at that time to penetrate the country.

At a later period expeditions were fitted out to reach the coveted treasure, and met with disaster. Enciso found secreted in caves along the banks of the Atrato river golden ornaments of the value of 10,000 pesos. Vasco Nuñez de Balboa, the discoverer of the Pacific ocean, on his several expeditions through the country, gathered large quantities of gold in various forms. The metal was used by the natives for breast-plates and ornaments for the person, and also in the form of vessels for domestic purposes, without placing on it any special value. The time came when iron was much more highly prized. An iron tool, such as a hatchet or knife, or even a piece of old hoop iron was worth its weight in gold. To Balboa was made known the place where the natives obtained their pearls, and he taught them how to open the oysters without damaging the gem, the Indians soon becoming expert divers.

Mining for gold on the western continent was first attempted in 1514 at a place about nine miles from the settlement of Santa María de la Antigua del Darien, where soil of the hillsides, plains, and river banks was richly impregnated with the metal. The practice was then established of appointing a mining superintendent or surveyor, under whose direction plots of ground were measured off twelve paces square, the claimant having the option of choice from ground not preoccupied. If the spot chosen should prove barren it might be abandoned, and another one selected.

In the north-western coast, from Panamá to the bay of Fonseca, Gil Gonzalez and Andrés Niño found gold, portions of which were of inferior quality, worth

only $12 or $13 an ounce. In the valley of Olancho, Honduras, the existence of rich mines of very superior gold, 22 carats fine, became known to the governor of the province. They were worked about 1528, and large quantities of the metal were obtained from the river Guayape. Silver mines were discovered in a valley of Honduras, thirty leagues from Trujillo. The miners of this district reported in 1533 the existence in that neighborhood of rich deposits of gold and other metals, which, after Pedro de Alvarado had pacified the country, were worked, and yielded largely of their treasures. In 1540 Governor Gutierrez of Nueva Cartago, or Costa Rica, found gold to be plentiful and of good quality on the southern slope of the mountains.

In Nicaragua no mines of any importance were discovered up to 1546. The natives possessed, however, articles made of gold mixed with other metals, which had come to them from distant parts.

In Venezuela, called by the early Spanish settlers the pearl coast, large quantities of that gem were found. Licenciado Pedro Ordoñez de Ceballos saw in 1660 huge piles containing bushels of pearls.

It is unnecessary here to enlarge on the discoveries made by Francisco Pizarro and his followers, of the precious metals in Peru and other parts of South America, or on the horrors which the conquerors inflicted upon the inhabitants. The captured inca of Peru caused to be collected for his ransom 1,326,539 castellanos of gold and 51,610 marks of silver, equivalent at present to at least $20,000,000. The gold and silver gathered in the temples of the sun were transported from every part of the empire on the backs of natives to the chief places of deposit, Quito and Cuzco, five hundred leagues apart. Garcilaso de la Vega affirms that on board one of the fleets destined for Spain were 25,000,000 pesos in gold and silver. The mines of Potosí were so rich that all others were abandoned as unprofitable, and silver was so common

that iron was worth at Potosí its weight in the former metal. By the beginning of the seventeenth century the mines of Peru were already yielding eleven million pesos a year, and for a time overshadowed those of Mexico and all others of the world. The natives were compelled at the point of the sword to work for their conquerors, all between the ages of eighteen and fifty being required to labor in their turn for six months in the mines, the task falling to the lot of each individual at intervals of three and a half years. Four natives out of five were supposed to perish annually in these deadly tasks.

Let us now turn to Mexico, where it is a matter of history that the Aztecs possessed large quantities of gold and silver, which they wrought into objects of art for the ornamentation of their persons, dwellings, and temples. Montezuma made rich presents to Cortés, requesting him not to visit his capital; and when the Spanish captain, disregarding his wishes, entered Tenochtitlan, still more gold, silver, and what were supposed to be precious stones were presented to him. Concealed treasures of immense value were afterward found by the Spaniards, which they unscrupulously appropriated for themselves. The first expeditions despatched to seek for gold, after the fall of Montezuma's empire, were those to Zacatula, and to Tochtepec and Malinaltepec. Both returned with gold washed from the river sands.

As the conquest of the country progressed, the conquerors were on the alert to discover the localities where the precious metals might be found. The first regions examined were those of Guazpaltepec and Xaltepec, and several years later the famous mine of Morcillo, in Michoacan, was worked for a time with success. This mine was said at a later date to have disappeared in a mysterious manner. The Spaniards, having no knowledge of mining methods, made use of those employed by the Aztecs, which were little more

than skimming the surface of the ground, or washing the sands of the rivers. Their smelting apparatus being imperfect, and their only means of increasing the heat of their small furnaces being blow-pipes of bamboo, we have the explanation why golden was more common than silver jewelry. The latter metal was not more sparsely distributed than gold, but more difficult to detach from the ores. In the course of time skilled miners from Spain introduced improvements.

Reales de minas, or mining encampments, presently sprang up everywhere, particularly in the northern region. The discovery, in 1539, of the mineral lodes of Tasco, Sultepec, Tzumpanco, Temazcaltepec, and others toward the south, was followed, probably about 1548, by the finding of those of San Luis Potosí and Zacatecas.

The crown favored the development of mining, and after 1526 permitted private persons, whether Spaniards or natives, to engage in this industry, although the mines nominally belonged to the crown. In order to prevent abuses, however, certain officials, and all friars and priests, were forbidden to participate. Every possible protection was afforded, even to the extent of providing that executions could be levied only against the products, and not against the property, its implements, supplies, or slaves, unless for debts to the crown. Miners could be imprisoned for debt only in their own districts, and even then were granted a partial freedom to look after their affairs. The royalty payable to the crown never exceeded one tenth, although efforts were repeatedly made to raise it to one fifth. Vagrants, whether Spaniards or natives, and criminals condemned to hard labor, were made to work out their time in the mines. For Indians thus working was secured, under strict regulations, a fair rate of compensation, and the abuses to which they had been subjected in the sixteenth century gradually disappeared. Finally the system of paying the labor-

ers by shares superseded the former one of wages, and tended to promote the interests of both employers and laborers. Indian miners were entitled to one bag of ore per day, which sometimes would sell for one hundred dollars.

With the methods of extracting the precious metals at first in use, only rich ores returned a profit, especially in districts where fuel was scarce. The discovery of the amalgamation process already alluded to proved of great benefit to the mining industry. Though two others have been given the credit of it, Bartolomé de Medina seems to be the one best entitled to the honor, but did not himself receive any benefit from his invention. Ores formerly considered worthless were now worked anew, and within five years after the adoption of this process the number of reduction works was greatly increased, though as late as 1805 one fifth of the entire yield of the mines passed through the smelting furnace. The quicksilver required for amalgamation came from Spain, and was furnished exclusively by the royal tribunas de azogues. This monopoly not only increased the revenue, but also insured a closer supervision over the mines and their products. The price of quicksilver ranged from 187 pesos a quintal in 1590 to 41 pesos for Spanish and 63 pesos for German quicksilver in 1777. Rewards were at one time offered for the discovery of quicksilver deposits in the country itself, but as they were never permitted to be worked, the impression gained ground that there was no cinnabar in New Spain, whereas it really existed in abundance. Several of them were later worked by the crown at considerable expense, but the business was declared unprofitable.

In Mexico veins of silver ore usually run from the northwest to the southeast, which circumstance is always considered on filing a claim. The average width of a vein is six feet, except on the Veta Grande

of Zacatecas, where it is from thirty to thirty-five feet, the maximum being seventy-five feet. In some districts, like Sonora and Chihuahua, the ore lies near the surface, but such is not generally the case. Argentiferous ores near the surface are usually in the form of oxides, or combined with iron, chlorine, or bromine, at greater depth retaining the condition of sulphuric bases, and being found in connection with pyrites, galena, or blende, the two latter predominating. The first class of ores is designated as *colorado*, or red, and the other *nègro*, or black. There has been much exaggeration as to the richness of ores in Mexico, the occurrence of large blocks of native silver being spoken of as frequent; but the average yield is from three to four ounces of silver to the one hundred pounds of ore. The enormous returns are really due to the great abundance of ore. Gold is obtained chiefly from placers in Sonora and the northern regions. In Oajaca it is found in rocks, but does not pay to work. In other parts it is mixed with argentiferous ores, yielding two ounces of gold to one hundred pounds of rock.

The country also possesses large deposits of other metals; iron in Colima, Oajaca, Zacatecas, Jalisco, and other districts; copper in Michoacan. Neither of them, however, yielded enough to justify the working of the mines in former times, when public attention was wholly given to the precious metals.

More appreciated have been the quarries of tetzontli, found in the neighborhood of the city of Mexico, and frequently used in its buildings. Salines were worked in Jalisco, San Luis Potosí, Colima, Oajaca, and elsewhere. This products being required also for the amalgamation process, the management of the deposits was placed under regulations in 1580, and in later years temporarily reserved to the crown.

Early chronicles often mention the existence in New Spain, of precious stones. There were supposed to be

deposits of sapphires; rubies and turquoises were supposed to exist in Oajaca, and the crown was asked for permission to work them; but nothing came of it, probably because the supposition proved unfounded. The natives had in use a number of simple stones, which they considered precious, and, for a time, were held in the same estimation by the Spaniards, among them being the oft-mentioned chalchihuitztli or chalchihuite, resembling the emerald; but the mistake was discovered, and the so-called emeralds, rubies, and sapphires lost their value.

The mining industry attained its greatest development in Mexico in the second half of the eighteenth century, under the auspices of the Junta de Mineria, already mentioned. The result of its operations was an increase in the product, so that in the early part of the present century the average yield of the mines was $23,000,000 a year, against less than $10,000,000 in the years preceding 1750, a little over $5,000,000 in 1700, an average of $3,000,000 in the preceding century, and of $2,000,000 in the latter part of the sixteenth, while before 1548 it reached only $1,500,000, consisting mainly of presents and tributes. A percentage must of course be added for what was used in utensils and ornaments, and for what was surreptitiously exported. The increase was due to lower-priced quicksilver, and to a more liberal colonial policy which found its reward in a larger revenue; the receipts from 1765 to 1789 amounting to $43,641,000.

The chief mineral districts were Guanajuato, Catorce, and Zacatecas. The product of Guanajuato in the eighteenth century, and to 1809, reached 37,290,-617 marks of silver, and 88,184 marks of gold, valued at $318,935,000, whereof the Valenciana mines contributed in 1771 as much as $2,500,000; Catorce yielded annually $4,000,000 from 1778 to 1810, and the intendencia of San Luis Potosí, to which it belonged, 92,736,294 marks of silver from 1556 to 1789, representing the sum of $788,258,000; Zaca-

tecas produced from 1553 to 1732, $832,232,000; and in 1808 it equalled Guanajuato, the yield of its Veta Negra alone being 700,000 marks of silver in six months.

At the very time when the mines were so generously rewarding the labor bestowed upon them, and adding largely to the wealth of the world, the Mexican revolution broke out, and the work of centuries was completely undone. Machinery was destroyed, mines became filled with water and débris; scientific mining ceased, in many places, and in others miners made use of a wasteful and irregular system. The products of mining were reduced to one half. After the independence the government endeavored to revive the industry, inviting foreign capital and labor to coöperate. Many foreigners, mostly English, responded to the call, but through lack of skill or mismanagement failed to obtain satisfactory results, and retired from the field, after sustaining heavy losses. Constant political disturbances superadded to the expulsion of the Spaniards and the high price of quicksilver, also retarded the mining industry. The output from 1823 to 1852 has been computed, as per statistics of the mints, at $401,000 000. Zacatecas leading with upwards of $120,000,000; Guanajuato and Mexico following with about $90,000,000 and $60,000,000 respectively; next came San Luis Potosí, Durango, and Jalisco from $25,000,000 down to $19,000,000. The remaining districts yielded less. The total may be augmented by $2,000,000 a year of unregistered products.

The eleven mints of the republic exhibit a perceptible increase of silver coinage. During the fiscal year 1878 9 the total coinage was $22,821,183, of which $658,206 was of gold pieces; in 1878-9, $24,536,584 was coined, of which only $521,826 was gold; in 1880-1, out of a total coinage of $24,973,712 only $479,068 was of gold; in 1881-2, gold was represented by $452,590 out of $25,598,849 coined.

Much attention has been paid in recent years to mines of iron and coal, the working of which, with the facilities of transportation afforded by railways, must become an important and wealth producing industry. By actual explorations it has been ascertained that rich deposits of coal exist in Tlaxcala, Oajaca, Michoacan, the Huasteca, Morelos, and especially in the districts of Matamoras, Chicutla, and Acatlan in the state of Puebla. It is believed the day is not distant when iron deposits will be utilized in the manufacture of rails, wheels, and machinery.

Of the five republics of Central America, Honduras is the best provided with mineral wealth. The mining industry was a prominent one until thirty or forty years ago, when political troubles led to its abandonment. Since then, until very recent years, no efforts were made to revive it, previous operations being on a small scale, and with rude methods. Silver ores are abundant, and chiefly located on the Pacific group of mountains, whereas the gold washings, if not the gold mines proper, are on the Atlantic slope. Rich deposits of silver in various combinations are found in Tegucigalpa, Choluteca, and Gracias. The old mine of Coloal yielded 58 per cent of copper and 78 to 84 ounces of silver to the ton; the ores of the new Coloal yielded 8,470 ounces of silver per ton.

Only a few of the many gold mines of Honduras have been worked. The chief supply of this metal has come from the washings of Olancho. The Guayape and Jalad rivers, and the streams running into them, are very rich in auriferous sands. The southern districts bordering on Nicaragua also possess rich placers. In 1860, and for some preceding years, Honduras exported bullion to the annual value of $400,000. The republic has also mines of copper, iron, platina, cinnabar, zinc, and coal. Very productive opal deposits exist in Gracias, and amethysts are found in Campuca. What is most needed to develop

these and other resources in Honduras is the element that gives life to all industries at the present time, and that is capital. Several companies have lately been organized in the United States and Europe to work the mines of Tagucigalpa, Yuscarán, and other departments.

Of Guatemala little has to be said on this subject. However, the Alotepec mountains yielded much silver in the eighteenth century. In Chiquimula the Indians get gold from the river sands. Near Chol have been found nuggets of 22 carats. In some mines ores treated with quicksilver yielded at the rate of $320 to the ton. Gold placers are worked in Izabal, and Zúnil has a quicksilver mine that the Indians work in secret. Several reports have lately been made to the government regarding deposits of lead, copper, silver, gold, cinnabar, coal, kaolin, marble, coal, peat, lignite, and salt, and in 1888 a mineralogical survey of the country was being made by order of the government.

Nicaragua has immense wealth in minerals awaiting development. Gold and silver are abundant, and the whole northern frontier abounds in silver. The gold veins come from the direction of Honduras, running along the cordillera to the San Juan river, where they become ramified, meeting again in Costa Rica, and the chief one crossing the Machuca river. The gold is almost pure when washed out of river beds, and more or less mixed with silver when found in the earth. Especial mention is required of the districts of Juigalpa and Libertad, and of the famous mines of Jicaro near Trinidad, of Santa Rosa, Achupa, San Francisco, etc. The whole upper region of the Coco river is also rich. Though mines of Nicaragua are excellent, they are of little advantage, owing to the ignorance of the miners, and their unwillingness or inability to abandon old methods. There are likewise deposits of gypsum, marble, alabaster, lime, saltpetre, etc. Sulphur is also found pure at times. The

laws of Nicaragua, like those of the other republics, are favorable to the working of mines by foreigners as well as natives.

In Salvador there are no mines of precious metals outside of the Honduras mountain region. Those of San Miguel, bordering on Honduras, are well known, and some of them have been worked on a large scale, and to advantage. The Tabanco mines yielded as much as 2,537 ounces of silver to the ton of ore. Their products were $1,000,000 a year, though worked rudely, and without machinery. The yield of the best one was $2,000,000 a year. The republic possesses likewise mines of iron near Santa Ana, and of brown coal in the valley of the Lempa, and in the valleys of some of its tributaries, over a region of 100 miles in length by 20 miles in breadth.

Costa Rica has less mining wealth than her sister republics, but rich gold mines are supposed to exist near Panamá. Foreigners work to some advantage gold deposits in the Aguiate mountains and Cuesta del Jocote. The country has also mines of silver, copper, nickel, zinc, iron, lead, and coal.

The gold and silver yield of the five republics from 1804 to 1868 has been computed at $13,800,000 of the former, and $7,400,000 of the latter. Their later product is roughly calculated at $300,000 of gold and $200,000 of silver a year. Large quantities of the precious metals were illegally exported in colonial times, through Belize and the Mosquito coast, only one third of the product reaching the royal mint. The superintendent of the old mint calculated the coinage of gold and silver for the 15 years anterior to 1870 at $2,193,832, and for the 15 subsequent years at $3,810,382. He estimated the actual product at ten times the amount coined in these thirty years, but this is probably exaggerated.

The richest mines of the isthmuses of Panamá and Darien were those of Santa Cruz de Cana, the Espiritu Santo being the principal one. They were several

times plundered by the buccaneers, Harris in 1684 carrying away 120 pounds of gold. Dampier spoke of them as "the richest gold mines ever yet found in America." These mines were prosperous until the Indian revolt of 1726 and 1727 destroyed them, before which it is believed their yield was 18,000 to 20,000 pounds of gold yearly. The Cuque gold mine was particularly noticeable for its wealth. The Curias Indians worked a silver mine, allowing no white man to visit it. According to an official document of the Colombian government the whole production of gold and silver in the entire republic from 1537 to 1800 was $414,000,000, and from 1801 to 1882, $216,000,000; total, $630,000,000; of which $74,000,000 is credited to the isthmus of Panamá, $4,000,000 being produced in the present century. Many rivers of the Isthmus contain gold in abundance, namely Marea and Balsas in Darien, with the Coclé, Belén, Indios, and their tributaries. Cinnabar and manganese are also supposed to exist on the Isthmus. There is coal in Chiriquí, Bocas del Toro, and at the bottom of the harbor of Colon or Aspinwall.

CHAPTER IV.

MINES AND MINING—CALIFORNIA.

ANGLO-SAXON LOVE OF GOLD—EARLY RUMORS AND EARLY EFFORTS—THE DISCOVERY AT COLOMA—ITS EFFECT ON COMMERCE—GENERAL INGATHERING OF GOLD SEEKERS—QUALITY OF IMMIGRATION—LIFE OF THE MINER—PROSPECTING—RUSHES—DISTRIBUTION OF CAMPS—QUARTZ MINING—TABLE MOUNTAINS AND DEAD RIVER BEDS—GEOLOGIC BELTS—FORM AND QUALITY OF GOLD—YIELDS—MINING METHODS, MACHINERY, AND LAWS—SILVER MINING—STOCK GAMBLING BOARDS.

As throughout Spanish-America gold was the magnet that drew hither men of the Latin race, so it was when a portion of the field fell into the hands of Anglo-Americans, gold being still the attraction. And all the world was in a fever of excitement when men saw it glittering throughout the border of the great valley of California, because since Pizarro went to Peru, and Cortés took possession of Mexico, there had been no such display, and because the world was smaller and travelling facilities better now than then, and, finally, because all the world might come freely and help themselves. There was nothing mean about these United States—until our royal masters from the pauper communities of Ireland came and told us what we must do with our Chinamen.

The treasures of the Orient had lured the Spaniards to the discovery of America, and striking here another lead, they pursued it into the southern and central continent, and from Mexico northward. In California alone they failed to look into the right corner, and sank into listless ranchero life, undisturbed by the infrequent reports of veins and indications, chiefly of silver, in Monterey county. It was

not until 1842 that a real gold placer was disclosed near San Fernando mission, which attracted a number of diggers, and led to the formation of a mining district, with a special justice of the peace. The average yield was not over two dollars per man, and within a few years the place was abandoned, though a decade later revived for a time under more efficient methods.

The belief in the existence of rich deposits, somewhere hereabout, was otherwise widely entertained, although founded on no reliable basis. Early navigators were ever prone to embellish their narratives of discovery by sprinkling them with gold, as did the chaplain of the pirate Drake, when in 1579 he touched at the Marin county seaboard. The subsequent disclosure of veins in the peninsula was applied by foreign writers equally to the upper country, which bore the same name. Foreign visitors echoed the rumors in words which now seem oracular; but none were induced to set forth in its pursuit. The discovery, when finally it came, was purely accidental; although, with the gathering host of observant fortune hunters, the Sierra could not long have retained her secret.

Great discoveries are for the most part more or less due to accident; accidents which are ordained to happen. Newton was not seeking the law of gravity, nor Columbus a new continent, nor Marshall gold, when these things were thrust upon them.

The leading foreigner in California in the fourth decade of this century was Johann August Sutter, a German-Swiss, born in Baden in 1803, who, after a checkered career as a trader in Switzerland, came to the United States to mend his fortunes. He acquired an insight into the manner of dealing with Indians, and profited by their inexperience in civilized methods. Hearing of California, with its unoccupied interior and rich pastoral seaboard, he decided here to cast in his lot, and arriving in 1839, was admitted as a citizen, and received a large grant over

the Sacramento, centering at the mouth of the American river. He sought remoteness from Mexican officials, so as to be left undisturbed in his dealings with the Indians. With energy and tact he trained the natives for his service, teaching them to plant, to build, to hunt and trap, and to establish trade with the surrounding tribes, over whom he soon acquired such authority as to rise to a power in the land, and be invested with official rank by the government. A similar influence was acquired over the inflowing foreign immigrants, chiefly adventurers from the United States, who clustered round his fort as their headquarters, thence to spread their settlements north and south, though, like him, they sought, by seclusion, to escape from the discord and jealousy prevalent among the Mexican leaders. Sutter's isolation served also to keep creditors at bay, for his property was acquired almost entirely on credit, partly from the establishment of the Russians at Ross, the payment for which was indefinitely deferred. Although well intentioned he was somewhat visionary in his projects, and lapsed only too readily into unscrupulous disregard for the rights of others. Nevertheless, he left a good impression among the pioneers, who remembered the important services he rendered them in establishing this frontier post. It proved a shelter against hostile Mexicans and a nucleus for flourishing farms and camps.

Among the enterprises of this potentate of the Sacramento was a large saw-mill, in Coloma valley, on the south branch of the American river, and this was the proposed beginning of several other undertakings. During the construction of the tail-race, on January 24, 1848, the foreman of the work discovered in the excavations some glittering particles, which on being tested, proved to be gold.

It was a freak of chance, but of such importance as to merit for the finder a certain recognition, for it was the first gold discovery proper of California, and the

greatest of any age, bearing in its train a potency which shook the social, commercial, and political structures of the continent. It started a current of migration unparalleled in magnitude, turned the channels of trade, rearranged values, and transformed a wilderness into a paradise.

Many have been the claimants to the honor of the discovery, but it belongs beyond a doubt to James Wilson Marshall, the foreman and partner of Sutter in the mill structure. He was then thirty-three years of age, and had early drifted from his New Jersey home into the current of westward-moving Americans, halting on different frontiers to try his fortune in various ways, notably as a carpenter and farmer. In 1845 he passed from Oregon to California, and guided by the reputation of Sutter's fort, accepted service there. He was well fitted by physique and temperament for a backwoods life. His coarse features were underlaid with a short brush of thin beard, which failed to hide the unsightly curves of the mouth, or to give due relief to its occasional grim and forlorn smile. He was taciturn, harbored visionary ideas, was a believer in spiritualism, and was of a nature that repelled confidence, and made him appear eccentric and morbid. Restless in disposition, he was nevertheless capable of a self-denying perseverance bordering on obstinacy. He was a man of moods, now applying himself vigorously to the task in hand, now brooding over crumbled projects and unrequited achievements.

Sutter sought for a time to keep the discovery of gold a secret, but in vain, and soon it spread abroad. Nevertheless, the news seemed at once worthless and improbable, and for three months was made the subject for much cheap ridicule and banter throughout the country. Finally, in May 1848, the train of excitement was kindled by the sight of substantial specimens in the form of bags of the solid metal fresh from the mines, and then the rush set in.

California felt the infection in all its virulence. Farms and crops were abandoned, and towns deserted by all save a few women and children. Sailors stole away from their ships, and soldiers from their posts, leaving the officers to indulge in harmless denunciations while doing their own cooking and mending. It was one general scramble for the gold-fields, over the plains and mountains by wagon, horse, or on foot, or across the water in all kinds of craft. The two solitary journals of the province were forced to suspend, and town-halls and churches closed their doors. The rumor drifted beyond the border, so as to bring that year a number of immigrants from Sonora and Oregon, who assisted to swell the mining population to nearly ten thousand, and to extend the field from the Tuolumne river to the neighborhood of Shasta. These early comers did not find all the rich deposits, but they gained access to much of the cream of the placer riches, some making one hundred dollars a day for weeks, or picking up bags and bottles full of dust and nuggets within a brief period, while others struck upon less productive spots, and so reduced the total yield for the season to about $10,000,000.

The extraordinary production at the different fields was verified by Governor Mason and other men of standing, who visited the mines, and sent official reports with specimens to the eastern states, together with accounts of the furore prevailing throughout the provinces. All this spread in every direction, first to the Hawaiian islands, where it kindled a glow such as Kilauea never had witnessed; then to Oregon, half of whose strength and sinew was quickly pouring southward. Mexico was largely composed of a population used to rushes in quest of new mining fields, and it was easy to rouse there an excitement, but the people of the interior states were averse to moving far away, especially to the United States, and officials took care to discourage the rumors, as well as any inclination to visit the new gold-fields. The frontier

states of Mexico were, however, less prejudiced than the others, and from Sonora came several thousands, largely by land. In China the news was turned over with feverish impatience, and thence a current of humanity set in across the ocean which it was found not easy to stop. In Australia the few available vessels were quickly filled with a mixture of adventurers and convicts. In Europe scarcely a port could be found without its vessels fitting out for the golden region, and in England and France trading and mining companies were organized whose field of operations was in California, all of which gave strength and volume to the movement.

The most deeply affected, however, were the eastern United States, where the glowing accounts, duly garnished by rival editors in accord with their fancies and love of the marvellous, produced a great excitement among the most staid communities. The political situation was favorable to such an outbreak, in Europe by reason of wars and revolutions, in the United States through the late war with Mexico and the acquisition of immense vacant but valuable territories. Here was a field for the spirit of adventure so long fostered in the states by the constant westward advance of settlements, as well as by the general prosperity, and by the late disbandment of armies from Mexico, which cast adrift a host of men without fixed aim or occupation in life.

And so from Maine to Texas the noise of preparation for travel was heard. Briefless lawyers and needy students, quacks and idlers, plodding farmers and toiling artisans, the unfortunate and disgraced, all turned westward, tearing asunder family ties to stake their all upon a cast of the die, a few to succeed, but a far greater number to be lost amid the whirl, and to sink into nameless graves. Seaports were alive with business, in the preparation of outfits, in furnishing provisions, clothing, and implements, and

in the chartering and loading of vessels for the voyage to California.

The overland journey could not be undertaken till the following spring; hence the rush for the sea route, round Cape Horn or by way of the isthmuses, particularly that of Panamá. During the winter of 1849 and the spring of 1850, fully 250 vessels sailed from the eastern ports of the United States alone. Many people from one town or district united in associations to meet the expense and danger of the voyage, but the greater part accepted the berths offered by unscrupulous speculators in vessels often unseaworthy and poorly supplied with provisions and conveniences. A large proportion were cast adrift at the isthmuses, under false representations, and left to find their way thence as best they might, unless swept away by the deadly climate. Fortunately the departing host consisted principally of young and hardy men, the distance and prospective toil and danger holding back the old and timorous, and the cost of passage deterring the vagabond element. Another favoring circumstance was the inauguration, just before the excitement, of the line of mail steamers to California, by way of Panamá, supplemented soon after by a line via Nicaragua.

With the opening spring began the gathering for the overland journey, chiefly at St Joseph or Independence, by the route now followed by the Central Pacific railway. The next considerable current took the Santa Fé route. The emigrants came mainly in wagons, though a large proportion were on horseback or on foot, the parties being formed with imposing caravans under the guidance of a chosen leader, with rules for promoting safety, harmony, and dispatch. Starting from the Missouri river, the route leads through green prairies and on to sterile plain; through pleasant valleys, and over forbidding mountains; and again into miasmatic swamps or alkali deserts, stifling

with heat and dust, and always attended by thirst, starvation, and danger from lurking savages.

This influx by sea and land added in 1849 alone about a hundred thousand to the scanty population of California, and several hundred thousand more followed within a few years, nearly all to fill for some time the mining camps, and spread their sway from one extreme of the state to the other.

The search for new gold fields was prompted first by the feverish hope of finding the rich deposits which the imagination assigned to the untried ground in the near distance, where might be the home of gold, the source whence all the scattering lumps and dust had come. Overcrowded camps compelled the new comers to pass on, and those whose claims had become exhausted were obliged to find new ones. With a bundle on his back, containing blankets, mining implements, cooking utensils, and provisions, the prospector would sally forth in search of undiscovered deposits. If successful in finding them, he might keep his secret for a time, but the necessity of fresh supplies would at last force him to show himself, when he would be watched, and followed back. Then springs up a camp of leafy arbors, brush huts, and peaked tents, upon the sandy bar or on the hillside in picturesque confusion. The sound of the pick is heard amidst the hum of voices, and in due time the drill and blast increase the din, and flumes and ditches creep along the cañon walls. Over the ridge is wafted at intervals the welcome sound of the bells of approaching mule-trains, with supplies for the stores, drinking-saloons, and hotels that form the solitary main street. Here is the sole recreation for this army of toilers, lured nightly by the illumined canvas walls, and the boisterous mirth of revellers, and on the sabbath meeting together for marketing and recreation. Drinking and gambling constituted the chief pastime.

There was something fascinating to young men in this free, natural, and bracing atmosphere, devoid of all conventionalism and artificiality, with its appeal to the roving instinct and love of adventure, and its fascinating prøspects of wealth. Some succeeded, but the larger part either abandoned the field or sank under its hardships.

The attractions of mining were maintained not alone by the constant expectation of a substantial reward, but by the excitement created through the frequent rushes to newly opened fields. An excitable temperament, a love of change, and a propensity for speculation made the effervescing society of flush times susceptible to every breath of rumor. Thus it often happened that miners would roam for years, each new claim being worse than the one last abandoned. This disposition, and the exhaustion or overcrowding of older placers kept the mining population in a ferment, constantly moving hither and thither, and ever extending the field of operations.

In 1849 the Mariposa region received an influx of diggers, who, after two years, discontented with their mediocre returns, passed onward into Kern county, without meeting better fortune. Nevertheless, in 1855, an excitement was again started in this region, which drew five thousand disappointed fortune hunters from every part of the state. Some passed on eastward to Walker river, San Bernardino, and intermediate districts, serving to bring into existence Mono and Inyo counties. The occasional traces of veins found in the coast counties gave rise to brief delusive spasms of mining. A party of miners was led on a wild goose chase to Truckee lake in 1849, and in the following year a grand excitement was caused by the alleged discovery of a silver mountain, while opening the gate at Carson valley to Nevada's silver regions, to which the rush began in 1860.

Prospectors had by 1849 penetrated northward even beyond Feather river, and brought accounts

which sent a multitude in search of the gold lake. This was of course never found; but a number of the parties stumbled on the rich headwaters of Feather river. Another fiction centered in the Lost Cabin of 1850, which hundreds sought in vain for years. The most glittering of delusions was the Gold Bluff excitement of 1850-1, under which were represented millions worth of gold lying upon the ocean beach, disintegrated by the waves from the speckled bluffs. The difficulty still remains to separate the little gold actually existing there from the heavy sand.

Such were the impulses which led to the occupation of the entire California region within a few years, the advance in some directions being retarded by the hostile attitude of the Indians, and by the uneven distribution of the metal, especially in the south. Northward the deposits were more regular, offering therefore better remuneration, with nearly equal prospects of rich discoveries.

New comers turned in early years first toward the American river, as the chief centre and distributing point for the mining movements, famed also as the site of the discovery, and for its rich bars, upland beds, and quartz veins. Along the south branch Placerville rose as the principal town, and became in time the county seat. The middle fork stood unsurpassed for the number of its bars, and was esteemed the best steadily producing river in the state, several of them yielding from $1,000,000 to $3,000,000. The divides between the forks were no less productive; the elevation of Auburn to the county seat was due to the prosperity flowing from her famous diggings.

The Yuba became celebrated not alone for her river bars, but for large gravel deposits, and particularly for quartz veins. The first recognized discovery of auriferous ore was made in June 1850 at Grass Valley, where was erected the first mill, thus making it the initial point in California for a new era in min-

ing. The early efforts in this direction were not successful, owing to inexperience and imperfect methods; but the improvements introduced by the few mines which managed to sustain themselves created in due time a revival that proved lasting. It lifted two towns to prominence in this county alone. Grass Valley, whose production for 14 years reached $24,000,000, still contains the principal quartz mines of the state.

The famous Blue Lead, marked by a profusion of gravel deposits in Yuba, Sierra, Butte, and Plumas counties, created a number of camps, dependent on tunnel work. Sierra county is a mining region furrowed by deep river channels, which in 1851–2 yielded $3,000,000, an amount long sustained by the expansion of hydraulic mining. In the more level surface of Butte and Plumas counties, the declivity is insufficient for such operation, except in certain quarters. In eastern Shasta appear the silver lodes which also constitute the chief feature of Lassen county. Beyond, to the north and west, the placers have retained a long lease of life, with comparatively little rivalry from hydraulic and quartz branches, partly owing to the capricious nature of the deposits, and, as in Trinity, to unfavorable surroundings and difficulty of access. The Gold Bluff delusion tended materially toward directing miners to this section, and giving development to the country, which, otherwise, would long have been unoccupied.

The southern mines, that is, below El Dorado county, were remarkable for pocket deposits in coarse form, rendering the search more precarious than along the regular veins of the north, but also more fascinating in its larger rewards. The character of the diggings, with their varying fortunes, brought a population of a corresponding stamp, with a propensity for gambling and riotous excess. Sonora became early the headquarters for this region, sustained by the

nugget-seamed plain around, through which ran creeks like Woods, the richest of its size in the world.

Near by is the peculiar Table mountain, once the lava filling the bed of an ancient river, and now in its isolation a conspicuous instance of surface remodelling by water currents. Ousted from their original channels, they avenged themselves by washing away the lofty banks which formed the serpentine mold of the lava. Beneath remained the ancient deposits of the river, discovered in 1855, and since closely intersected by tunnels.

Productive quartz veins cropped out at frequent intervals, and became the main reliance of Mariposa county; yet all deposits diminish in value below Tuolumne; those of Kern having proved deceptive. Eastward silver becomes the dominating metal. To the southwest appears the first gold placer, near San Fernando, which directed prospectors to the quartz lodes of San Diego county.

The gold region is practically confined to the third of the four geologic belts of California, the first two extending from the ocean to the Coast range, and thence to the edge of the Sierra Nevada foothills; the third to the summit line of the Sierra, and along its eastern slope begins, in the fourth belt, the silver country, centering in Nevada. This third belt is intersected by nearly parallel rivers and broken by deep cañons. A stratum of granite forms the central feature, which becomes gradually more exposed and extensive, till, in latitude 36° to 37°, it reaches almost from crest to plain. It is flanked by metamorphic slates, which in the extreme northwest appear in connection with granite. Thence it gradually acquires importance, as the superimposed lava of Butte and Plumas counties decreases, and north of American river it almost spreads over the entire slope, after which it again contracts, especially south of Mariposa, reappearing once more with granite, beyond the junction of the ranges. To this formation are confined

the payable veins of gold quartz, chiefly in the vicinity of crystalline and eruptive rocks. They vary in thickness from a line to two score feet or more; the most extensive is the mother lode, which has been traced for over sixty miles, from the Cosumnes to Mariposa.

The widespread deposits of gravel are attributed to a system of tertiary rivers long since filled up, which ran nearly in the same direction as the present streams. Evading the auriferous slates and their quartz veins, the ancient currents spread the detritus in deposits varying from fine clay and sand to pebbles and huge boulders, at times to a depth of several hundred feet. The most remarkable of these gravel currents is the Dead Blue river, so called from its bluish sands, and which runs parallel to the Sacramento, some fifty miles eastward.

California placer gold is of a pale color, showing a wide admixture of silver, which is especially marked beyond the Sierra, and in the south. The average fineness is placed at about 882 in 1,000, or a fraction above the average for the United States. The highest quality comes from Butte, which reaches at times within one ten thousandth of absolute purity. South of Yuba it falls below 900, rises again at the Stanislaus, and then declines in Kern to as low as six or seven hundred.

Some districts are remarkable for a certain form of gold in pellets, scales, and flour, and in certain spots there are singular and beautiful specimens. Nuggets above an ounce in weight are rare in quartz veins, yet the deviatory placers have yielded them by the hundreds, from one pound and upward. The largest found, until recently, in Calaveras, weighed 161 pounds, less some twenty pounds of quartz. Sierra now claims one twenty pounds more in weight.

Nuggets were not so much sought as rich veins, which yielded a number of fortunes in nearly every

camp of importance. Miners loved to relate stories of such finds, duly exaggerated to suit the fancy; yet truth is sufficiently wonderful. Carson hill, for instance, from which gold was chiselled out in chunks, produced $2,000,000 within a brief period. Spots like Wood, Rush, and Nelson creeks, Parks, Rich, and other bars, made the fortunes of many; yet such was the lottery that claims adjoining a rich deposit, even on the supposed line of the vein, would only too frequently offer nothing in return for the labor expended. In 1852 the average yield for each of the 100,000 men engaged in mining was only $600, or barely $2 a day; much less than the earnings of wage workers. A large proportion must, therefore, have earned barely enough for the scantiest subsistence. It required highly remunerative claims to cover the many offsets in enforced idleness while searching for new ground, in waiting for rains, or for the subsidence of the waters, in extensive preliminary work to gain access to the paying strata, with the aid of shafts, tunnels, and so forth. Taking these facts into consideration, it is evident that gold, in the early fifties at least, cost several times its value, at the then market rates of wages.

The increase in production from $40,000,000 in 1849, to $65,000,000 in 1853, was due not so much to the extension of the field, and of the number of workers, as to the improvement in methods which permitted the opening and washing of larger areas by one man. The rich deposits in bars and shallow diggings were soon exhausted; yet there remained far more extensive, though less remunerative strata in flats and gravel banks, in ravine hollows and benches above the level of streams, which could be profitably worked by the common pan-washing, dry-washing, or rocker. Hence, in 1850, the last of these apparatus was largely replaced by the tom, with five-fold capacity, to which was added a quicksilver machine for saving gold. Both were improved upon within

two years by the effective sluices, accidentally discovered by Mr Eddy, and forming an improvement on the tom, constructed either of board, or as a simple inclined ditch, with rocks instead of wooden riffles for retaining the gold. Dredges were introduced to scrape the river bottoms, and streams were turned from their course into artificial channels, to lay bare the bed. In 1853 was invented the hydraulic process by E. E. Matteson, to undermine and wash down gravel banks or useless strata overlying the pay dirt. Thus in course of time the cost of extracting gold from a cubic yard of gravel was reduced to as little as half a cent, while, under the rocker system, it would have been several dollars. But the successful application of the new methods usually required a large preliminary outlay in bringing water through flumes, ditches, and tunnels, sometimes for scores of miles, with the aid of lofty aqueducts, large reservoirs, and outlets for débris.

When attention was turned to quartz, in 1850–1, assays and hasty calculations so magnified prospects for this branch of mining that hundreds rushed into it with insufficient knowledge and unsuitable machinery, so that even rich ore was swallowed up by reduction processes which cost from six to twelve times more than was necessary. Many were ruined, and veins and mills were abandoned. A few exceptionally rich mines were still worked, however, and with experience good and cheap working methods were introduced, which led to a revival of confidence.

Each successive improvement in placer, hydraulic, or quartz mining demanded more coöperation, increasing as it did the extent of claims and work connected with such operations. The advent of scientific mining, which has so vastly extended the field of operations, and rendered valuable what was once considered useless ground, together with the experiments and inventions of Californians, have effected a virtual transformation in gold mining, and brought about a

revival of the industry in many abandoned regions, besides permitting the opening of new fields throughout the world.

Another boon emanating from the California gold discovery lies in the mining and mining-camp laws here recast in practical, common-sense moulds. The sudden development of mining by men new to the craft allowed little opportunity for introducing the time-honored regulations which have grown around this industry since days anterior to the cuneiform or Coptic records. A new system sprang up from necessity and experience, based on the free tenure of land, to which discovery and appropriation constituted title. With the increasing numbers clamoring for a share in the field, meetings were improvised to limit the size of claims and frame laws concerning title and other points. Possessory rights were secured by use, the amount of necessary work being governed by the nature of the ground, by distance from water, and by weather. These varying regulations show a lack of uniformity, resulting from various causes, but equity stands conspicuous as the guiding principle recognized by the courts. The government abstained from interference, exacting no fee or royalty, and allowing no land surveys to restrict the field. Farmers could establish themselves only at their own risk. Mining was paramount to all other interests, until, in due time, agriculture assumed the ascendency.

The benefits of law and system as well as practical example in the development of mines were early conveyed beyond the borders of California by restless prospectors. Numbers hastened to Australia in 1852–3. Six years later they found on Fraser river prospects which drained California of thousands of sturdy arms, and cast for a time a spell upon the prospects of the golden state. Thence the current turned, notably between 1861 and 1864, toward and along the Columbia river into Washington, and over

the prairie regions of Idaho into Nevada, and to the lofty table-lands of Colorado. A portion passed onward into Mexico, especially men of the Latin race, who had become embittered by the persecution of the Anglo-Saxons, as manifested in their ejection from claims and districts, and in unjust tax levies.

After 1856 a change came over mining in California. The cream of the placers had long since been skimmed, and diggings were gradually supplanted by quartz and hydraulic mines. Machinery became more and more indispensable for efficient as well as economic working, and the displaced diggers engaged largely in other pursuits.

In following the vein of alluvial gold, quartz matrices were brought into notice, and the crushing of rich specimens began in iron mortars, with pestles suspended from the flexible branches of trees. The method is credited to Ferguson of Brown valley. Here also was erected the first quartz-mill, in 1851, by Webb and company. It was operated by a small engine, working single stamps in large mortars. Shortly afterward Reed and others availed themselves of water power. The richness of the ore in some quarters created an excitement which led to the erection of a large number of mills, without due inquiry into the character, value, and extent of the ore bodies, or the suitability of the machinery. Some could not crush sufficient quartz, others found the ore too rebellious for reduction, and so one obstacle after another prevented progress. The imported machinery of an English company proved as useless as any. A series of costly failures followed, and thus for the time further development was interrupted.

Nevertheless, a few persevered in their experiments, encouraged by exceptionally rich veins, and their success brought once more a rush of miners, with an avalanche of new crushers, ponderous wheels running in troughs, corrugated rollers, immense iron balls

moving in inclined bowls, the toggle-joints, and a variety of equally crude amalgamators. In 1859, observes Greeley, three mines out of four were failures. The average yield reached only twenty dollars per ton, despite the fact that only the richest lodes were worked, and this return did not cover expenses. It required, indeed, the product of one mine to work another. Silver mining, begun in 1859, introduced new problems, which involved still greater difficulties, but their solution benefited gold reduction.

Experts and assayers fell in repute. Theory availed little with the thousand variations in the character of the ores. Experience had to be bought with millions, but combined with scientific research it has at length achieved a success on which rests the foundation of several powerful states. Miners met to exchange views, as instanced by the convention at Sacramento in 1857, which organized the Quartz Miners association. This meeting, among other measures, extended quartz claims from ten or twenty feet square in space so as to allow for dips and angles; or a number of claimants might combine to work the ground, and so promote the formation of companies, and warrant the purchase of costly machinery.

The state lent its fostering aid in appropriations for geologic explorations, the first entrusted in 1853 to J. Trask. In 1860 the office of state geologist was created under the charge of J. D. Whitney. The cost of these surveys exceeded a third of a million for the first twenty years, but it brought immense returns in base metals, as well as additional deposits of gold and silver. Protective laws were framed, and in 1866 an act was passed to establish a college of agriculture, mining, and mechanic arts, as suggested by the constitution, and aided by congressional grants. The college did not assume form until the organization in 1868 of the university of California, which comprised a college of mining. The state proposed the formation of a national mining bureau, the aims

of which have been partly carried out in the reports of the secretary of the interior, and by the American institute of mining engineers of 1871. In 1880 a state bureau of mining was established, with H. G. Hanks as the first state mineralogist, to make assays, collect ore specimens, books, and models, and advance the work by various means. The state geological society, organized in 1877, added its efforts, partly by forming a state museum and library. Several mining journals have kept the public informed concerning the industry, beginning with the California *Mining Journal* of Grass Valley, issued in 1856, and followed by the *Mining and Scientific Press*, which dates from 1862.

Under these fostering agencies quartz-mining has become the leading branch of the industry, and imparted to it more settled and steady conditions. The convention of 1857 reported 152 quartz mills, costing at least $2,000,000, while the total sum invested in quartz mining amounted to $5,000,000, the yield reaching $7,000,000, aside from the products of primitive arastras, and of certain private mines. At present, after several fluctuations, there are still 400 mills, costing from $6,000 to $60,000. In 1867 the three principal mines were the Allison of Nevada county, yielding $100 per ton; the Frémont of Mariposa; and the Sierra Butte of Sierra county. Previous to this the Woodside of Georgetown was the richest, $50,000 being taken from it in two days.

Quartz was for a long time eclipsed in productiveness by hydraulic mining, which during the seventies contributed two thirds of the yield, and claimed in 1882, $100,000,000 of the $150,000,000 capital invested in mining. Its source is in the gravel-beds of the ancient rivers, now elevated above the present level of the country, and bearing evidences of post-glacial denudations. They extend for some 200 miles from Mariposa northward, with a breadth of from 200 to 2,000 feet, and a depth sometimes of several hun-

dred feet. The richer parts are reached by drifts, and the rest can be worked only by application of water in races, and particularly by washing down the banks with streams of waters from hose and nozzle. This method came into practice in 1855. The nozzles have since then increased to four and nine inches in diameter. An eight-inch nozzle can throw 185,000 cubic feet of water in an hour with a velocity of 150 feet per second, and disintegrate the gravel-banks with remarkable speed. Even at this rate it would require a century to exhaust the deposits.

Mining is unfortunately more or less destructive to other industries, especially to agriculture. Valleys and slopes were scarred with unsightly excavations, and denuded of their trees and plants, and worst of all, the refuse from the washing of the mills, and particularly from the gravel-banks of the hydraulic mines, have filled the rivers, rendering them unfit for navigation, and forcing their sandy waters over the fertile valleys along their border. Bear river, for instance, has been raised in places 150 feet, and the channels of several tributary creeks in Nevada county have been raised from 200 to 250 feet. The deposit in Bear river has been estimated at over 120,000,000 cubic yards. Along the Yuba over 18,000 acres have been covered by barren sand, and turned into a desert, causing a loss to the county of over $9,000,000. Other sections have suffered in corresponding degree.

The damage was inflicted chiefly in the seventies, and the oft repeated complaints of the farmers then took shape in pressing appeals to courts and legislature. After prolonged legislation, and stout resistance on the part of influential mine and ditch owners, the practice was forbidden in 1884 of dumping mining débris into rivers wherever it conflicted with public interests. In the extreme north of the state no objection is as yet manifest. Another method may be invented by which to extract the vast treasures

enclosed within the gravel banks, and thus revive a great industry so suddenly curtailed.

In 18 of the 52 counties mining is still the principal occupation, and 17 other counties make returns of gold. Placers are now little worked, save by Chinese, who glean abandoned fields. Hydraulic operations having been restricted to narrow limits, quartz mining stands foremost. The yield in 1886, as in 1881, amounted to something over $18,000,000. Nevada county, the first one to work quartz deposits, still retained the lead with a production of $3,700,000 in the latter year. Mono is a close rival. Next comes Amador with $1,500,000; then Calaveras with $800,000; and Tuolumne with $500,000. Northward are several counties which exceed these last figures, as Plumas, with $1,400,000; Sierra, $960,000; Placer, $860,000; Siskiyou, $850,000; Butte, $650,000; Trinity and El Dorado, $550,000 each; after which rank Shasta, Sacramento, and Inyo.

The partial abandonment of hydraulic operations has greatly affected the interest in mining ditches. In 1867 there were 6,000 miles of artificial water courses, which cost about $20,000,000. The flumes last from six to ten years only, and owing to the falling off in the placers, and also to the faulty construction, their value fell to one tenth.

In 1871 the daily supply of water in 4,800 miles of ditches was 171,000 inches. One company used 40,000 gallons or 2,000 inches daily for 100 days, and washed down 1,000,000 cubic yards of gravel, contained in a bank 1,100 feet in length, 300 in width, and 80 in depth. In 1879 there were 6,885 miles of ditches, supplying 260,000 inches of water daily. River-bed mining, by turning streams from their channels, once extensively practised, is now confined to a few sections. One of the largest operations of this kind was at the big bend of Feather river, where the adit drained 12 miles of river bed.

Silver has been reported in several counties, but the chief deposits are toward the summit, and particularly on the east slope of the Sierra Nevada. The metal was known to exist as early as 1848; but its inferior value and the difficulty of extracting it were obstacles which limited exploitation to insignificant proportions. The Washoe and Comstock discoveries roused prospectors anew, and their quest naturally tended toward the slope bordering on the silver state. Thus several lodes were disclosed in Alpine county in 1860–1, but the altitude and the refractory nature of the ore have checked development. Inyo has yielded better, notably from the Cerro Gordo district and the Kearsage, bordering on the valleys of Owens and Panamint; and in Mono county a revival took place in 1877, after the cession of the main Aurora region to Nevada state. Gold is found in all the mines in about the same proportion as silver on the western slope of the Sierra. The veins extend southward into San Bernardino and Los Angeles, and northward to Lassen. In 1881 Mono led in production with $300,000, followed by Inyo with $140,000; San Bernardino, $100,000; and Shasta, $85,000 Next come Los Angeles and Stanislaus, the remainder of the 25 silver producing counties following far behind.

In the production of gold California still far exceeds all other sections of the union, while in the output of silver she ranked, in 1880, eighth on the list of states and territories. In that year she supplied more than seventy-one per cent of the total placer product, and more than fifty-one per cent of the total gold product of the United States; of silver the proportion was less than three per cent. In relation to area California also takes the lead as a gold producer, with an average, in 1880, of more than $108 to the square mile.

Gold mining has not been without its drawbacks, not alone affecting the agricultural settlements along

the débris-laden rivers, but also the character of a large class of the population, in whom it has encouraged either a roaming, shiftless disposition, or a reckless, speculative bent. The effect would have speedily disappeared but for the silver discoveries, which in the state of Nevada assumed such magnitude as to dazzle the multitude, and revive the gambling spirit of early days, and this in cities and districts remote from mining fields.

The change can best be understood by the fact that no stock exchange existed in the golden era. Companies were formed here and in Europe, some with princes among their promoters, and their shares were sold by brokers, aided by advertisements, as in the case of Frémont's Mariposa mines. Even during the early Comstock days shares or feet were transferred like other property, sometimes at auction, and chiefly at San Francisco, where most of the stockholders resided. The first company here organized in connection with the Comstock was the Washoe, with a capital of $500,000, in one thousand shares. As developments increased the excitement, a special board was suggested, on the plan of the New York stock exchange. This took shape on September 8. 1861, as the San Francisco Stock and Exchange board. The membership grew in time to eighty, with an admission fee of $1,000, seats being afterward sold for as much as $40,000. After several removals, the board erected a fine building on Pine street in 1877. Its large business encouraged the organization, in 1872, of a second board, the California, and in 1875 of a third, the Pacific, which shared in the rich harvests of that exciting decade.

A large proportion of the purchases was made on "margin," the buyers sometimes depositing only about twenty per cent of the total sum with the broker. This degenerated in due time into a "put and call" speculation on the rise and fall in prices, thus permitting operation with a very small capital. Brokers

were frequently sucked into the whirlpool of excitement, and like their customers became victims, not so much of the pure gambling mania as of the fraudulent manipulations of the cliques which controlled the mines. When learning that the workers of the mines were drifting toward a rich deposit, as they did by means of diamond drills, private assays, and the like, prices of the stock were depressed by false reports, or by withholding information, in order that the interested parties might purchase the shares sacrificed by timid holders. Then came the "deal," by disclosing the "bonanza," exaggerating its value, and foisting the stock anew upon ready dupes, at prices, perhaps, a hundred fold higher than during the panic. Sometimes fictitious reports of rich veins were circulated to promote the sale of entirely worthless properties. The "watering" of stock only too frequently added to the mischief. Credulity was sustained by occasional rich developments, and by the hope of profiting during the rise even in "deals," although aware that the last buyers must suffer from the approaching collapse.

From Ophir to Crown Point and Belcher, the mines disclosed more or less extensive and rich deposits, attended by excitements, which again were succeeded by panics. The greatest of these fluctuations belongs to the last of the bonanzas, in the Virginia Consolidated and California mines of the same Comstock lode. Under the exaggerated reports of experts, one of whom estimated their value at $1,500,000,000, or nearly $7,000 for each of the 216,000 shares, the price rose to nearly $800. Then came the inevitable crash, during which their value shrank $42,000,000 within a week, and the stock, after being increased to 1,080,000 shares, gradually declined to a few cents. Hundreds of homes were thus rendered desolate by the manipulations of a few tricky speculators.

The lesson was severe, yet salutary, for since then the public has largely retired from the gambling field,

to devote their surplus to home building and more solid investments. A proportion still clings, however, to this fascinating excitement, filling the purses of directors and managers, by the payment of assessments. Between 1861 and 1877 the mining companies incorporated in San Francisco paid $118,000,000 in dividends, and levied $65,000,000 in assessments. Since then the latter have largely increased, if not in amount, at least in proportion to dividends. Managers continued to work low grade ores, keeping bonanzas in reserve for times more favorable to excitements. Such operations bring few or no dividends, but they enrich mill owners, permit jobbery in the purchase of machinery and supplies, and other diversion of funds for the benefit of managers. Plans have been proposed to check such manipulations, as well as stock gambling in general, but so far no remedy has proved effectual.

Though occupying only the third place among our bullion-producing states, gold mining continues to be an important industry in California, with a yield for 1890 of more than $10,000,000. Within recent years there has been a steady increase, caused by the opening of new mines and the closer working of ores. Though hydraulic operations have been partially suspended, they were actively prosecuted in districts where there there was no interference through legal proceedings, that is, in localities where there were no interests that could be damaged by the débris and tailings accumulated in this description of mining.

The coast has been favored in its mining development by the possession of quicksilver deposits so valuable as to surpass those of any other country. In 1881, for instance, the total product of this metal from all sources was 115,600 flasks of about 76 pounds each, of which California supplied 60,851 flasks. Of the 35,269 flasks exported hence and valued at

$1,027,000, a large proportion went to China, an outlet which alone enabled the price to be kept at remunerative figures. The leading mine is the New Almaden, in Santa Clara county, which was systematically opened in 1847, by an English firm, after a slight exploitation by Indians and others. From 1850 to 1880 the yield exceeded 54,000,000 pounds. In 1864 a company, chartered in the eastern states, assumed control, with a capital of $10,000,000. The next rank is held by the New Idria, in Fresno county, likewise named after a famous European mine, but it is now almost exhausted, and for years has been noted chiefly for the lawsuits connected with it. In the mountain chains stretching from Lake county along the east side of Napa and Sonoma valleys are several mines, some of which have been worked since 1860, but only for certain periods, owing to the fluctuation in prices. The Redington yielded 5,000,000 pounds between 1861–81, the Napa 1,200,000 pounds between 1876–81, and the Sulphur Banks $600,000 worth between 1874–6.

Indications of platinum have been found in California. Tin was discovered at Temescal in San Bernardino county in 1856, by a man named Sexton. The first bar from native ore ever produced in the United States was here obtained in 1870, assaying ninety-seven and nine one-hundreths of metallic tin. Prolonged litigation has interfered with exploitation. The metal has also been reported in the adjoining counties and in Siskiyou. Lead exists to some extent. Plumbago was disclosed in Tuolumne and Sonoma, and in 1886 an accident revealed the method of separating it from the earthern matrix by water.

Copper was known to exist as early as 1840, and was revealed by geologists in almost every county; but little attention was accorded to it until 1860, when a general excitement was started, from the developments at the Union mine, Calaveras, where the town of Copperopolis sprang up in consequence. In

Plumas and Mariposa several valuable deposits were found, which sold by the foot. It was shown that the state had enough metal to supply the world, but that very little of it could be extracted with profit. The fever accordingly passed away and Copperopolis closed its works in 1867. The present smelting is limited to $100,000 in value, from Placer and Amador.

Iron is also widely distributed, but the cheapness of the imported metal has long proved an obstacle to local development. The first smelting works for pig-iron were not erected till 1880, near Clipper Gap in that county. In 1880 they produced 15,000 tons, their utmost capacity, and their success will, doubtless, cause others to be established.

Coal has been found in several of the coast counties, and in others near the Sierra. Narrow seams, inferior quality, and inaccessibility have given too great a vantage to richer deposits north of the Columbia to encourage its production here. Nevertheless, the veins near Monte Diablo were opened in 1855, and produced in 1865, 120,000 tons, and in 1881 nearly 150,000 tons. It is a steaming coal, half bituminous in character.

The oil excitement in Pennsylvania drew attention to the petroleum deposits known to exist in California, and wells were reported from nearly every county. A shipment was made from San Joaquin in 1865, and wells have been in operation, to some extent, in Siskiyou, Contra Costa, Santa Cruz, and several southern counties, but, as a rule, they have not answered expectation. The most successful works are in Ventura, whence the crude oil is conveyed for threescore miles in iron pipes to a shipping point, and transmitted to Alameda for refining. In 1884 there were 8,000,000 gallons manufactured, and the production is increasing. Asphaltum is plentiful, and natural gas is being applied to lighting purposes.

Sulphur is obtained from the banks of Clear lake and purified by heat. The manufacture began in

1861. Borax exists on the east slope of the Sierra Nevadas, and from a tract of 10,000 acres in San Bernardino and Inyo, the annual yield has been 5,000,000 pounds. Saltpetre is found in Sonoma. Of mineral soap there is a vein fifteen feet thick near Grass Valley, Nevada, and near several oil belts. Mineral paint is an article of commerce obtained from Contra Costa and Sonoma. Gypsum, manganese, antimony, asbestos, lime, and a number of other valuable minerals have also been discovered.

Building stone is abundant, and marble, onyx, and alabaster are found in different places. The quarries at Haywards and on Angel island were the earliest in use. Those at Folsom give occupation to the convicts at one of our state prisons. The first marble yard was established at Columbia, Tuolumne county, in 1857. The granite near Auburn, Placer county, is unexcelled for quality. California diamonds are brilliant, but of little value. They come chiefly from placer claims at Cherokee flat, Butte, and Shaw flat, Nevada. At Mokelumne hill an opal mine was worked in 1865, the stones realizing twenty dollars each in Europe.

The character of the Coast range, as indicated by sulphur, quicksilver, and coal deposits, tends to explain the nature of the numerous mineral springs along that line, hot, cold, and sparkling, some of which are drawing a host of sufferers with their reputation for medicinal qualities. The sulphur springs of Paso de Robles are among the oldest and most celebrated, but the greatest number is found in Lake county, north of the steaming Geysers, which form one of the main attractions for tourists.

CHAPTER V.

MINES AND MINING—OREGON AND WASHINGTON.

RETURNED CALIFORNIA MINERS—INDICATIONS IN OREGON—PROSPECTING—DISCOVERIES AND RUSHES—WIDE EXTENSION OF GOLD FIELD—INCREASE OF INDUSTRIES—QUARTZ MINING—DEEP GRAVEL MINING BY ENGLISH CAPITALISTS—EXTENSIVE DITCHING—SILVER-BEARING LEDGES—COAL DEVELOPMENTS—THE PRECIOUS METAL IN WASHINGTON—INSIGNIFICANT YIELD—EXTENSIVE COAL FIELDS—WIDELY EXTENDED DEPOSITS—FORMATION OF COMPANIES AND OPENING OF MINES.

THE Oregon miners, on their return from the gold fields of California in 1848 and 1849, with the practical experience they had gained, failed not to observe that the valleys of southern Oregon exhibited conditions as to soil and geologic structure similar to those which they had found to be auriferous in California. Such observation instigated search, and early in 1850 prospecting was engaged in to a considerable extent. In June two hundred miners were at work in the Umpqua valley, but gold not being found in any considerable quantity, the exploring movement drifted southward, resulting in the discovery of rich placers in 1851, on the tributaries of the Klamath, around Yreka, and at other localities. It now became almost certain that the precious metal existed north of the Siskiyou range, and explorations made in that direction led to the discovery of gold on Big bar of Rogue river, and in the cañon of Josephine creek. In February 1852, one Sykes found gold on Jackson creek, west of the present town of Jacksonville, and somewhat later two packers, Cluggage and Pool, discovered Rich gulch, half a mile north of Sykes' discovery. The richness of these mines led to a rush from the Cali-

fornia side of the mountains, followed by further discoveries of placers which yielded well for a number of years.

Gold is the most widely diffused of the metals in the state, and is mined in fifteen counties, the most important being Grant, Baker, Josephine, Union, and Jackson, in the order named. The total yield is only half a million at present, drawn from deep and hydraulic mines and quartz veins, but many speak confidently of a revival.

Placers are still worked to some extent in the south, notably in Jackson and Josephine counties. Baker county had a placer fever in 1867, and among the relics of it is the Rye valley field, from which 1,340 ounces were obtained in 1882. The Humboldt basin has been worked since 1863, and produced in 1883 about $35,000. Ancient river beds are supposed to have supplied the placers of Burnt, Powder, and John Day rivers, where nuggets worth as much as $3,000 have been found.

The surface placers have for the most part given way to deep and hydraulic mining. Herein excels the southwest, and notably the Sterling creek mine, with a ditch 23 miles long, 8 feet wide, and 3 feet deep, which supplies nozzles of 6 inches in aperture. Nearly as large a stream is diverted at Uniontown by a Chinese firm. Applegate creek has two ditches, one 12½ and the other 5 miles in length. The first gravel mining was attempted in Josephine county in 1875 by an English company, with a five-mile ditch.

Beach mining has been carried on at various points along the coast from the Columbia to California, but chiefly at the mouth of the Coquille, where are beds several feet in thickness, mostly buried beneath barren sand, and accessible probably only by drifting. Near Rogue river lie the next richest deposits. They were first explored in 1852, since when about 500 miners were occasionally employed at this industry. With sluicing the yield is estimated at $3 per ton,

from sand containing three times that amount of gold. When water is plentiful a dollar or less per ton will repay the worker. The Pioneer claim in Coos county produced in 1883, $18,600, the largest amount of any, while the total obtained from Curry county was but little larger. Although sluicing is the most successful method, a number of others have been employed. Ordinary concentrators fail to separate the heavy magnetic sand from the gold. Even rockers and pans have been used with good results in exceptionally rich localities.

Quartz mining proper dates from 1860. In the southern counties the material consists of a hard, white rock, carrying metallic sulphides, usually iron and copper; but the gold is meagerly apportioned. Indeed, few of the veins conform to the description of milling leads. The real quartz mines, aside from mere holes in the ground, do not number a dozen in southern Oregon. The paying deposits have usually been found in pockets, which sometimes reveal a concentration of $10,000 or more to the cubic foot. The yield from this class in Jackson county ranges from $400,000 to $700,000, all between 1860–63. The Yank ledge is one of the greatest of quartz ledges, extending for over 20 miles across Rogue river, with a breadth of 250 feet. It is of a bluish color, with a hanging wall of slate, and hyposyenite on the foot. Assays range from $2 to $36 per ton in gold and silver. Parallel to it runs the Mammoth ledge, still less known. Both await capital for their development.

The Santiam and Moballa tributaries of the Willamette disclosed quartz in 1860. The former embraces several promising veins, some in rich sulphurets assaying between $40 and $120 per ton, though in the absence of free metal they have been neglected. This is attributable partly to the discouraging effect of the failures attending the White Bull company, whose operations have been fitful and ill advised. On

the Blue river tributary about a hundred miners are occupied, chiefly in placer and hydraulic mining.

The opening of the fields in eastern Oregon was the result of the long-continued quest for the ground whence some immigrants in 1845 picked up a piece of malleable metal, later assumed to be gold. The site was placed on the Meek cut-off in Malheur country. One of the expeditions to these so-called lost diggings stumbled in 1861 on the John Day and Powder river mines, the richness of which was marvellous, causing an inrush the following year. The discovery of the Oro Fino and Salmon river mines in the Nez Percé country had been made a year and a half before, and caused a rapid improvement in the country, Portland and The Dalles quickly rising to the importance of great business centres.

At one time 5,000 miners are said to have been at work round Canyon City; but at present two thirds of the mining is done by Chinese. Granite creek district is still one of the most important in Oregon. The annual yield has been placed at $20,000, but promised to increase if the lately reported strikes of rich ore, assaying up to $1,000 per ton, should prove to be authentic. The yield of Grant county was in 1882 estimated at $270,000.

The first quartz developed in eastern Oregon was in the Virtue mine, discovered in 1863 by two men on their way to Boisé. They carried a piece of the rock to that place, and left it at the office of Mr Rockfellow, who at once recognized its value. Rockfellow paid one of the men to point out the place where it had been found, and the ledge was discovered. J. S. Ruckel of the Oregon Steam Navigation company being taken into partnership by Rockfellow, the mine was opened in 1864, the name of the latter being given to it. A large quantity of gold was taken out, and the two partners having sold their interests, about 1871–2 a company was formed, of which James W. Virtue and Hill Beachy were members.

The first quartz-mill was introduced in 1860, for the Gold Hill mine near Jacksonville, where ore yielding one dollar to the pound was treated by arastra, and yielded about 1,000 ounces of gold per week. It was a twelve-stamp mill with six stamps in each mortar, and cost $12,000 to place in working order. The outturn now proved utterly inadequate to pay expenses. Others tried it with similar want of success, and it was finally converted into a sawmill. A similar fate overtook the second mill, introduced by H. Pope about the same time at Jackson creek. A few more mills have been erected, which, with the aid of the True Vanner, are giving better satisfaction. The greater number of mines rely upon the cheaper and often sufficiently effective arastra.

Platinum is found in connection with placer gold, usually in the proportion of one seventh, as is also iridium. The total yield does not exceed $5,000 a year. Quicksilver exists in Douglas, Jackson, and Baker counties, the deposits in Jackson being in loose masses, and not at present worked; but operations have been commenced on the extensive lodes near Oakland in Douglas county.

Baser metals and minerals exist in great variety, and frequently in such abundance and of such quality as to promise in due time an unfolding that will compensate for the decadence of gold and silver mining. Iron, copper, nickel, and coal excel both in the quality and extent of deposits. The nickel mine at Riddle, Douglas county, is one of the two great mines of this description in the world, the deposits consisting of pure oxidized ore. The complex and costly operations needed for this purpose have proved an obstacle to exploitation, but it must soon be undertaken on an extensive scale, and will then be of great value to the county, from the large force of laborers required.

Few states in the union possess a greater variety of iron ores than does Oregon, and they are not only

widely diffused, but advantageously located. The only deposit so far worked is at Oswego, where thousands of tons of limonite ore have during the last twenty years been converted into pig iron, and sold to local and San Francisco foundries. The beds extend from Kalama, on the Columbia, to near Oregon City, and thence eastward to the Cascades. Marion county has also much bog iron ore. Chrome ore is abundant in southern Oregon, and a few shipments have been made to the Atlantic coast, but California mines are now supplying the comparatively limited demand. Magnetic ore occurs in the auriferous black sand of the seashore, and also in strata between metamorphic slate and limestone. At Gold Hill, Jackson county, is a valuable deposit, mined as flux for lead smelting, and producing in 1887 about 100 tons.

Probably the largest available deposits of copper ore in the entire northwest lie in Josephine county, but so far only a little has been mined in the Queen of Bronze near Waldo, and in the lower Illinois. Now that railway connection has been made, the prospects are that exploitation may be undertaken on a larger scale, for the ore is rich, and the fuel plentiful. Between the Clackamas and Molalla are similar deposits of ore. Native copper, as differing from the above chalcopyrite, with its cuprite admixture, exists near Baker City and in Douglas county. Manganese is exported from Columbia county.

The state possesses a large area of coal-bearing lands, and much more is expected to be revealed by late surveys. This mineral occurs generally throughout the Coast range, but in broken strata; so that mining is not easy. It is of comparatively recent formation, probably the later cretaceous or early eocene, and is classed as common lignite. Douglas, Jackson, Columbia, Clatsop, and Clackamas counties claim valuable deposits, and on John Day river operations are seriously contemplated. So far, however, the only beds mined are those round Coos bay, which

are of fair quality, and supposed to be practically inexhaustible.

Coal was first discovered at Coos bay, near Empire City, and at North Bend in 1853, in May of which year Perry B. Marple formed an association called the Coos Bay company. Empire City was laid out, and mines were opened, the first to be worked being the Marple and Foley in 1854. In the following year the first cargo of coal was shipped to San Francisco. The two leading mines are the Newport and Eastport, opened in 1858, the Marple and Foley being abandoned. The veins were discovered by James Aiken. The Eastport mine was opened by Northrup and Simonds, merchants of Portland; and the Newport mine by Rogers and Flannagan. These have been worked steadily from the start, and are now in a better condition than ever. The only rival to them is the Southport mine, opened in 1875, although several others have been worked with varying success.

As a gold and silver mining region, Washington, in its reduced area, figures but insignificantly in the scale of production as compared with Idaho and Montana. It is true that the discoveries of the rich gold deposits were made in Idaho before it was detached from Washington; but as its segregation followed so quickly afterward, a descriptive account of them belongs properly to the history of that territory. In the spring of 1855 the neighborhood of Colville attracted some attention, but the excitement was of short duration, as the more auriferous ground was soon found to lie within the boundary of British Columbia, and the extraordinary discoveries farther south turned the tide of gold-hunters in that direction.

In 1858 a fresh excitement was caused by the discovery of silver quartz near the mouth of Colville river. Distance from markets checked exploitation, but of late work has been resumed, and additional

ledges have been opened, notably by the Spokane company at Argentum, and by several miners on the divide between the Colville and Columbia, and near Chawelah, where the assays reach 250 ounces per ton. A still later development took place in the Old Dominion in 1885, which has furnished $100,000 worth of ore, some of it assaying $240 per ton. Adjoining it are several other promising claims, and fifteen miles northwest of Colville lies the mine second in importance, the Young America, averaging from 40 to 150 ounces to the ton, with 40 per cent of lead. Clugstone and Bruce creeks are staked off in a number of claims. Just above the Little Dalles are two mines with galena and gray copper ore yielding as much as 250 ounces to the ton. This showing has induced the Mutual Mining and Smelting company to erect reduction works at Colville, and a railway promises to facilitate transportation in the valley, so that fresh impulse will soon be imparted to mining in this region.

Another important district is rising on the Salmon river, tributary of the Okanagan. The first discoveries there of galena and carbonate deposits attracted little attention, owing to the isolation of the neighborhood; but in 1886 richer lodes were disclosed, and an influx followed sufficient to build up two centres, at Salmon City and Ruby City. At the latter point the formation is sienite and porphyry; at the other it consists of galena, gray copper, and some chloride and sulphuret ores of a high grade, ranging from 40 to 400 ounces per ton. The vein at Ruby appears to be seven miles in length, varying from 5 to 25 feet in width, and assays from 100 to 500 ounces per ton, under easy concentration. Several mines are worked, and machinery for reduction is now in place. A small block of ground examined at the Arlington mine was estimated to contain $240,000, two thirds of which should be net profit. The gold admixture is only about two per cent.

At Kettle river, along the British Columbia border, rich gold quartz has been revealed in granite and slate, in veins about six feet wide, assaying as high as 2,000 ounces to the ton. So far, however, the production is confined to the placers just below the ledges on the Rock creek tributary, which have been worked since 1884 with sluices by some fourscore men. On the Yakima and elsewhere mining has been carried on to a small extent. The total yield for the year ending May 1880 was only $142,000, chiefly from placers; but since then quartz mining has received more attention, and promises to become an important branch of industry, the total bullion product for 1885 being estimated at nearly $200,000, of which about two thirds consisted of gold.

Copper exists in several districts, the highest grade being found on Kettle river, of from 50 to 75 per cent purity. Bog-iron ore is abundant. The only question here has been accessibility, and this being solved in a degree, by railway construction, operations may soon begin The Northern Pacific railway is indeed considering the advisability of tapping the deposits in Kittitas, King, and Pierce counties. Near Snoqualmie pass is the so-called Iron mountain, with magnetic iron ore in veins of from six to one hundred and fifty feet in thickness. The sulphur admixture is small. At Cleelum are similar deposits, the working of which will be facilitated by the abundance of lime and coal

The mineral wealth of Washington territory centres in her coal fields. The first discovery was made in Cowlitz valley; but the samples sent to California to be tested were condemned as a poor quality of lignite. About the same time, a Frenchman, named Remeau, found coal on the Skookum Chuck, and in 1849 the Lummi Indians told Samuel Hancock, while trading with them, that there were black stones at Bellingham bay. Though he subsequently found coal there, he was forbidden to extract it by the natives

who told him of it. Attention, however, was attracted to the probability of finding coal fields in Washington, and explorations were made with that object, notably one by William H. Howard, an agent of the Pacific Mail Steamship company, who made an expedition up the coast from Chehalis river, to a point north of Quinault. Meanwhile William Pattle, an Englishman, discovered coal at Bellingham bay in October 1852, and with two associates, Morrison and Thomas, took up claims on land just south of the present town of Sehome. These partners succeeded in negotiating with a company known as the Puget Sound Coal Mining association. The mines opened by it gave an average annual yield of 13,000 tons during the period from 1860 to 1879, though later they became filled with water. The vein is fourteen feet thick and compares well with Seattle lignite, but the field is limited, and surpassed by others.

About 1859 several discoveries were made east of Seattle, and claims were taken up soon after by P. H. Lewis from Illinois, J. Settle, and E. Richardson, who, in 1867, organized the Lake Washington company. After an intermediate transfer, C. B. Shattuck and other San Francisco men, assumed control in 1872, and made it a profitable concern. There are several mines in the vicinity, notably the Newcastle, now owned by the Oregon Improvement company, which, between 1879 and 1887, produced 1,300,000 tons, or an average of 145,000 a year. Next in importance is the Renton and Talbot group, somewhat nearer to Seattle, and tapped like the preceding by the Columbia and Puget Sound railway. It was discovered by David Mowery, a Pennsylvania German, who sold his claim about 1860 to Robert Abrams. It attracted no attention, however, until 1873, when E. M. Smithers, finding pieces of coal in a stream on his farm adjoining, and following up the indications, discovered two ledges of pure coal. Having demonstrated the value of the deposit, he sold his

land to Ruel Robinson for $25,000, who also bought the adjoining lands of Abrams and McAllister, and formed a company with a capital of $300,000. The production for 1885–6 reached 45,000 tons. The Cedar River Coal company began operations in 1884, and has since shipped fully 21,000 tons annually, but preparations have lately been made to greatly increase the output. The Seattle Coal and Iron company, consisting of eastern capitalists, owns several claims on the Squak, with veins of from five to twelve feet in thickness, and extending at intervals for a distance of two miles, estimated to contain 10,000,000 tons of merchantable coal. The pitch is 37 to 40 degrees and the output is expected soon to reach 1,000 tons daily. The quality is similar to the esteemed Newcastle lignite, and is valuable both for steam and domestic purposes.

The above groups lie east of Seattle. To the southeast, thirty-three miles distant, is the Green river field, with coal of different qualities, though mainly semi-bituminous, and apparently a continuation of the Puyallup veins. When clean it is superior to that of Lake Washington, easily coking, producing greater heat, and therefore suitable also for gas, forges, and other purposes. There are three different colleries, the Black Diamond, on the Cedar river extension of the Columbia and Puget Sound railway, which began in 1885, the shipments now reaching about 70,000 tons a year; the Franklin, whose development has been slow, and whose yield of 38,000 tons in 1887 is expected to be greatly increased; and the Moss bay, which has only lately been brought to a working condition.

Within a radius of about thirty-three miles from Tacoma are several mines of bituminous coal, from which a good quality of coke is obtained, notably the Carbon hill, on Carbon river. The yield for 1885–7 reached 402,000 tons, and it is used chiefly by rail-

ways. The South Prairie veins are smaller, the shipments for 1885–7 reaching 140,000 tons. The Tacoma mine was opened in 1876, but not developed till 1884, when coke-ovens were added to the plant. Fine coking coal has also been found on Raging river. The field in the basin of Lake Cleelum, in Kittitas county, is semi-bituminous, and covers an area of 50,000 acres, with a number of veins, of which several are capable of being worked. The Northern Pacific Coast company is producing 400 tons per day. On the Skagit are beds in several distinct basins, and along the foothills of the Cascade range there is evidence of a continuity of the long line of rich bituminous veins from the northern boundary of the territory through the Skagit, Snoquelmie, Cedar, Green, and Puyallup valleys, to the Skookum Chuck and Chehalis. This last field is partly worked at Seatco by the Northwest Coal company, on a vein seven and one half feet thick, lying at an angle of five degrees. Other lignitic veins have been found, which are easy to mine, though the production is as yet limited. A test has been made of a field near Clallam bay, on the straits of Fuca.

The area of coal lands in the territory is estimated at 180,000 acres, of which 70,000, 50,000, and 40,000 acres are in King, Kittitas, and Pierce counties, respectively. The fields are all within forty miles of tide water, and the total cost of mining and transporting to the shipping point does not exceed $2.30 per ton. The total product to the close of 1887 was 2,500,000 tons, of which one half was from the Newcastle mine, Cedar river ranking next, and then Bellingham bay, but others are coming to the front, and shipments are rapidly increasing, to the lessening of importations from Australia, British Columbia, and other countries.

Coal oil has been also discovered, and in 1868, George Waunch, pioneer, sent samples to Portland, from the district of Skookum Chuck. It was also found in 1882 near Elko, in the Puyallup valley.

CHAPTER VI.

MINES AND MINING—IDAHO AND MONTANA.

THE CLEARWATER, SALMON RIVER, AND BOISÉ MINES—OTHER DISTRICTS—PRODUCTION OF THE PRECIOUS METALS—DEPRESSION AND REVIVAL—MINING TOWNS—YIELD—QUARTZ MILLS—THE OWYHEE REGION—THE POORMAN MINE—WOOD RIVER DISTRICT—YANKEE FORK—CARIBOO—CŒUR D'ALENE—BASE METALS—MONTANA THE HOME OF GOLD—VARIETIES OF DEPOSITS—GEMS—PLACER AND QUARTZ DISCOVERIES—JOHN X. BEIDLER—THE WHITLATCH MINE—SILVER LODES—DECADENCE OF MINING—OUTPUT—COPPER, IRON, MARBLE, AND COAL—ASSAY OFFICE AT HELENA.

THE expansion of the gold fields in the upper Columbia basin and the revived rumor of discoveries by emigrant parties, tended early to direct the attention of prospectors to Idaho, then included in Washington and Oregon. In the autumn of 1860 the Clearwater region disclosed its treasures, and drew an immigration which speedily overran its different tributaries, as well as those of the Salmon river. The latter proved, in fact, the chief magnet, and the civil war swelled the influx with refugees from the southern states.

Few reached this field from the coast in 1862, save those who followed the Mullan road from Montana. In the autumn of the same year the Boisé mines were discovered by a party under the leadership of George Grimes, after whom is named the creek which runs through this district. Driven back by Indians, with loss, the party soon afterward returned in force, followed before the close of the year by fully two thousand persons.

The new district proved to be an extraordinary gold field. Average earnings were not less than $18 a

day, and $100 to the pan was not uncommon on Grimes creek. Even the dry gulches yielded from $16 to $50 to the pan, and ditches were rapily constructed to facilitate the exploitation, timber being abundant for flumes and other purposes. Several men made $1,500 daily for a considerable time. A well digger in Idaho city struck a deposit under a house which is said to have yielded $300,000. On South Boisé placers were also found which paid as much as $60 per day to the man.

In 1863 a discovery on Jordon creek, running into the Owyhee started a rush of nearly 3,000 men for that region, but most of them were disappointed.

The favorite ground for prospectors continued, nevertheless, to be in this southern region, and the predilection was confirmed by discoveries early in 1864, on the north Boisé, marked by the rise of still another group of mining towns; and, also, on Malade river, under the guidance of J. Z. Miller. The interest in the northern districts was not altogether lost, however, for Kootenai confirmed in 1863 the indications observed ten years before by members of the Stevens expedition. Montana was exercising an overshadowing influence, however.

By the spring of 1863 the immigration had sufficed to raise ten mining towns, with a population of about 20,000, besides an outside sprinkling, and to organize four counties. Within a year great changes took place. Many among the increased number of districts were skimmed of their surface riches and abandoned to Chinamen, who were granted permission to remain on payment of a monthly tax of six dollars. Florence, lately the central attraction of the country, was almost depopulated. Never did such a flourishing camp so speedily collapse.

The amount of gold produced in any particular district would be difficult to compute, and can only be estimated from mint and trade returns. The greater portion of the $3,000,000 brought to Portland during

the summer and autumn of 1862 must be ascribed to Idaho. The Nez Percé mines are believed to have yielded between $7,000,000 and $10,000,000 in two years. Ross Browne assigns to it $6,000,000 for 1866, but double that amount to Montana, and only one half to Oregon and Washington combined. Other accounts insist that for 1866 the production was not less than $8,000,000, and for 1869, $7,000,000, while the total down to 1881 should not be less than ninety million dollars.

The greater proportion of this yield was derived from quartz mining, which early offset the decline in the placers. Several companies shipped thousands of tons of ore to San Francisco and to eastern cities, in order to rouse the interest of capitalists and secure their coöperation.

After 1865 prospecting was much interfered with by Indian hostilities, and the first two great excitements, caused by discovery of the placers and gold and silver quartz ledges, having subsided, the fame of the Idaho mines became somewhat overshadowed by new discoveries in other quarters. Other causes, which operated against home enterprise and also investment from abroad, were the expense of introducing milling machinery which greatly lessened profits, the defalcations of the secretaries of three of the richest mining companies in the Owyhee region, and the suspension of the bank of California. A period of depression followed, which succeeded by the Indian disturbances of 1877 and 1878, brought disaster upon many mining operators. The secretaries of several companies absconded with the funds, and harassed by litigation they suspended work, which act was followed by the closing of every other incorporated mine in the Owyhee region. In 1880–1, however, capital again began to seek investment in the neglected quartz districts, and thus created a revival.

The first great excitement in quartz mining took place in the southern part of Idaho, on the discovery of rich ledges on Granite and Bear creeks, about the middle of 1863, the Ida Elmore being discovered in June, on the latter creek, one of the headwaters of the South Boisé. Near this lode the town of Fredericksburg was laid out. By September thirty-three gold and silver bearing claims had been located on the south Boisé, among which mention may be made of the Idaho, the rock from which assayed $2,744 in gold and $94.86 in silver; the Ophir $1,844 in gold and $34.72 in silver, and the Golden Eagle $1,240 gold and $27 silver. The discoveries on Granite creek equalled those in the south Boisé district, the Pioneer being the first mine. It was discovered by two prospectors named Minear and Lynch, its poorest rock yielding over $62 to the ton, and the richest from $6,000 to $20,000. The Rocky Bar ledge was disclosed in 1863, but the town was not laid out until April of the following year. One of the pioneers was H. Comstock, famous in connection with the lode which bears his name.

In the Boisé basin the principal towns were Idaho City, called Bannack until 1864, and containing 6,000 inhabitants, 250 places of business, with a good proportion of brilliantly furnished gambling saloons, a hospital, protestant and catholic churches, and by the end of the year four theatres. Then followed Placerville with a population of 5,000 and Centerville with 3,000. Pioneer city had 2,000 inhabitants, chiefly Irish, from which fact it was sometimes called New Dublin.

Discoveries were extended during 1864 in various directions. On the north Boisé Beaver City and Summit City sprung into existence, and in Silver hill district the mining towns of Banner and Eureka. The first quartz mill in the Boisé basin was erected by W. W. Raymond, on Granite creek, near Placerville, and went into operation with ten stamps in September

1864. Quartz mining, indeed, was retarded by the difficulty and expense of bringing mills from the far distant points where they were obtainable; consequently the old fashioned arastra was used, of which there were eighty-four at south Boisé, each crushing about a ton a day. The first mill in that district was a five-stamp one, owned by Cartee, Gates, and company. The rock from the Ida Elmore and the Confederate Star was crushed at this mill, that of the former yielding $100 a ton, and of the latter $150. Two enterprising pioneers, Andrews and Tudor, purchased in Chicago a twelve-stamp mill for the Idaho, which was ready for work in December 1863; and R. B. Farnham, taking a ton of ore to New York, formed, on its merits, an association called the New York and Idaho Gold and Silver Mining company, which shipped a thirty-stamp mill to south Boisé, and in 1864 it went into operation.

The ore from some of the Elmira company's mines assayed as high as 6,000 ounces, and averaged seventy ounces. The Gold Hill, belonging to another company, has produced nearly $3,000,000.

The "lost diggings" of an immigrant party in 1845, which lured so many prospectors to the Snake river basin, brought a party from Placerville in 1863. Their explorations resulted in the discovery of the Owyhee placer fields, and silver bearing ledges of marvellous richness on the lateral streams flowing into Jordan creek, whither a rush was made in the autumn. The first town laid off on Jordan creek was Boonville; then followed Ruby City, and Silver City, the latter being founded in December.

Among the several districts in Owyhee, Carson extended from the summit of War Eagle mountain westward; French district was on the eastern slope of the same range, and adjoined by Steele and Flint districts, while Mammoth and Wagontown districts lay west of Silver City. A common yield was $50 per ton, with frequent rich streaks. In 1881 the pro-

duction was only $300,000, but this region shared with others in the revival then beginning.

In 1864 the Oro Fino company prepared to cut a tunnel through Oro Fino mountains, which was later called War Eagle mountain, from the mine of that name. Here was erected the first quartz mill of the Owyhee region, and here in 1865 the Poorman mine was discovered, whose name belied its reputation, for the ore was the richest known, and capable of being cut like lead. It was a chloride of silver, richly impregnated with gold, and brought four dollars an ounce as it came from the mine. The first discovery was made about 1,000 feet from the rich chimney, which contained the real wealth of the mine, and was found by C. S. Peck, who kept the matter secret, and endeavored to buy the mine of Hays and Ray, the owners. Finding the price too high, Peck absented himself, in the hope that his offer would be accepted. Meantime another party of prospectors discovered the rich chimney, located it, and called it the Poorman, because they were without capital. A contest now arose for possession. The Poorman company erected a fort at the mouth of their shaft, and mounting some ordnance, took out a quantity of the richest ore and sent it to Portland, where it caused a great sensation. The prospect of protracted litigation induced the two companies to sell their contested claims to P. Bradford and G. C. Robbins, both of Portland, who worked the mine jointly, and sold it to a New York company after taking out nearly two million dollars.

In 1864 W. P. Callahan, a prospector, on the way to Montana, came upon large ledges of galena ores on Wood river, eleven miles above the crossing of the Boisé and Salmon City road. Eight years later he returned and located a claim; but Indian troubles interfered with operations until 1879, when a rush set in. More than 2,000 claims were then taken up in an area of 60 miles square, and several towns sprang

up. The ore was sent to Salt Lake City, where it yielded from $100 to $500 in silver at the reductiou works. Rock from the bullion mines assayed $11,000 per ton, and the entire district from Bellevue to Ketcham, a distance of 18 miles, returned so high an average yield as to make this belt one of the most famous in the world. Though only partially worked, the Bullion produced in 1883, $250,000. The geological formation was quartzite, slate, and porphyry. The ores were galena and carbonates, with antimony and copper. Southwest of it lay the Ornamental Hill district, with the only free milling ore in the entire silver region. The Mayflower obtained more than $500,000 from 3,000 tons of ore. On the east side of the Wood river mountains was a belt in calcareous shale, assaying about $75 per ton. The upper Wood river district embraced a valuable group of mines with assays ranging up to $200 per ton, and the Saw Tooth district on the ridge dividing this basin from Salmon river, contained high grade but refractory ore, which could only be reduced by roasting. The latter was discovered in 1879 by L. Smiley.

The production of the Wood river region steadily increased from $1,250,000 in 1881 to $4,000,000 in 1884, and with a still larger outturn since then, of which nearly $1,000,000 came from the Mountain King and Vienna within two years. The Minnie Moore was sold to an English syndicate for $500,000; the Mayflower for two thirds of that sum; the Muldoon for $125,000; and so on. The smelters number more than a dozen, with a total capacity of over 500 tons. The concentrating works rather exceed this capacity. The Philadelphia Smelting works, with 9 furnaces and 20 charcoal kilns, are the largest in the territory.

The Yankee fork district, north of Salmon river, received its impetus from the location in 1875 of a vein by W. A. Norton, which yielded $2,000 per ton. A number of mines, including the Custer, were now

opened, which could be worked by easy quarrying methods. Of nearly $1,000,000 worth of bullion sent to market in 1881, half was net profit. Some of the ore from the Montana netted $1,300 per ton. The Ram's Horn vein, the longest known in modern mining, had twenty-four claims, each 1,500 feet in length, and it assayed 800 ounces of silver per ton. Northwestward the Middle fork district on the Salmon was opened in 1881.

On the headwaters of Snake river was a number of districts, notably the Cariboo, first discovered in 1870 by Babcock and McCoy, and worked as gold placers, from which $250,000 was annually obtained for a decade. Bilk gulch was the centre of operations. In 1874 Griffiths and Thompson discovered quartz which proved very valuable. Adjoining it were several gold bearing porphyry belts, with frequent outcrops, and assaying as high as $1,200 per ton.

The Cœur d' Alêne excitement in 1883 was attended by the usual influx of adventurers, and the rise of a town, Eagle City, but, although a considerable amount of coarse gold was found, expectations have not been realized. It has had the effect, however, of giving fresh impulse to sluicing operations, aided by hydraulic apparatus, with which fields once abandoned as exhausted were made to yield further returns. On Grimes creek one man known as the "placer king" used fifty miles of ditches.

For 1890 the total bullion products of all the mining districts was estimated at their coinage value at $11,000,000, of which $8,000,000 was in silver, and $3,000,000 in gold, together with $7,000,000 worth of ores and base bullion.

Apart from the precious metals, the territory has an abundance of iron, copper, lead, coal, salt, and sulphur. In Bear lake district copper ores assaying from 60 to 80 per cent, and galena ores with 78 per cent of lead are found; bituminous coal also exists in

abundance. Near Rocky bar in Alturas county, and Challis in Custer county, iron veins yield from 50 to 60 per cent of pure metal; while in Owyhee county is the Narragansett iron mine, the ore is so nearly pure as to admit of being cast into dies for stamp-mills. The Oneida salt works in 1880 produced 1,500,000 pounds of a superior quality of salt, obtained by simply boiling the water of the springs in galvanized iron pots. On Bear river, at Soda springs, is a mountain of sulphur, 85 per cent pure; while in northern Idaho mica, marble, beautiful granite, and sandstone have been discovered. Idaho is indeed extremely rich in minerals, and as development progresses, with increased facilities of communication, her many resources will be found adequate to the support of a dense population.

Montana has been aptly termed the home of gold, and nowhere else is it found in so great a diversity of geological conditions. It seems to have been manufactured by nature regardless of the material at hand in which to deposit the most precious of her products. In igneous and metamorphic rocks micaceous slates, alluvial drifts, and beds of ferruginous conglomerates; in quartz, granite, hornblende, lead, iron, and clay the precious metal is present. Iron and copper are often a matrix for it, and a solution of gold is not unfrequently found in water. Its shape also is as varied as the receptacles which contain it. It is found in flakes and scales, and rounded grains, in nuggets and in crystalline and arborescent forms. The cube, octahedron, and dodecahedron are not uncommon forms, while beautiful filaments of the metal occur in quartz lodes. Exemplifying the prodigality and eccentricity of nature are found side by side with it cubes of galena strung on wires of gold, and even the rare tellurium.

Silver, also, is abundant in Montana in sulphides, chlorides of various colors, and as antimonial, ruby,

and polybasite. Gems are frequently found in the auriferous gulches; the beryl, aquamarine, garnet, chrysoberyl, white topaz, amethyst, opal, agate, and moss agate being common. Of these the amethyst and moss agate are the most perfect, with white, red, black, and green varieties of the latter.

The discovery of the Alder creek placers attracted a multitude of prospectors, who soon overran the country on both sides of the upper Missouri and east and west of the Rocky mountains. Next in importance to that discovery was one made in the valley of Little Prickly Pear river by John Cowan, a tall, dark eyed, gray haired Georgian, whose previous ill luck induced him to name the last claim which he staked out the Last Chance. In the autumn of 1864 Cowan took out of the ground near the site of Helena some few thousands of dollars' worth of gold, and then returned to his native state. But hundreds of miners flocked to Last Chance gulch, and in October of the same year Helena, the future capital of the territory, was founded.

Other discoveries followed rapidly, and for a distance of 150 miles north and south of Helena, and 100 miles east and west, mines of great richness were discovered in 1865–66. In the autumn of the latter year a four-mule team drew two and a half tons of gold from Helena to Fort Barton, valued at $1,500,000. The train was escorted by J. X. Beidler and his aids.

John X. Beidler was deputy United States marshal, as well as collector of customs, for the district of Montana and Idaho, and was also colonel in the territorial militia. He was an officer whose activity, endurance, sagacity, and quickness with the pistol made him the terror of evil doers. In other respects he was a man of infinite jest, and was a favorite with all except law breakers. When not dressed and accoutred for the road, either as escort to a train or in pursuit of some malefactor, he was somewhat foppish

in his attire. He had a sobriquet which was simply the letter X, and the local newspapers noticed the movements of X so frequently in connection with the arrests of criminals as to cause the journals of other localities to take it for granted that the letter was a cabalistic sign for a vigilance committee. There is no doubt that Beidler was at times in the service of that league, but for all that he was an officer of the regular courts. By his exertions some thirty of the most lawless men the continent could produce were brought to the gallows, and the arrests which he made could be counted by hundreds.

Quartz ledges were discovered in the Bannack district, as were its placers in 1862, and the first one worked was the Dakota, the owners of which, Arnold and Allen, fashioned six stamps weighing 400 pounds on a common blacksmith's forge out of old wagon tires. The mill was run by water power. The first steam quartz mill was erected in Bannack in 1863 by a man named Him Kuis.

But what led to the quartz prospecting excitement, was the discovery of the famous Whitlatch mine. In September 1864, James W. Whitlatch of Pennsylvania, went to Prickly Pear valley in search of a quartz mine. He had learned the process of milling ores in Nevada, and had already prospected in several districts without success. After failing in an attempt to smelt silver-bearing galena, he betook himself, with eight companions, to Last Chance gulch, there to pass the winter. He was a man of little book learning, but of great shrewdness and indomitable will. The placers were paying enormously, and he began searching for the veins. His companions having little faith in his theory that quartz was the mother of placer gold, bound him to an agreement that if no discovery were made by a certain day, he would abandon his search. The appointed day was already drawing to a close, and his comrades had returned to camp, when Whitlatch picked up a fragment of quartz, which, on

being broken, showed free gold. With beating heart he drove his pick into the earth, and uncovered the long-sought lode. A company was formed, called the Whitlatch Union Mining company, and before the close of 1867 about 32,000 tons of ore were milled, yielding over $1,000,000; but on account of the great cost of mining and milling ores in Montana at that time, the profits were small.

After this discovery quartz prospecting was prosecuted in all parts of the territory, and many rich mines were developed, both of gold and silver. The first experiments in silver mining were conducted in the Blue Wing and Rattlesnake districts, east and northeast of Bannack. The ores, which carried galena, could only be reduced by the smelting process, and furnaces were built in 1866 by several companies, the first smelter being erected at Marysville. Such was the beginning of silver mining, and then followed prospecting for silver lodes which were found in abundance, notably in the country about the three forks of the Missouri, and for one hundred miles on both sides of that river. By January 1868 there were forty quartz mills in the territory, all in full operation.

Nevertheless it began to be observed that Montana was not advancing in wealth proportionately to her resources. Indeed, her condition from 1869 to 1873 was one of comparative poverty. Nor is it difficult to account for this anomaly. For years a continuous stream of gold was leaving the country, borne therefrom by those who had gathered it, and who now bid farewell to the land where they had made their fortunes, never for the most part to return. Thus population rapidly decreased, and while each year it became more difficult to dig up fortunes in the gulches and creek-beds, the discoveries of new mining districts in Nevada, Colorado, and Wyoming drew away a further number, so that by 1875 only about 18,000 were left of the 30,000 or 40,000 people who flocked

into Montana in earlier years. But this period of depression did not discourage those who remained. Some engaged in agriculture, others who owned quartz mines which were unremunerative by reason of inexperience or defective machinery, took time to correct their errors; while those who had placer claims set about constructing ditches and flumes, in order to work the dry creek-beds and gulches. Thus an era of comparative poverty opened the door to permanent improvements, and the fierce, spasmodic activity of earlier days gave place to steady and permanent development.

During the period 1870–77, there was an enormous decrease in the production of the precious metals, the cause of which has just been explained, the total yield being $45,550,000, against $101,600,000 in the eight preceding years. In 1878, however, a reaction set in, and a steady increase in the yield is observable, that of silver being largely in excess of gold. For 1890 the product of both metals was valued at nearly $20,000,000, of which more than three-fourths was in silver. While the territory contains all that is needed for a large production of the precious metals, rich, varied, and plentiful deposits of ore, with abundance of fuel, mainly through lack of capital and facilities for transportation, Montana has not as yet attained to the rank to which she is destined as a mining region. Not least among the sources of wealth, are her gravel deposits, the output of which for the year ending with May 1880, was estimated at $1,162,000.

As a rule the ores of Montana are easily worked, the presence of lead or copper simplifying the process of reduction. In general, her galena ores do not differ much in character from those of Utah, Colorado, eastern Nevada, and Idaho. Copper lodes are abundant, and are found near Butte, at White Sulphur springs, in the Musselshell country, and elsewhere. Iron occurs in a great number of places, and in Deer

Lodge county there is an iron mountain four times larger than the well known deposits in Missouri. Fine marbles, excellent building stone, fire-clay, zinc, and coal are grouped together in Montana in a remarkable manner; nor are there lacking, after the precious metals shall have been exhausted, any of the requisites for a more permanent and progressive civilization.

An assay office was opened by the United States at Helena in 1879. Congress having enacted that the secretary of the treasury might appoint the assayer, an assistant-treasurer, with permission to receive gold coin and bullion on deposit, the establishment of this office in Montana was a great relief to the miners, who had previously been obliged to send their bullion east at exorbitant charges.

For the decade ending with 1890 the output of Montana in gold, silver, copper, and lead was estimated at $250,000,000, of which about $170,000,000 was in the precious metals and $80,000,000 in base metals, nearly one-third of the total being disbursed in dividends. Butte county took the yield in volume of production, representing nearly one-half of the entire yield. In 1890 Montana could boast of the largest copper mine, the largest gold mine, and the largest silver mine in the United States. These were the Anaconda, the Drum-Lummon, and the Granite Mountain, the last paying $200,000 a month to its stockholders.

CHAPTER VII.

MINES AND MINING—BRITISH COLUMBIA AND ALASKA.

EXTENSION NORTHWARD OF THE GREAT GOLD FIELD—DISCOVERIES ON THOMPSON AND FRASER RIVERS—CHARACTER OF THE METAL—MINING PROCESSES—GOLD COMMISSIONERS—MINING LAWS—GEOLOGIC FEATURES—FURTHER DISCOVERIES AND EXTENSION OF FIELD—THE CARIBOO COUNTRY—OBSTACLES—YIELD—IRON AND OTHER METALS—COAL—MINERAL RESOURCES OF ALASKA—GOLD MINING—THE JUNEAU DISTRICT—THE TREADWELL LODE.

As in California, gold was the influence which prepared the way to occupation and settlement in British Columbia. As the discoveries of 1848 extended southward and northward along the Sierra foothills, adjoining regions began to hold out prospects; yet it was long before the fur-traders, absorbed in their traffic, fully realized the possibilities around them. In 1850 Joseph W. Mackay found particles of gold while looking for farming lands between Victoria and Nanaimo, where afterward placers were worked. In the following year Governor Blanshard reported that the metal had been observed on Queen Charlotte island, and both the Hudson's Bay company and adventurers from California sent vessels in which to load the precious cargo; but nothing was discovered except a few unprofitable quartz ledges. The Indians of the Skeena and Nass rivers now turned the illusion toward their districts, only to add to the disappointment and to defer development for several years.

In the southern districts, George B. McClellan's exploring party in 1853 washed out some meager specimens of gold on the Similkameen, and the

Indians from Colville, Kamloop, and other quarters brought in dust and small nuggets without arousing the cupidity of the white men. In 1857 the natives came upon more substantial deposits on Thompson river, at Nicommen, and shortly afterward an American prospector named Adams washed out a small bag full of fine dust near by on the Fraser. Mingled with the news as it was carried south was the statement that remunerative mining had been secretly carried on for at least a year in the upper Columbia and Caledonia districts. Ballou, the well-known expressman, then trading at Olympia, started the excitement by hastening to proclaim the news at San Francisco.

The attention of miners was attracted not so much by the yield of the new field, limited by official reports to some eight hundred ounces up to April 1858, as by the fine character of the gold and the position of the bars, which implied rich coarse gold sources above as in California, where the headwaters had proved so productive. As the rivers of British Columbia were larger, so must be their wealth. The glories of the Sacramento and of Australia must fade before this new revelation; and so the rush set in. Settlers on Vancouver island, on the Cowlitz and the Columbia, headed the current, and California swelled its volume, until it seemed that half the population had set forth toward this distant region. Many a mining camp, indeed, was abandoned and many a town was half deserted. At San Francisco real estate and other property were sacrificed at ruinous prices, in the belief that a new metropolis would rise in the north. Twenty-three thousand persons are said to have left the city by sea during May, June, and July, of 1858, and other thousands were hurrying away by land, while a still larger number prepared to follow when definite information should arrive. Steam lines, shipowners, and merchants profited by the exodus; speculators laid out entrepôts on Puget sound, and Victoria sprang from a village into a city which at one

time claimed 15,000 inhabitants, though generally dwelling in tents Six thousand persons arrived within one fortnight in June, directed thither partly by the issue at this point alone of the required licenses. This prominence was threatened for a brief period by Whatcom and other projected Puget sound stations for overland routes to the mines. But the Fraser being found navigable for steamboats, Victoria regained her commanding position.

On the Mainland, camps arose at the different river-bars, well supplied with stores, saloons, and gambling-houses; the existing fur posts expanded into regular trading centres, and terminal transport points were established in connection with trails and roads along the Fraser and eastward. Hope and Langley contested awhile for the dignity of capital, until the prize was finally awarded to New Westminster. Lots sold freely, for miners and speculators had brought with them an abundance of funds for investments, as well as for expenses, so that the province was greatly benefited by their presence.

Meanwhile the inflowing herds of gold-seekers had encountered unexpected obstacles. After crossing the ocean in unseaworthy vessels, or skirting the coast in frail skiffs, most of them underwent further perils and delay in crossing the channel and ascending the Fraser to the head of navigation, only to find the worst part of the journey yet before them, in scaling the cliffs and penetrating the almost inaccessible regions that still separated them from the mines. Numbers perished during the trip; some being lost or starved to death, and others falling victims to the wrath of the savages. Under fur-trading régime the latter had been regarded as the owners of the soil, and in a measure of its resources; but less scrupulous or politic than the trappers, miners followed the California custom of ignoring the lordly aboriginal, and sometimes of killing him. The result was a spirit of

hostility and retaliation which not only caused loss of life and money but much vexatious delay. The lack of trails along the Fraser at this period also impeded the transmission of supplies, so that all but a few of the more adventurous were compelled to fall back until a road was built, which the government undertook to complete during the autumn of 1858. In addition to this came disappointment in the mines.

The river-bars had been declared beforehand to be inaccessible until the water subsided after midsummer, but California experiences led the miners to assume that small tributaries and ravines might be worked in the mean time. The deposits here differed widely, however, from those in the south. There were no ravine diggings like those of the Sierra slope, and the higher bars of the Fraser failed to yield the expected returns. That which was found was almost entirely fine gold, distributed in thin streaks of sand and gravel, and through the terraces and valleys, with richer deposits only in rare patches, frequently covered by heavy strata of barren ground. The result was a cry of disappointment and condemnation as fervent and prolonged as had been the previous enthusiasm. Thirty thousand Californians rushed back after the middle of July in nearly as much haste as they had come, branding the British Columbia mines as the Fraser humbug, and staying the intended travel thither. The foundering of the steamer *Brother Jonathan* in July gave an additional shock, and for a time all immigration ceased.

Some resolved, however, to wait and test the bars, and as the river fell a reaction set in; but the yield did not reach their expectations, and in November the winter exodus set in. The total production for 1858 was estimated at less than $1,000,000, and in 1859, with a larger area, at $1,500,000, divided among 3,000 miners in 1858, and about 4,000 in the two following years, while their expenses far exceeded their gains, leaving a feeling of depression in almost every direction.

The greatest number occupied themselves in 1858 between Hope and Yale, beginning some distance above Langley, but the best diggings were above the great falls, the bars growing richer as the river was ascended. Sluicing began in 1858, although involving much preliminary labor, before which most men shrank, and this became the chief method in late years for gleaning the bars and benches. The latter, indeed, could not be profitably worked in any other way. The terrace deposits covered thousands of square miles along the river, and even far back over the plains, and were practically inexhaustible, though not rich enough to tempt many of the early miners. They were in three successive tiers, representing their several stages of elevation.

Nearly all the metal extracted during the first year in the Fraser basin was fine, floury gold, not a scale having ever been discovered below Yale, while at Lytton most of it was found in scales. Coarse gold was more frequent in the terraces than in the river-bed, but it practically belonged to the more northern districts, in ancient channels of streams, often disturbed by erosions.

Notwithstanding the disappointments of the first comers enough was accomplished during the Fraser developments to cause the withdrawal of the fur company's charter and exclusive privileges, and the creation of a government, with the necessary officials to enforce order and the observance of laws; to open roads, and foster and direct the development of resources. The miners had, after self-reliant California fashion, enacted laws to regulate mining claims, and rules for camps and intercourse with white men and Indians. The authorities appointed gold commissioners as tax collectors, and to act in most cases as justices of the peace and arbitrators. In larger districts mining boards were chosen by the miners to make and execute mining regulations. When not other-

wise specified, claims were to be 25 feet in width across the bars from highwater mark; for dry diggings 25 to 30 feet in rectangular shape, and for quartz 100 feet along the lode. Licenses to mine were placed at five pounds a year; auriferous land of inferior quality might be leased for a term of years.

The theory of a coarse gold source for bar deposits opened in 1858–9 was drawing attention northward, and the progress of road-building permitted the miners gradually to follow their bent, backed by the necessary supply trains. In 1859 prospectors had reached the Quesnel fork of the Fraser, but not until a year later did evidence arrive in the shape of an increasing flow of gold dust sufficient to prove the disclosure of new and rich placers. This tributary skirted the so-called Cariboo region, which lay encircled by the headwaters of the leading affluents of the Fraser, within its great curve. The geologic features of California here reappeared in the mountains of gold bearing slate. But they had their special traits also. In Cariboo the science of deep placer mining was to be practically studied and unravelled by means of shafts and drifts, pumps and hoisting machinery. The aim was to drift beneath the deep clay strata in search of the concentrated gold leads of the ancient rivers, often confused and obliterated by later glacial action.

The Cariboo excitement was not fully started until the finding, in January 1861, of the extraordinarily rich prospects on Antler creek. Much of the ground yielded a thousand dollars to the square foot; nuggets could be picked up by hand, and some rockers turned out fifty ounces in a few hours. William and Keithley creeks revealed treasures equally remarkable. The news spread, and in course of the spring and summer some fifteen hundred miners had crossed the divides to the Bear and Cottonwood headwaters. More would have ventured but for the distance, with the attendant hardships, danger from Indians, and risk of starvation, owing to the difficulty of conveying sup-

plies, and also for the doubts concerning the extent of the field. The exodus from California and Oregon was sufficient to constitute a mild rush, and to infuse a vigorous tonic into the trade revival. The sustained production of Cariboo, which shipped $2,000,000 before the end of the season of 1861, and the development of other districts, maintained the stream of immigration, while road-building facilitated access and reduced the cost of living. Even then it required determination of heroic mould to penetrate into this hyperborean labyrinth of mountains, rarely visited even by Indians. Nevertheless, with reckless abandon, the prospector pressed onward, trusting to accident for his safety and guidance to the subfluvial caverns lit up by the shining metal.

Quesnel was the first point, aside from Fraser river, to develop into a permanent camp, and it was long maintained as a depot for Cariboo. Explorers reached, in 1859, the richest placers so far discovered in this basin, on Horsefly creek, and this gave the incentive to wider search. Cedar creek proved an enduring locality. The eastern slope of the Bald mountains revealed for short distances the ancient channels which were now to become the attraction. The famous Keithley creek, named after a well-known miner, was opened in 1860. Several men obtained here a pound of gold daily, and in places the bedrock was paved with small nuggets. Even hillside diggings yielded a hundred dollars a day to the man. Antler creek gave, however, the true ring to the Cariboo excitement. Its daily average yield during the summer of 1861 was ten thousand dollars. The camp of Antler grew by August to a considerable town, but six years later it was deserted. Owing to displacements by erosions, the placers were broken in formation, and while some diggers were making thousands, others adjoining them could not earn sufficient for expenses. Grouse, at first deemed unimportant,

developed into one of the leading districts under successive rediscoveries of its veins, rich strikes and failures alternating for several years.

William creek, named after William Dietz, who prospected here, disputed preëminence with Antler and Keithley creeks. It is claimed that more gold was extracted here from an area of three miles than from any corresponding surface in the world. Some claims yielded several thousand dollars daily, and a few realized fortunes. Its deep ground was the mainstay of the region between 1863-7. The shafts were usually sixty feet in depth. In the seventies the Lane and Kurtz company leased four miles of the now almost abandoned ground, and entered upon a scale of operations hitherto unknown in the colony, proposing with shafts and tunnels and heavy pumps to drain the entire length, but without success. Richfield and Barkerville were the two towns of the valley. In 1875 Lightning creek was the leading district, thirteen of its claims yielding over $2,000,000.

The obstacles to mining in Cariboo were its rugged surface and comparative inaccessibility, which retarded the introduction of supplies and machinery, the eccentric distribution of gold, and the cost of working the deep ground, often resulting in discouraging failures, and the shortness of season which limited exploitation. Nevertheless, where drainage was possible, underground working could be carried on during the winter, and eventually about half the population wintered here, although practically shut off from the world. Gambling, drinking, and reading helped to beguile the dreary hours, and in the summer strolling players and preachers gave variety to the scene. During seven years Cariboo yielded $25,000,000. For twenty years the returns from half a dozen principal creeks give a total of between $30,000,000 and $40,000,000, from a region of rotten shale less than fifty miles square, with an average population of probably fifteen

hundred. One third of the miners carried away a competence, one third departed with smaller gains, the rest returned disappointed.

After a season of depression throughout the greater part of the colony, the government was induced, in 1869, to assist in placing a prospecting expedition in the field. Guided by rumors of discoveries north of the Fraser basin in 1861, notably on Peace river, this party found on the Omineca headwaters of the Finley tributary several rich spots, which it sought to secure for its own members. Suspicion was roused, however; others followed on their track, and their success led to a rush of miners, especially from Cariboo. The difficulty of carrying provisions to so remote a region was a limitation to number, so that at the height of the excitement in 1871 only nine hundred, though some say twelve hundred, found their way there. A peculiarity of the field was the large mixture of silver in native washed form, partly nuggets. Deposits were widespread, but patchy, and reports of the yield in that year varied between $100,000 and $400,000, mostly absorbed by traders for costly supplies. Silver formed about one tenth of the yield. Several creeks were worked, but Germansen, named after its discoverer, proved superior to the rest; $70,000 were taken out in 1870, and this aided in building up Omineca, the only important village in that region. This creek survived the other minor districts, the collapse of which reduced the population by 1875 to less than fourscore, who from twenty-six claims produced only $32,000. Soon afterward the field was abandoned.

A proportion of the miners drifted to the Cassiar mines on the headwaters of the Stikeen. The earliest prospector here was Choquette, a Canadian, who in 1861 ascended the river with some Indians and was so well rewarded as to create a considerable influx of miners. A steamer found the stream navigable for 170 miles from its mouth, and thus rendered the field

more accessible. Still, it was not until 1882 that the richer section round Dease lake was developed by Thibert, giving rise to the real excitement in this direction during the following seasons. By 1875 about 1,000 men were employed, chiefly on Dease creek and Laird river, producing nearly $1,000,000 for the season. In 1876 the yield fell to little over $500,000, so that the population, which had increased to 1,700, began to decline. Fresh developments continued, however, to sustain a certain number of miners, and to encourage farming and other pursuits in this otherwise unpromising region.

Meanwhile the earliest gold discoveries along the Columbia had maintained the promises roused by the prospecting expedition of A. Macdonald's men in 1855, near Colville, and upon the Pend d'Oreille river. The several excitements in the north diverted attention from this region for a time, but in 1863–4 occurred the Kootenai river furor, which drew a crowd of adventurers, especially from Oregon. The centre of attraction was Wild Horse creek, where ordinary claims paid from $20 to $30 daily to the man; but Perry creek, Mooyie river, and other points added their quota to the yield. In the middle of the following decade the region had been abandoned to Chinamen.

The flow of miners to Kootenai assisted to bring a proportion also to the main stream of the Columbia, the result of which was the Big Bend excitement of 1865–6, named after the great bend of the river in latitude 52°. Steamers were placed on the Columbia above Colville, and upon Shushwap lake, supplemented by barges and canoes, and a lively traffic ensued, which reminded one of the Fraser in its first flush. The richest spots were upon French and McCulloch creeks, branches of Gold creek, centring round Kirbyville, each of which yielded $100,000 in 1866. This was not sufficient to draw more than a

few hundred diggers, and their number would have diminished rapidly but for the cheapness of supplies and the wide extent of coarse gold indications, which promised to lead to something valuable. Unfortunately, the yield was small, and from many deposits the miners were driven off by water, broken leads, and other obstacles. A large proportion of them crossed the Rocky mountains into the Saskatchewan and Montana regions, or into Idaho.

In addition to the above centres for mining rushes, digging was prosecuted in hundreds of intermediate districts, extending from Vancouver and Queen Charlotte's islands into the labyrinths of the Rocky mountains. Sir Roderick Murchison confirmed the growing belief, based on orographic data, that the auriferous matrix would be found to extend along the slopes of the mountains of the whole cordillera system, including the plateau between the Cascade and Rocky ranges. The placer diggings were undeniably the alluvial deposits brought down from these ridges by the streams; but outside of the deep and ancient channels zones were disclosed only in a few localities rich enough to pay.

The result of the first excitement in the fifties, with an average yield of less than $2,000,000 a year, had sufficed to lift the province from a game-preserve to a colony, to establish a government, open roads and means of communications in different directions, the avenues to future unfoldments, and to suggest overland communication and confederation with Canada. Successive depressions tended to check the large immigration that might have been assured by an earlier development of the country's resources, as did the subsequent disclosures in Nevada, Arizona, Colorado, Montana, and Idaho, more accessible to the centres of Pacific coast population in California, and with more attractive climate and facilities for intercourse. No such human current could be induced to cross the

Cascades in the north as reënforced the mining camps of other territories. Later, valuable ore deposits were revealed in British Columbia; but quartz bonanzas must be exceedingly rich to tempt men to costly investments in preliminary exploitation and machinery in so remote a region. The extensive beach and terrace deposits, especially along the Fraser, in due time invited sluice and hydraulic operations on a large scale, and assisted toward a revival in the now declining industry.

The minister of mines reports for the year 1884 an actual force of less than 2,000 men engaged in gold mining, with an average receipt of barely $400, representing a total of $736,000, while the annual average yield of preceding years stands at about $1,900,000, the total output between 1858–84 being estimated at $48,700,000. The largest earnings per capita were $1,200 in 1875; but for the entire period they averaged only $600 a year. The decadence of mining appears in the general abandonment of the mines to Chinaman, and in 1890 the yield had further decreased to less than $600,000, although the construction of the Canadian Pacific railway, bringing with it accessibility and cheapness of supplies, had opened brighter prospects.

British Columbia possesses mineral deposits of more substantial benefit than the declining gold fields. Iron exists in several places, notably on Texada island, which exhibits rich magnetic ore in veins as much as 25 feet wide, and assaying in spots 68 per cent of metal. Other minerals are also abundant, and only await development. Exploitation has so far been confined to quarries and coal-beds. The sandstone for the mint at San Francisco was obtained from Nanaimo, which has supplied the material for many other buildings.

The existence of coal was first made known in 1835, at Beaver harbor, so called after the pioneer

steamer, which soon afterward began to utilize the deposit. The hopes roused by the California gold excitement induced the fur company to begin mining. To this end they established Fort Rupert, which should be made self-supporting as a fur post, while intended chiefly as a protection for the new industry. A party of Scotch miners was introduced in 1849, under the guidance of Muir; but after sinking shafts for some distance, the seams were declared too small and slaty to prove remunerative. Exploitation continued, nevertheless, for a time, partly with the aid of Indians; for want of proper tools and a too strict supervision led to desertion among the Scotch workmen. Before the aspect of affairs was fully realized, however, two dozen practical miners arrived in 1851, from England, with superior machinery, and this reënforcement was most opportune.

News of better deposits at Nanaimo had been brought by an Indian chief from that locality. Their value was ascertained in 1850, and when the new machinery arrived work began in earnest. Before the expiration of 1853 some 2,000 tons were forwarded to San Francisco, and realized eleven dollars per ton, the ship *William* carrying the first cargo. Fort Nanaimo was erected for the defence of the rising settlement.

Discoveries on Puget sound and in California interfered somewhat with the demand. Nevertheless, these mines retained the first rank, and were worked by the fur company under the designation Nanaimo Coal company until 1861, when they were sold to an English syndicate, associated as the Vancouver Mining and Land company. The land embraced six thousand acres. New machinery and improved methods were introduced, with wharves and barges for storage and transport. Two veins were worked, one being pronounced little inferior to the best Welsh seams. Their success stirred up competition. Three miles to the southwest from Departure

bay, the Dunsmuir vein was opened in 1866, by Dunsmuir Diggle and company, under the title of the Wellington company, which introduced steam railways for transportation. A third company developed the Harewood vein in 1874, three miles back of Nanaimo, where it controlled nine thousand acres of land. An elevated wire tramway connected with the shipping point on Cameron island. The area of the Nanaimo coal field, including several unworked seams, was placed by Richardson at ninety square miles, from the Dunsmuir to Gabriola island. The Harewood succumbed in 1877, partly under the efforts of the Baynes Sound Colliery company, which had begun operations ten miles southeast of Comox, during the preceding year, and reduced the prices below nine dollars per ton. The quality of their coal was the finest on the island. and a great future was predicted for Quadra, the shipping point, connected with the mine by a tramway three miles and a half in length.

The total output of coal had by 1875 reached 110,000 tons; nine years later it stood at 394,000, about three fourths of which went to San Francisco, forming thirty per cent of the entire imports. The greater proportion was still supplied by the Nanaimo company, which had absorbed the Harewood, together with 3,000 additional acres of coal lands, and employed about 600 men. They constituted the support of the town of Nanaimo, which prospered under the wise and philanthropic policy of the colliery owners. The government also issued regulations for checking abuse, especially affecting women and children, and for the settlement of wages on a fair basis. They required responsible and able managers, and appointed inspectors to examine the safety appliances at the mines.

The lignites of the Pacific coast are found in formations, as a rule, different from those in which they occur at the east, usually in secondary and tertiary rocks. The latter embrace deposits south of British

Columbia, while those within this province belong chiefly to the cretaceous strata, with bituminous coal on Vancouver island, and to the creataceous-jurassic holding the anthracite, as on Queen Charlotte island, the quality improving in northern latitudes. Indications existed in different parts of Vancouver island, from near Victoria to Fort Rupert, and the Comox basin alone extended for a length of over sixty miles; the Union, among other companies, owning valuable seams. At Quatsino harbor some work has been done and will doubtless be resumed. The efforts of the Queen Charlotte company, at Cowgitz, have been checked by adverse circumstances and irregular veins. At Burrard inlet, Coal harbor promises to open good mines, and on the Skeena and other rivers and in the far interior are numerous deposits awaiting the advance of settlement to add their quota to the volume of production.

In Alaska, mining promises to become next to her furs and fisheries the leading source of wealth. Coal exists in many places, although the seams, as a rule, are deficient in thickness and of inferior quality. In 1857 a deposit was opened at Coal harbor, and worked in later years to supply the steamers for the fur company, but was afterward abandoned, being found unsuited to the purpose. Other less sustained attempts have been made elsewhere, and the veins at Cook's inlet are said to be the best. The future may yet unfold herein an influential factor of progress. On Copper river and near Katmai bay are large deposits of petroleum, which has been used in a crude state for lubrication.

Iron has been found in many sections, and lead in small quantities on Whale bay, south of Sitka, and on Kadiak island cinnabar is reported, likewise marble, gypsum, and bismuth, while sulphur and copper abound. Extensive deposits of the latter metal have given its name to Copper river. The excellent char-

acter of some lodes has led to investments by San Franciscans. At Kasaan bay a valuable bronze copper vein is worked by an English company. Silver reveals itself so far only in scanty admixture, although to more than one locality its designation has been applied by prospectors.

Gold-mining has alone been remunerative. The slate formation is observed everywhere and ledges have been found in many parts of the country, although few have been sufficiently tested to indicate their true value. Most river-sands give indication of the metal; and along the Stikeen and even the Yukon diggers have left their tracks. The banks of the latter stream have yielded good returns to many recent expeditions; but it is too remote, with too brief working periods to render other than the richest deposits remunerative. Throughout the territory prospecting is obstructed by the moss covering of the surface, by the greater expense attending movements in so rough and isolated a region, and to some extent by the hostility of Indians.

The centre for operations is at present in the Juneau district where a number of quartz and placer mines have assisted since 1879 to build up a considerable settlement. The first alluvial deposits on the way from Wrangell were Shuck and Sum-dum, where diggers made from $5 to $10 a day; beyond are those of Silver Bow, and between them lies Juneau proper, depending mainly on the Silver Bay basin, which in 1884 yielded $200,000, and in the following year a much larger sum. In the extreme south are diggings on Innach river.

Near the same central district, on Douglas island, are the chief quartz lodes, the exploitation on which has been sufficient to give rise to a promising town. The leading work is the Treadwell mill, belonging to a San Francisco company, with 120 stamps, producing in 1890 $1,000,000 of gold, and returning a good profit, from ore yielding less than $7 a ton, but of

vast extent and cheaply mined and milled. Its success is encouraging other mine-owners to develop adjoining properties. At Silver bay the failure of a Portland company, although attributable to bad management, checked enterprise for a while, but a Wisconsin association created a revival, and a number of ledges are again receiving attention. The formation is slate, with much free gold, partly in black sulphurets. Quartz ledges have also been discovered near Wrangell and on Prince of Wales, Admiralty, and Chichikof islands. The director of the mint estimated the total gold production of Alaska in 1882 at only $150,000, and in 1883 at $300,000; in 1890 it was $2,000,000, with other exports amounting to nearly $8,000,000, a fair return on an investment of $7,200,000 in a region that was supposed to be without resources. The route to the Cassiar mines in British Columbia lies through Wrangell, and a proportion of their yield falls into the hands of Alaskan traders. Near Wrangell is a vein of garnets, and agates, amethysts, zeolites, carnelians, and fossil ivory are encountered. With increased population and means for procuring supplies and machinery, the development of the mineral wealth of this region must receive an impulse that will convince the most skeptical of the abundance of her resources.

CHAPTER VIII.

MINES AND MINING—NEVADA.

ADVANTAGES OF MINES—OROGRAPHY—PLACERS AND QUARTZ—DISCOVERY OF THE COMSTOCK LODE—DESCRIPTION—FORMATION OF COMPANIES—STUPENDOUS WORKS AND MACHINERY—THE SUTRO TUNNEL—MANIPULATION, SPECULATION, AND STOCK BOARDS—CLAIMS AND LITIGATION—LABOR LEAGUES—ASSESSMENTS AND YIELD—OTHER DISTRICTS—BOUNDLESS MINERAL WEALTH.

NEVADA owes her rise and prosperity chiefly to the disclosure of silver and gold bearing veins, centring especially in the Comstock lode. Nowhere else in the annals of the world do we find a large community springing up in the desert, through the discovery of a mountain of metal, and so dependent on the vagaries attending its development, though finally attaining to the condition of a prosperous commonwealth.

It is the fashion to descant on the evils and small material benefits flowing from mining; but no one can deny its value in attracting population to perhaps otherwise unattractive regions, and transforming a wilderness into flourishing states, with all the amenities of an advanced culture, higher in many respects than could be expected from a farming community of equal numbers. Add to this the stimulus imparted to trade and industries, throughout the world, by the demands and contributions of the mines, and the greater energy and enterprise infused among all engaged in their exploitation.

Without mines Nevada would still have but a scanty population distributed among a few of the more promising valleys, and dependent mainly on the pasturing

of stock and on a slight and transient traffic. As it is we behold her seamed with highways and railroads, connecting towns, hamlets, and farms sufficient to warrant the existence of fifteen counties, nearly all sustained by the product of mines, as distributed in miners' wages, mill work and attendant labor. Thus do they serve as nucleii for ever-spreading settlements with more varied resources.

I have elsewhere alluded to the orography of Nevada, and need here describe merely the range enclosing her great mineral vein. It is of irregular outline and height, extending with several breaks from the boundary of Oregon, nearly parallel to the Sierra Nevada, from which it is separated by a depression, consisting of several basins and valleys. Two granite ridges connect it with the Sierra, along the north and south lines of Washoe valley. Beyond Carson river it merges in the Pine Nut range. The culminating point of elevation is Sun peak, also called Mount Pleasant, latterly renamed Davidson, in fitting tribute to Professor George Davidson of the coast survey.

From the south side of this peak runs a ravine to Carson river, called Gold cañon, from the digging carried on there since the first settlement of the valley. Four miles from its mouth it breaks into three branches, the central one, American Flat ravine, heading in a mound, named Gold hill, somewhat over a mile from Mount Davidson.

Indications of placers and quartz were found in different parts of Nevada as early as 1849, when, for instance, Hardin discovered silver in the Black Rock range, in the Humboldt country, the rediscovery and working of which were delayed by Indian hostilities until the middle of the sixties. Gold cañon was the only mining ground in actual exploitation during the first part of the fifties. Abner Blackburn, associated with the first trader, Beatie, prospected and discovered gold in the lateral ravines of Carson valley, in July 1849, but in quantities so small as not to encourage

mining. In the following year, however, a few emigrants stopped a while to dig. The gold was poor, valued at only fourteen dollars an ounce, yet fair wages were made, and settlements increased in consequence, although the miners never exceeded two hundred in number at any time prior to 1859. In 1855 a mining ditch was projected, and constructed soon afterward with the aid of Chinese. The presence of Asiatics gave for a time the name Chinatown to the small settlement of Dayton. Four miles above, in the cañon, lay Johntown, composed like the other chiefly of tents, owing to the scarcity of timber and the migratory habits of the miners.

The first to discover the hidden wealth of the Comstock are supposed to have been the brothers E. Allen and Hosea B. Grosch of Reading, Pennsylvania, sons of a universalist preacher, who came to California in 1849. Hearing of Gold cañon, they crossed over to it in 1853, after a preliminary visit two years earlier. While prospecting they found, at the forks of the cañon, what was termed carbonate of silver, resembling sheet lead broken very fine, and obtained from a large quartz vein. In their letters on the subject they allude to an abundance of black rock believed to contain silver. An experienced Mexican miner—Old Frank, he was called—confirmed their suppositions, and after him they named a mine on this, "our monster vein." The famous Ophir mine is believed to have been a part of their claim.

The development of silver mines required capital, and in order to obtain it they induced their friends in the east to form a company, but money was slow in coming forward, and meanwhile, in 1857, both brothers died from the effect of accidents. Their books and plans disappeared, presumably through the machinations of Henry T. S. Comstock, a man from Cleveland, Ohio, born in Canada 1820, and reared as a trapper, who had resided in this region since 1856,

and was married to a Mormon. He had been engaged by A. Grosch to guard the claim, in which he was to receive a share, and is also believed to have covered up the furnaces erected by the brothers, and to have removed other traces of their operations. This done, he remained quietly watching an opportunity to profit by his trickery.

During 1857 placers were discovered in Six-mile cañon, a mile below the present site of Virginia City, with gold imbedded in tough, blue clay, hard to dissolve, yet paying fair wages. Later comers had to select their claims higher up the ravine, near the head of Gold cañon, and among them was a Virginian of intemperate habits and of doubtful antecedents, James Fennimore by name, though known as Old Virginia. He and Comstock, with others, staked off a claim on the mound, Gold hill, which included a spring of water. Here rose several log cabins, which became the centre for the district. Near by, while excavating for a reservoir, McLaughlin and O'Riley struck the veritable lead to the great lode, exhibiting itself at first partly in a black, decomposed quartz. Comstock recognized the value of the find, bought up the Gold hill spring, and, provided with this indispensable resource, he, with E. Penrod and J. D. Winters, procured for himself a share in their claim. A week later, on June 11, 1859, they penetrated the decomposed ore, and reached the solid quartz ledge, four feet wide, upon which the partners staked off the Ophir mine. A special portion, set aside for Comstock and Penrod, formed the afterward famous Mexican.

Others took the hint; and made locations around them, and the reports on specimens sent to California created there such excitement as to bring hordes of fortune-hunters to Washoe, as the mining district was at first wrongly called. The leading position of Comstock in these transactions, and his boastful volubility based on information abstracted from the Grosch papers, served to connect his name with the lode.

The general aim was to dig for gold in the decomposed ore, although quartz locations were made for greater security. It was not until all the ground had been taken up that the preponderance of silver was announced. The lode was not one regular vein of hard quartz, but was swollen with ore bodies of great richness, at irregular intervals, strung with smaller branches, and mixed with masses of percolating clay and crumbling feldspar. In the northern part it is in the shape of a chimney, dipping to the south; in the south it forms continuous narrow sheets. The western branches of the vein are poor, the deposits presenting themselves in the eastern and middle portions, being the richest and largest where outcrops were the most prominent. The lode lies in a mountain of volcanic rocks, through which older rocks protrude, geologists recognizing the vein as a fissure caused by rending, and subsequently filled with quartz and ore. Unlike silver in other parts of the world, its only gangue is quartz, mostly fractured or decomposed.

Before the close of 1859, 4,000 people had gathered in Carson and adjacent villages, where in June previous not so many hundreds could have been found. A town sprang up at the Ophir mine, first called by this name, then Silver City. Soon afterward Fennimore, during a drunken bout, dubbed it Virginia, after his own nickname, and this was generally adopted. As the lode was developed, and mills began to turn out metal, the number of residents increased rapidly, and within a short time an imposing town had risen upon the rocky slope of Mount Davidson.

The Ophir company was the first to put to a test the nature of the ore, with two arastras or Mexican crushers moved by horse-power. The result induced James Walsh and Joseph Woodworth, experienced California quartz miners who had been attracted by the excitement, to buy for $1,100 Comstock's one-sixth interest in the mine, together with some other claims. His partners also sold their shares for

smaller sums, save O'Riley, who obtained $40,000 by keeping back awhile. He soon lost his fortune in stock-gambling, and died in an insane asylum at Woodbridge, California, in 1874. Comstock left in 1862 for Oregon, where he constructed a road from Auburn to Baker City, and then drifted into Idaho and Montana. His mind had lost its balance, and on returning from the Bighorn expedition in 1872, he committed suicide with a pistol. The other four partners sank into poverty.

Penrod declares that he was obliged to sell under the threat of the new associates to "freeze" him out by heavy assessments for machinery. This has been a common practice in gaining possession of rich mines, and is but a form of stealing. It was even worse than the later manipulations of the "bears" on the stock-boards, with a view to frighten timid holders into selling valuable stock, and so obtain their property almost for nothing. When the ore-body gave signs of exhaustion, as the managers could secretly ascertain by means of diamond drills and other appliances, they would raise the price of shares to a fictitious value, thus transforming on paper at least a "borrasca," or unproductive mine, into a "bonanza."

The example set by the Ophir was followed by others, and within a few months fifteen arastras were at work, besides half a score at Gold hill. Two more were erected at Dayton, which were moved by river power; and here, also, an improvement was introduced in the form of a four-stamp battery. In the following year, 1860, two steam quartz-mills were erected. Thus was saved the cost of sending the ore to California for reduction, as had thus far been done for the most part. The first process of dry-crushing was found to be slow and expensive; but in October the Pioneer mills introduced the wet process, by which tenfold more work was done, and a larger amount of gold was saved. The expense of crushing and working fell to $6 per ton, and millir $, in time,

from $100 to $50 per ton. The retorted bullion was worth only from $10 to $14 per ounce; yet even at this rate the lode yielded $2,000 per ton in gold.

The real work was done in the Ophir, Mexican, and California. The middle mine was worked in Mexican fashion, that is, carried up the inclined shaft in baskets, suspended from the forehead over the back of the laborer. Drifts were cut along the vein, supported by pillars of ore, the California company opening the first tunnel to the ore deposit. The Ophir applied steam hoisting and pumping machinery in 1860. At a depth of 180 feet the ore-body was found to be of the unexampled breadth of 45 feet. This width rendered of little value the post and cap support used in California, and it was feared that the roof of the mines would collapse. In this dilemma the owners appealed to Philip Deidesheimer, a German miner of scientific attainments, who invented the crib system of timbering, without which the lode would have been sealed below a certain depth. The plan was to frame timbers in square sets, or cribs, from four to six feet in size, which could be piled one upon the other to any height, sustaining lateral as well as downward pressure, and by filling them with waste rock they served as pillars. Caves with attendant accidents in adjoining mines, compelled a general adoption of this system.

Improved machinery became necessary with increasing depth. Engines of five hundred horse-power and more were finally to be introduced to raise to the surface the augmenting flow of water, and to supply the necessary power for hoisting large quantities of ore from the deeper levels. The main shaft of the Consolidated Virginia engine weighed 15,000 pounds, and the fly-wheel, 18 feet in diameter, weighed 16½ tons. The total weight of the engine was 50 tons, planted on a masonry foundation of 600 tons. The mill consumed 28 cords of wood daily. A carload of ore was fed to the batteries every five minutes, first

to be broken, then stamped into powder, and finally submitted to the amalgamating process. The cost of the reduction works for this mine alone was $350,000.

At first some of the richest ore was shipped to England for reduction, the remainder, the second and third classes, being allowed to accumulate. During the experimental period with silver ores, baffling to the merely practical miner, millions of dollars went to waste in the tailings, or pulverized quartz, owing to defective processes. A few Mexicans who knew their value made thousands of dollars by saving a portion, but a greater part was allowed to flow into the sink of the Carson. As methods improved, every mining superintendent claimed a secret process of his own, and a number of inventors were hawking about more or less peculiar ideas. Machinery and enterprise found a wide field, also, in supplying material for mining operations. Of firewood at least 120,000 cords were required annually on the Comstock, and for building and timbering 25,000,000 feet, valued at $800,000.

It was found best to extract the ore with all possible despatch, for the percolating clay masses along the lode were constantly swelling, shifting, and breaking, and the decay of the timber was hastened by the heat as well as the moisture. Rapidity of operations was also prompted by the fear of fire, which on several occasions caused great damage. In such cases the drifts had to be bulkheaded in order to quench the flames by cutting off the supply of oxygen. Aside from the danger of caves and explosions, the miners were exposed to defective ventilation, to poisonous gases, and a heat which even strong men could withstand only for a few minutes at a time.

The great remedy for many of these obstructions to mining has been found in the Sutro tunnel, a most stupendous engineering task, and undertaken principally with a view to better the drainage and increase the output of ore. Excess of water from springs,

water-pockets, and drains had frequently suspended work in the mines, and caused trouble and accidents, besides an immense expenditure for pumping. Several minor tunnels had been undertaken, but they proved of little avail, owing to the mines being sunk to a depth of 2,000 feet and more. The tunnel company was organized by Adolph Sutro, banker, and owner of a quartz-mill on Carson river, associated with W. M. Stewart and others. It was incorporated by a Nevada legislative act of February 4, 1865, approved by congress, with exclusive right for 50 years to construct an adit intersecting the Comstock lode at a depth of 1,600 feet, near the Savage shaft, from a point three miles distant, sufficiently wide for a double line of railway. It would crosscut several veins, and afford means for transporting ores to the Carson river, where water-power and wood were more accessible.

Contracts were secured from 23 of the principal mining companies on the lode, binding them to pay the tunnel company $2 for every ton of ore extracted from their mines after the extension of the tunnel and its drifts to points within their boundaries, the companies to pay toll for all transportation. After several disappointments in securing funds, partly from recalcitrant mine-owners, purchases of stock enabled ground to be broken in 1869. Progress was slow, but with the application of Burleigh drills since 1874, the tunnel was completed three years later, at a cost of $2,097,000, a sum much less than had been estimated. It measured 20,480 feet, with a height of 9 feet 5 inches, and a width of 13 feet. By 1880 the north branch extended about 4,400 feet, and the south branch nearly as far, both being 8 by 7 feet in width and height. Through it were discharged in 1880, 3,500,000 gallons of water daily. The owners of the mines at first refused to abide by their agreement, on the ground that it had not been completed within the time specified, and that as the Comstock workings

were now below its level it was of little benefit. Soon, however, they were compelled to compromise, agreeing to assist in completing the branches, and to pay $1 per ton on all ore which assayed $40 or less, and $2 on richer ore.

The dip of the Comstock lode appeared at first uncertain, and a number of men were watching developments so as to secure a claim beyond the limits of known or assumed lines. At one time it seemed to run beneath Mount Davidson, and a rush was made for the east side of the range. When a depth of 300 feet had been gained the true dip pointed away from the mountain, and the Flowery district, five miles eastward, rose in estimation. The one next in favor was the Devil's gate, south of Gold hill.

Every fresh development was attended by speculation, frequently of the wildest description. Foremost in the turmoil were men from San Francisoo and Sacramento, who hastened to get possession of all the ground possible, and to hold it at fabulous prices. The struggle caused endless litigation. During the winter of 1859–60 Ophir was selling for $1,000 a foot and more, rising soon afterward to $3,000. The Burning Moscow company then stepped forward, and located a portion of the ground first claimed by the Ophir, declaring that the ledge at this point, called Virginia after Fennimore, the original locator, was distinct from the Ophir's, and that it was equally rich. Its shares rose rapidly to nearly $300. A lawsuit followed, which involved the consideration whether there was one great lode or many small ones, the latter idea favoring the Moscow. Decisions and reversals were pronounced, in accordance with which the value of the two mines fluctuated, amidst riotous encounters on the disputed border.

In 1863 the Moscow consolidated with other rival claimants, and increasing its capital from $500,000 to $3,000,000, renewed the suit with the aid of the best

legal talent. In the following year, however, explorations showed that its ledge was almost worthless, and its stock fell to a nominal figure. The contest had cost over $1,000,000.

Against the Ophir many other suits were brought, 37 in all, and nearly every other valuable mine had a dozen or more, the total number being over 250. During 1863–5 fully $9,000,000 were expended in litigation. In 1863 property to the value of $50,000,000 was involved. One of the most protracted contests was between the Chollar and Potosí companies in 1861–5. After $1,300,000 had been wasted, the two companies were consolidated. The heirs of Grosch figured among the plaintiffs. W. M. Stewart, the principal attorney of several companies, received as much as $200,000 in fees annually.

The chief cause of the frequent disputes lay in the looseness of the laws prevailing when quartz was discovered. The first locations were taken up as placer claims, with vertical boundaries. When ledges were found complications arose, with claim to dips, spurs, angles, and variations, the exploitation of which brought about collisions. The Nevada legislature enacted laws to aid in settling titles, but they were evaded by bringing suits in California, where most companies were organized. The regulations of the several districts were, moreover, sustained by the courts.

The speculative traits of the incipient Comstock period were distinguished by every species of extravagance. Everything was costly, for goods brought across the Sierra sold at extravagant rates, and the richness of the mines encouraged prodigality. In 1864 the tide began to turn. The surface deposits were becoming exhausted, and the cost of working the deeper levels was increasing in proportion to depth, while litigation absorbed the profits of many a company.

During the first four years the Ophir had yielded $15,000,000 in gold and silver, of which less than

one tenth was disbursed in dividends. Other mines had also taken out their millions, most of which were expended in the same manner. This unprofitable result, together with the cost of litigation and the shrinkage of ore-bodies, alarmed stockholders. A panic ensued, and the price of shares fell from thousands to hundreds, from dollars to cents.

The miners themselves were the greatest sufferers, partly from the decline in the value of shares largely owned by them, and partly from a decrease of operations, and a contemplated reduction in wages. The existing rate of $4 a day they considered only a reasonable return for their severe and dangerous labor, and in 1863 organized a Miners' Protective Union, presenting so formidable a combination as to intimidate the superintendents. Other leagues were formed, but non-union men interfered with their machinations and in time the league dissolved. The Chinese assisted to reduce wages, for although excluded from the Comstock, they acquired a footing in many other places.

The Comstock excitement was fostered and spread by the San Francisco Stock and Exchange Board, the first institution of this kind on the coast, organized in September 1862 with thirty-seven brokers with a view to facilitate the purchase and sale of shares on the Comstock and other mines. Morning and afternoon sessions were held, most of the members being in direct communication with Virginia City. It opened a long-desired vent for the gambling spirit of the community, latterly held in check by salutary laws. Frequently the large attendance was swelled by crowds, drawn thither by rising prices to buy, or frightened by a decline to assist in swamping the market. In the latter case those with small means, who gambled on a margin, were ruthlessly sacrificed by the broker. In 1872 and 1875 two other boards appeared to add to the unparalleled excitement roused by the great Comstock developments.

South of the Ophir lay a group of six mines, the Central, California, Central No. 2, Kinney, White, and Murphy, their ground including in all 1,300 linear feet. Shafts and tunnels had failed to disclose any ore deposits of value; but, nothing discouraged, the last four mines combined in 1867 under the title Virginia Consolidated, with a view to united action. Continued disappointment so reduced the value of the property that it was soon afterward sold for $80,000 to the firm of John W. Mackay, James G. Fair, James G. Flood, and William S. O'Brien, who also acquired control over the California. Nearly $250,000 was expended by them in exploration and improvements, but with little result. Finally, in March 1873, a 15-foot ledge of ore was reached, which later expanded to a width of 300 and 400 feet, and of exceeding richness. Early in the following year the company was shipping monthly $250,000 in bullion. The number of shares was then increased to 108,000 and the California was reorganized on a similar basis. In the first weeks of 1874 shares of the Consolidated Virginia were selling at from $70 to $85 and of the California at from $30 to $35; but fresh disclosures and exaggerated estimates of their richness and extent, some of which placed the value of the two mines at $1,500,000,000, raised the price of their stock to $780 and $700 respectively, representing a total valuation of $159,000,000, for what not long previously was offered for $10,000,000 or $11,000,000. Adjoining mines of little or no value rose in sympathy during the whirl of excitement.

Then came the inevitable reaction, culminating in a panic. Early in 1885 the shares of Consolidated Virginia fell to $250 within a few days, and others shrank in proportion. The doubts expressed when the fever of speculation had subsided were fully justified, for the actual yield of the two bonanzas in 1873–8 amounting only to $104,000,000, and for the next five years was barely $8,000,000, dividends ceasing

in 1880, and assessments being levied afterward. The host of ruined gamesters eyed suspiciously the wealthy bonanza firm, whom they accused of fraudulent manipulations, and that though they had disbursed over two-thirds of the yield in dividends to shareholders, after paying for the costliest of work and machinery.

The aggregate yield of the lode to the end of 1885 was $306,000,000 from 7,000,000 tons of ore, of which $11,600,000 came from the Crown Point, of 540 feet in extent, almost all within two years, against a total of $670,000 in assessments. From the Belcher, of 1,040 feet, came $15,000,000; assessments, $660,000. The Savage, of 800 feet, yielded $4,460,000; assessments, $2,200,000; Gould and Curry, 921 feet, produced $3,800,000; assessments, $1,640,000; the Chollar-Potosí, 1,400 feet, gave $3,080,000; assessments, $1,020,000; the Yellow Jacket, 957 feet, yielded $2,180,000; assessments, $2,360,000; Hale and Norcross, 400 feet, $1,600,000; assessments, $1,770,000; Imperial Empire, $1,070,000; assessments, $1,670,000. A number of others have been conspicuous chiefly for assessing their shareholders, although selling at times for millions. The assessments exceeded $62,000,000, while the returns to the shareholders amounted to $118,000,000, leaving a balance in their favor of $56,000,000 during a period of twenty years. In 1890 the total yield of the Comstock had fallen to $3,545,000, and for the time being, if not for all time, dividends had entirely ceased, though assessments continued to be levied with unfailing regularity.

The development of the Comstock increased prospecting in other directions, and the result was the opening of several valuable, even if comparatively minor, districts. In 1857 quartz veins were discovered in the Reese river country. Soon afterward the Amargosa mine was opened, and sold to a San Francisco company, which, after incurring heavy expense

in erecting a mill and machinery, lost its entire property through Indian raids. In May 1862 W. M. Talcott discovered quartz veins, the reports on which were so flattering as to start a rush of miners. The Reese river mining district was organized, and Lander county created the same year. Two other districts, Amador and Yankee Blade, were formed on the Toiyabe range, since consolidated with the first named. The locations exceed eight thousand feet, the pioneer mine being the Pony, in commemoration of Talcott's experience as a pony express rider. At Battle mountain galena ores assay $400 per ton in silver, with seventy per cent in lead. In some combinations it rises to $4,000 in silver, but the average yield is $150 in silver and fifty per cent of lead. Remoteness and the cost of supplies hampered operations to such an extent that ore yielding less than $100 per ton was considered worthless. The completion of the Nevada Central railway to Austin, in 1880, effected a marked change, and opened new prospects. The total production to 1884 was almost $20,000,000, which raises the district to the third rank in Nevada. Several English companies own interests. The deepest shaft in 1884 was on the Oregon, one of the Manhattan company's mines.

A contemporary field is that of Elko, where F. O'Neil, in 1862, opened the Kingsley district, in the Antelope range. Four years later the Beard brothers opened the Tuscarora district, on the headwaters of Owyhee river, which then had five hundred miners. It was first worked as a placer. The Island mountain district was discovered in 1873, by E. Penrod, one of the original owners of the Ophir. It was chiefly a placer, supplied by a ten-mile canal of Penrod's construction. In all there are twenty-six districts in the county, with argentiferous galena and other deposits, with nine quartz mills, two furnaces, and twenty-one miles of mining ditches.

In 1863 was found the largest lode in the state, a dyke of quartzite four hundred feet in width, on Mount Tenabo, a detached peak 11,500 feet high. It stretched diagonally down the mountain for 18,000 feet, and roused great expectations, for the whole lode was productive, and seamed with rich though narrow veins. The ores required roasting, and yielded both gold and silver. The Cortés district was the first one organized, with numerous locations and a sixteen-stamp mill. In 1885 the deepest shaft was three hundred feet. Other districts were formed, including that of Eureka, where the ore contained from fifteen to sixty per cent of lead, and sufficient iron and silica to obviate the importation of foreign flux. The combination proved troublesome at first, and operations decreased, but in 1869 the difficulty was overcome. A revival followed, attended by so large an influx of miners as to permit the creation of the separate county of Eureka. The county seat of that name, and the centre for the mines, had sixteen furnaces. The Palisade railway, completed in 1875, raised its importance as an entrepôt, and by 1880 it had five thousand inhabitants. The yield of the district for seven years, ending 1879, amounted to $20,000,000, but in 1885 had fallen to about $1,600,000.

Information obtained from an Indian in 1863–4 by W. Hamlin led to the organization of the Meadow Valley mining district, with Panaca as the first ledge; but the Mormons managed to get possession, and thereupon the gentiles departed. Meanwhile was formed the Pahranagat district, in 1865, whose importance gave existence to Lincoln county. It flourished for a time, and though now almost deserted formed the centre of departure for many other explorations. One result was the reorganization, in 1869, by the gentiles of the Meadow Valley district, under the name of Ely, in honor of J. H. Ely, who, with W. H. Raymond, erected a mill on the site of

Bullionville, the nearest point for water. The same year was laid out a rival town, named after F. L. A. Pioche of San Francisco, in the midst of deposits which within two years made the settlement the most active in the state. In 1871 a fire destroyed $500,000 worth of property, but substantial rebuilding followed, and in 1873 the town claimed a population of six thousand. There were then 110 stamps in the district, chiefly at Bullionville, to which ore was conveyed over a narrow-gauge line. Shortly afterward water was brought to Pioche, and the mills were transferred to this point, but the mines became exhausted, and after producing $20,000,000 in bullion, the Ely district was almost deserted, Pioche containing in 1880 less than eight hundred inhabitants. There are several other districts which may yet be developed.

In 1865 R. Morrill, T. J. Murphy, and other prospectors from Austin, which had sent out many a successful party, found near the present town of Hamilton mines of silver, lead, and copper, and organized the White Pine district. For some time work progressed slowly in the ground of the Monte Cristo and other companies. Two years later several important discoveries were made on the adjacent Treasure hill, revealed largely as strata of chloride ores, separated by others of limestone, and with well-defined walls. The first mine here recorded was the Hidden Treasure, disclosed by an Indian, and which was sold within a year for $200,000. Then the main chloride deposit was found by T. E. Eberhardt, whose name was given to what proved to be the richest mine in the district. Assays here and in adjoining claims rose as high as $27,000 per ton.

The news of these discoveries created, during the winter of 1868–9, an excitement unequalled since the early Comstock days. Thousands hastened thither, and Treasure hill swarmed with miners and cabin-builders. The bank of California hastened to buy

several claims, in the vain hope of securing control, as at Virginia city. In 1869 White Pine was producing $500,000 a month. Several towns sprang up, among them Treasure city, which was built near the top of the hill, and in that year claimed six thousand inhabitants. Shermantown, five miles off, on the strength of two sawmills, five quartz-mills, and four furnaces, with one thousand inhabitants, assumed incorporated dignity.

At the northeast foot of the hill rose Cave city, incorporated in 1869 under the name of Hamilton, and which became the county-seat of White Pine. The founders were W. H. Hamilton, H. Kelly, and E. Goben. A fine court house was erected, and water brought from springs three miles off, at a cost of $380,000. In 1873 came a fire which destroyed property to the value of $600,000.

The prosperity of the district was not of long duration. The chloride deposits proved to be shallow, and, after producing several millions, the mines became uncertain in their yield, and population declined. Hamilton was disincorporated in 1875; Treasure city sank in due time to a hamlet; Shermantown was deserted by all save one family, as were Swansea and other camps. Such was the most remarkable rise and fall among all the mining districts in eastern Nevada. Cherry creek now assumed the leading rank in the county, sustained by mines on the eastern slope of the Egan range, disclosed in 1872. Ward is another mining centre, southeast of the county-seat, dating since 1876. Both of these newer towns support journals. The mining districts of the county number two dozen, many of them with a promising future.

Lyon county shared in the prosperity of the Comstock by means of its mills, at Dayton and other points. Silver city, settled before Virginia city and incorporated in 1877, had in 1885 one furnace, two arastras, six tailing and four quartz-mills, and seven

miles of ditches. It could also point to faded glories. Como, once the county-seat, is now utterly deserted.

In Esmeralda county, Aurora rose in 1860 as the centre of the Esmeralda mining district, and counted in time seventeen quartz-mills, valued at over $1,000,000, from which has issued $16,000,000 in bullion; but it has since declined, and the county-seat was captured in 1883 by Hawthorne, a railway town. Candelaria and Gold mountain are promising camps.

In Churchill county considerable mining was done in the mountains near the eastern boundary, but richer deposits elsewhere carried off the miners, and La Plata, the county seat, was deserted in 1866. Nye county was called into existence in 1864, through the discovery of mines in the Shoshone range, and Ione became the seat, though it was removed in the following year to Belmont, founded by A. Bosquez on the Toiyabe range. This and other districts have produced $8,000,000, but for the year ending June 1881 they yielded less than $500,000, and in 1885 only $30,400. The increasing depth, which required costlier machinery, led to the abandonment of many claims.

Humboldt, though regarded rather as a farming county, contains several good mining districts, one of which, the Buena Vista, has yielded millions. Hardin discovered silver ledges as early as 1849, in Black Rock range, which were relocated on the cessation of Indian troubles, and after him was named the town of Hardinville. Unionville, a mining camp of 1861, was the county-seat up to 1873. In 1885 the county had two furnaces and ten quartz-mills the bullion output for that year being estimated at $330,000.

In 1890 Nevada ranked only fifth among our bullion-producing states and territories, her yield being exceeded, and in the order named, by those of Colorado, Montana, Idaho, and California. After producing in all more than $325,000,000 of the precious metals, and more than $40,000,000 in a single year, the Comstock yielded only $5,150,000 in 1889,

and $3,545,000 in 1890, while for several years prior to 1886 even lower figures were recorded. During the latter year bodies of fair grade ore were disclesed in the upper levels, and especially in the Consolidated Virginia and California, reorganized as a single corporation, permitting, for a time, the resumption of moderate dividends. But in 1891 the ore that would pay to extract with existing rates for transportation and milling was almost exhausted, although there were vast deposits of low-grade ore that could be utilized whenever those rates shall be reduced to a reasonable figure. Meanwhile, as soon as the lower levels could be drained, deep mining was to be resumed. There was also a project on foot to extend the Sutro tunnel, with a view to explore the ground west of the lode, on the surface of which were strongly mineralized veins.

As a result of the falling off in bullion yield, the population decreased to about 45,000 in 1890, as against 60,000 in 1880, and with a property valuation of less than $30,000,000. Nevertheless, the outlook was far from unpromising, for while more attention was being given to farming and stock-raising, there were scores of mining districts awaiting capital for their development, assuring a degree of prominence for that industry for an almost indefinite period. Though a large proportion of the mining output of Nevada has passed into the hands of managers and manipulators, it cannot be denied that the mines have furnished the means for unfolding the resources of the state.

With the decreasing product of precious metals more attention will no doubt be given to other minerals, which are found in great variety and abundance in different parts of the state. Iron was discovered early in the sixties on the Carson and Reese rivers, and in the Peavine district of Nye county, but has been utterly neglected. Copper was first found in Carson valley in 1856, but only a few blocks were taken out. It exists in several places, as near Soda

springs in Esmeralda county, and on Walker river in Elko, where the first development was attempted at Battle mountain is a promising mine owned by Englishmen. The production of lead in connection with silver has become so abundant in Eureka as to place her first among the lead districts of the United States. Cinnabar exists in crystallized as well as amorphous masses in Washoe and Nye counties; the deposits at Steamboat springs have attracted attention. The nickel deposits disclosed in Humboldt county in 1882 were extensively worked. The value of the tin deposits has not yet been ascertained. The extraction of antimony began only in 1882. In the Ruby range are mica beds. Precious stones of inferior quality have been found occasionally in various portions of the state.

The railways have been fortunate in finding coal-beds at different points, as near Tuscarora and Argenta in Elko, in El Dorado cañon, and in Carson valley; yet little attention has so far been accorded to them. The Humboldt region has found compensation for lack of timber in peat tracts, one covering 15,000 acres.

Sulphur is extremely plentiful, and the extent of salt, soda, and borax lands was reputed at 52,000 acres, when in the early seventies the legislature asked that the state be permitted to select saline lands under her grants. The value of such land was subsequently fixed at $5 per acre. In 1872 the Pacific Borax company began operations on the Columbus marsh in Esmeralda, and three years later in Fish lake valley, but suspended soon afterward. The Teel and Rhoades marshes continued to be worked by others. In 1884 there were eight factories reducing 1,460 tons. East of Rio Vírgen are salt bluffs, and fields exist elsewhere which have been partly utilized for silver mining. The waters of north Soda lake, which cover 400 acres to a depth of 270 feet, contain 33 per cent of soda. Mineral soap and wax, alum, gypsum, manganese, and other minerals swell the list of resources open to future enterprise.

James G. Fair

CHAPTER IX.

LIFE OF JAMES G. FAIR.

ANALYSIS OF CHARACTER—PHYSIQUE AND FEATURES—WIFE AND CHILDREN—PARENTAGE AND BOYHOOD—JOURNEY TO CALIFORNIA—PLACER-MINING KING OF THE COMSTOCK—THE BONANZA FIRM—ABILITY AS A MANAGER—THE COMSTOCK BONANZAS—SYSTEM OF SUPERVISION—UNITED STATES SENATOR—THE WHEAT DEAL—WEALTH—CHARACTERISTICS.

MEN often disagree because they do not know wherein they differ. If this were not so, there would be much less controversy in the world. Facts concerning those things the knowledge of which is definite—the discussion of all other things is mere speculation—may be stated with such precision as to render more than one conclusion from them impossible. Why, then, have we conflicting opinions in regard to the same thing; why do not our estimates of the same person coincide? There can be but one reason for such disparity of judgment; either the student enters upon the inquiry with his mind prepossessed or else he fails to familiarize himself with the subject. In other words loyalty to truth is the beginning and end of philosophy. Therefore let us, reader and chronicler, examine men under the light of the best evidence to be had, and then without fear or favor, judge him in accordance therewith.

We are too apt to place the possessors of great wealth all upon the same superlative plane, without regard to any other consideration than that of mere money. As wealth, in popular esteem, is the one paramount gift of the gods, however forbidding the recipient may be in mind and character, he is raised out of the category of common, and given a seat among the nobles of the land. Yet as millionaires are becoming every day more plentiful, the necessity of comparative analysis is forced upon us, the necessity of weighing one rich man by another rich man, if rich and poor cannot be balanced in the same scale.

A fortune is a good thing, but it may cost too dear. Great wealth is worth the travail only when with it the man preserves his manhood; not when his soul is shrivelled thereby, with a name the synonym of money, and the body hastening to early oblivion. One rich man may be worshipful; another may be more despicable than the dog of Diogenes. To be wealthy is not always to be great. Money is great and powerful, but not always the man. He alone is great who can do as well as be; whose thoughts occupy that higher sphere into which it is not easy for every one to ascend; he is great who makes for himself an exalted place and occupies it. Numskulls can inherit; fools can win at gambling games.

The power of intellect is immeasurable, irresistible. In its sway over nature it approaches in its character almighty power, the maker and preserver of all; and thence from its exalted altitude it descends in the scale of humanity to the border of the brute creation; so that among men, as among gods, there is every quality and degree of this self-conscious and intelligent force; but never numskull or fool achieved large and legitimate wealth through his own unaided efforts and as the result of years of self-application. Hence it is that rich men who have honorably acquired their wealth, not by robbing others, but by creating it, are entitled to our profound respect as superior beings, as

men not of the common mould, but as the exemplars of a progressive race.

In studying the life and character of James Graham Fair, this feature stands out preëminent, that not all was a fortune's wheel whirled for his adventuring, but that he made some of the circumstances which made him. True, he did not create the silver and the gold; no genii of the mine arose to tell him whether in this quarter or in that, if at all, lay hidden a bonanza; but none the less he fell upon the mountain's secret, and through his scientific sense he placed his finger on the spot, and with courage and constancy struck there the blows which finally opened to him the wealth of ages.

And if wit and pertinacity were essential to the securing of a fortune even on scientific principles, amidst fortune's rapidly revolving wheels on the Comstock, how much more wisdom and circumspection were necessary to keep it. How many of those who regarded themselves rich in 1865, were bankrupt in 1875, some having in consequence destroyed their own lives? Large fortunes quickly made are the most difficult of all to hold; it is not often that they are the work of skill or invention, but rather of chance, and hence, unsubstantial and flitting; the fruits of years of anxious labor are not so willingly parted with.

During the marvellous half-century development of our westernmost civilization, wherein half a continent of wilderness has been transformed into gardens and fruitful fields, with highways and cities, manufactories and universities, and all the paraphernalia of high intellectual and material unfolding, how few there were who rose superior to the destiny they invoked, how many were crushed beneath the wheels of the Juggernaut car of progress! And again, how few by their own merits have risen; how many through their own faults have failed! Merit is not the true and invariable measure of success; the gods do not

always help those who help themselves; but he who, by intellectual force and skill, can carve fortune out of the mountains and the desert may command even the gods.

With this fact fairly before us, knowing, as we do, the end from the beginning, that James G. Fair is no perfect man; that his life is no shepherd's story, his success not wholly free from chance, yet, whether as miner, senator, or banker, whether autocrat on the Comstock or manipulator in California street, he possessed a shrewd intellect and strong will—I say with this fairly before us, reader and writer, we may proceed to this analysis with keen, intellectual relish, involving both pleasure and profit, as to a feast fit for strong men.

In person, he is of medium height, being five feet eight inches, weight about two hundred pounds, strongly and compactly built, with an easy carriage, alert manner, bright, clear, deep-set eyes, high forehead, full whiskers, and altogether strikingly fine and handsome features. He looks younger than he is, though in ability and intelligence he has been always far in advance of his years. In 1862 he married, at Carson Hill, Calaveras county, Theresa Rooney, a native of New York, educated at Mount St Vincent, and who, at the conclusion of her studies there, came to California to join the other members of the family, who had settled in this state. Four children were born to them. The eldest, James G. Fair, Jr, was born at Angels, Calaveras county; the next two, Charles L., and Theresa Alice, are natives of Virginia City, while the youngest, a daughter, was born in San Francisco. James inherits his father's talents for business, while Charles has his strong taste for mechanics.

Mr Fair comes of good stock; Scotch-Irish is the base, and nothing could be better to begin with,—yet Scotch more than Irish, and protestant rather than catholic,—for though the father was Irish, he was of Scotch extraction, the mother, whose name was

Graham, being Scotch, and both of them Scotch presbyterians. James was born December 3, 1831, in Clougher, near Belfast, County Tyrone, Ireland. The father's name was James, and thus the names of both father and mother were given to James Graham, the youngest of their children. The district was composed chiefly of manufacturing people. The Fair family were all mechanics. There were no public schools, but the people of several districts would unite and engage a teacher.

Vague and shadowy to his mind now appear his childhood days, until he begins to doubt if ever he was a child at all. Not that he ever showed signs of an unhealthy precocity, or fell into a state of morbid restlessness; he was always clear-headed, cool, his plans and purposes, as well as himself, always well defined, well in hand, and collected; but he was always full of care, and took a serious, practical view of life. The pleasures of boyhood were overweighted, and borne underneath the bright currents of young life, by a largeness of mind and soul, which would not give its possessor rest. It is not the happiest life, the highly practical, the highly intellectual, the ambitious one; is it worth the effort, the overburdened one sometime asks; then to work again, for what is happiness beside the higher advancement, the intellectual and moral growth of the man?

All except the mother came to America in 1843, and settled in Geneva, Illinois, where James attended the public schools, completing his studies in Chicago, where the Fairs had friends, and where he received a thorough business education, paying special attention to the scientific branches, particularly chemistry and mathematics. While in Chicago he was in charge of a guardian, Mr Mosely, his father having gone immediately on his arrival to Alabama, where he purchased a farm, and lived and died, his wife in Belfast surviving him but thirteen days. Mr Moseley, who was himself a lawyer, wished James to study law;

seeing how keen was his mind, and how quick to find authorities and grasp the principles of law, but the youth himself had other plans. He had once considered printing, working for a short time in an office, questioning the compositors as to their age, time of service, accumulations, etc.; but with an instinctive discrimination, which, as we proceed in his history, we shall find everywhere a prominent characteristic, he said: "No; to spend a lifetime wrangling over other men's quarrels is not to my taste, and as for printing, it does not strike me as the road to fortune, and a fortune I am going to have." The machine-shop he loved; he could not keep away from it.

Here, then, was a youth of warm attachments, of very affectionate disposition, one who spent many a long night in tears on leaving home; yet of very positive ideas regarding himself and his future, what he would do and be, and of singularly clear discernment; in brief, clearly manifest in him at this early day were positive qualities of heart and mind.

That there should exist on the same continent such places as California and Nevada in their flush times, and a young man of intellectual force, of high ambition, and with a mind as well filled with the elements of success as the mountains were with metal—that these conditions should exist, and the agencies not meet, was not possible. Mr Fair was but eighteen years of age when he came to California, and in August 1849 struck his pick into the auriferous gravel of Long bar. But he was no longer a boy. And it was not a love-sick swain that with his lute had come to woo his mistress, fortune. Here was a young giant, with head uplifted, with sleeves uprolled, come hither to command men and money, and to this end ready to uproot nature, turn streams from their channels, and disembowel the hills.

The journey out was overland, the usual way, until reaching Lassen's rancho, where the young emigrant located himself before going to work in the

placers. One incident, occurring en route, I will give as displaying the diplomatic powers of the youth. As the company to which he had attached himself neared Salt Lake City some uneasiness was manifest as to what would be their reception, for many stories had reached their ears of the harsh treatment of emigrants by the Mormons. Young Fair, as was his wont, thought much, but said little.

One day a party of strangers rode into camp. They were well mounted, their trappings rattling, and appeared to be in the best of spirits, with perhaps a touch of audacity or domineering, which made the travellers a little afraid of them, suspecting them to have come from the settlement. As the other members of his company seemed reticent, and held themselves, as he thought, too much in reserve for their own safety, young Fair stepped forward and invited the new-comers to partake of the dinner which the emigrants were just finishing. They gladly accepted; and as they talked they began a tirade of abuse against the Mormons. Young Fair suspected who they were, and thought he divined their purpose; so he took the opposite side, and was loud in praise of the Saints.

"Pardon me, gentlemen," he said, "it pains me to hear you so speak of worthy people. Many Mormons I knew in Missouri, and they were good men, peace-loving, honest, and industrious. It will be time enough for me to think ill of them when they have given me cause."

The strangers threw sly glances one to another; Fair and his party had no cause to complain of their treatment at the city of the Saints.

Indeed, Mr Fair, although so young, seemed more of a man than any one in his company, thus displaying those inherent qualities of shrewdness, coolness, practical wisdom, and endurance which carried him through so many trying emergencies in later life. Although his company consisted of men respectable

enough at home, they became so peevish from the wear upon the system attendant on the daily march and the absence of accustomed comforts that they behaved more like children than sensible men of good character, and at times it was as much as the boy could do to keep them from killing each other. Thus, finally, a tacit leadership was thrust upon him; he would mount his horse and go miles in advance to find a camping place, sometimes carrying back water to them, and in every way encouraging them to keep up their spirits. It was a happy day for him when shaking his skirts from them all, he stood free and buoyant in the valley of California.

Little time he spent in the placers scratching gravel and overturning boulders; such work was well enough for those who could do no better, who were incompetent to enter the inner realms of mining. No sooner had his eye rested on the flats and ravines of the Sierra drainage than he perceived that surface mining would be exhausted in a few years; but when he saw rivers running on mountains, and other mountains rising above them, and on every side thousands of acres of auriferous ground intersected by Pactolian streams, the home of the precious metals being hidden somewhere hereabout, the destiny of California expanded under the vision, and the end was seen in part from the beginning.

Quartz soon became Fair's ambition, the very difficulties and failures at that time attending this development proving to him stimulating rather than disheartening. At Long bar he had failed; but at Rich bar on Feather river he filled his sacks with the precious metal. What struck him in mingling among the miners were the many admirable qualities underlying their rough exterior; the many intelligent and refined persons engaged in these laborious efforts. They were honest, courteous, elegant, some of them —no prostitution, though the faro-dealer's woman sat for adoration behind the piles of coin and checks; on

Sunday there was often preaching under the trees. This was before the days of Sydney thieves and Philadelphia politicians.

Depositing his money at the banks, Mr Fair engaged in extensive operations at Shaw's flat and Tabor mountain, tunnelling in under the lava, which was too hard to penetrate, and dropping an incline of two or three hundred feet to the ore. He mined for a short time at Poor Man's creek, where he met Flood and O'Brien, who had a store there, and who were called Jack and Bill, their last names being then not even known to him. This was in 1851.

In 1853 Mr Fair turned his attention to agriculture, purchasing a large farm at Petaluma, where he put in two crops, sowing Australian wheat the first year, and Chilian the second; the first crop was destroyed by drought, the season being too dry, and the second by rust, the season being too wet. Content with this experience, he sold his stock, leased the farm, and returned to the mines, satisfied that for him there was less of the gambling element in mining than in farming. In fact, as a practical and scientific miner, he has never had a superior, in this or any other country.

Returning to Tabor mountain, where were several large companies at work, he engaged in operations near Caldwell gardens, or Whimtown as the place is now called. There he continued until the general break-up incident to the rush to Fraser river. Meanwhile one Broughton had brought over some rich samples of quartz from Angel camp, where a good mill had been erected, the owners of the property, however, lacking the ability to work the lead to their satisfaction. So Fair, with two others, Caldwell and Patton, bought them out, the last two soon afterward selling to Erwin Davis.

It was here, in what is now called the Utica mine, at Angel, that Mr Fair did in person his first actual quartz mining; and the processes which he then ap-

plied were essentially the same as those in use at the present time, with the latest style of mills, of which there were two, the Calaveras and the Lightner, and with the best machinery—but instead of using gold galvanized plates for catching the metal, he preferred those of pure copper.

While thus engaged, the great event of the age occurred, the discoveries on the Comstock. Some ore was sent from Virginia City to the mills at Angel, and as Mr Fair found that he could work it readily, and the cost of transportation across the mountains was very great, in May 1860 he went over to Nevada to examine the ground. At the first glance the extravagant expectations of the in-rushers seemed chimerical in the extreme, but investigation brought conviction, and Mr Fair located claims at Virginia City and Gold Hill, and erected a mill on the Sheba, in Humboldt county, where was the promise of rich developments. In this mill he placed circular, self-working furnaces, the first that were ever put up, and instructed the men how to manage things. He arranged his ploughs so that one set would throw the ore one way, and another the reverse, water being introduced through an inch pipe placed inside of a five-inch pipe, the water in its discharge passing between the two so as to keep them cool, and prevent their being eaten off by the chlorine. But though the ore was worked successfully, the mines did not prove as rich as had been expected, and Mr Fair turned his attention elsewhere. He was one who never would waste his time over a poor prospect, well knowing that where there was metal he could find it. As expressed in his own terse language, "I did not want to remain around a dying man lest I should be taken for the doctor."

At Virginia City, during Mr Fair's first visit, examinations of the deposits had not reached a depth of more than forty or fifty feet; but as the shafts were sunk deeper, the ores grew better.

Let us now cast a glance at the spot whereon the great financial drama of the nineteenth century was performed. A quartz-mining district had been organized by some miners at Gold cañon in January 1858, and an arrastra set up. On the 22d of February James Finney, or Old Virginia, as he was called, crawled up the northeastern slope of Sun peak, and thrust into a crevice a notice of location. The following winter Henry Comstock and others took up claims around Virginia's, and gold-mining was begun there with a rocker in April 1859. As developments were made population flowed in, and along the discovered line of quartz outcroppings the whole ledge was staked off in feet. As the gold-seekers continued their work, they noticed bits of black rock mingled with the surface sand, a seam of which two or three inches wide was found at the depth of four feet, increasing in size downward. It was some time before they knew that the seam was black sulphurets of silver.

Companies were formed; disputes as to ownership arose; litigation followed. The discoverers, being for the most part ignorant adventurers, were glad to sell, and properties fell under the management of men of means and ability. Thus passed away Gould, Curry, Savage, and Belcher, while their names remained for loud-mouthed profanation by the stock-board men of San Francisco. Reduction mills and pumping machinery were erected on a large scale, and at the opening of the year 1860 a curious picture was presented of ground torn by cuts and pits, while adits honey-combed the hillsides. The Central and Ophir companies each employed ten miners, who received as wages $3 or $4 a day; Systematic work had also been begun on the Mexican, and up to this time had been taken from the whole Comstock lode the sum of $316,000. Twenty-one years later the output amounted to $306,000,000.

The yield thus far, however, sufficed to set in motion fresh multitudes, who came in rushes, shivering over

the snow, and sweeping with the fierce wind down the mountain side, there midst further hunger and fatigue to await the coming spring. Then came speculation and ruffianism, such as has seldom been seen elsewhere; but all this time the work of development went on, new obstacles being met by new inventions. The one great enemy was the inflowing water, which necessitated a pump at almost every shaft of fifty or one hundred feet in depth.

Such was the industrial and social pandemonium in which Mr Fair now found himself, and of which he was so soon to become a powerful constituent. His unquestioned abilities and wide experience brought him forward at once as a shrewd mining expert, and the superintendency of one mine after another was placed upon him, until five thousand men, through their respective foremen, looked daily to him for orders, and he became conspicuous on the Comstock.

First he worked the Ophir and the Central, adding then the Norcross, and meanwhile becoming interested in the Savage, Best and Belcher, Gould and Curry, Utah, Sierra Nevada, and Mexican. All this time were felt the mighty manipulations of Ralston and Sharon, backed by their bank of California. After Fair had been superintendent of the Hale and Norcross for some years, he suggested to Charles L. Low that they should endeavor to control this mine, hitherto under the bank of California influence. It was agreed, and the attempt would have been successful but for the voting against them of five forged shares. At the next election, however, on the 10th of March, 1869, they easily secured their own directors, Mackay, Flood, and O'Brien being among the number, and derived large profits from this source.

It was here, indeed, that the foundations of the great fortunes of the bonanza firm, consisting of Fair, Mackay, Flood, and O'Brien, were laid. Mr Fair first met Mr Mackay in Virginia City, the latter being at the time partner with Flood and O'Brien in

certain small mining operations. The Hale and Norcross was now worked purely for dividends, Fair being superintendent, and Flood and O'Brien the San Francisco agents. The month in which Mr Fair first assumed control he not only rescinded a five dollar assessment, but declared a dividend of five dollars a share.

Meanwhile Mr Fair and his associates continued capturing the mines of the bank of California, until they had secured thirteen, among them the famous California and Consolidated Virginia; also the Union mill and mining company, organized by Sharon and Ralston to secure the profits from the reduction of ores.

I cannot do better than to quote here from a government report on the Comstock mines, which, speaking of Mr Fair, says: "The reported riches of the new silver ledge district induced him to cross the Sierra in 1860 and take part in the contest going on at the foot of Mount Davidson. Though placed in charge of the Ophir mine in 1866, and active in other enterprises, his peculiar fitness for the position of mine superintendent was first unmistakably shown in developing and extracting the Hale & Norcross bonanza. He was quick to perceive the value of any novel mechanical appliances of merit, and exceptionally ingenious in designing and adapting them to the requirements of his work. His skill in detecting and tracing up all indications of the existence of ore bodies was surprising even to trained observers, for so acute was his judgment that it resembled an instinct. Old miners said of him, admiringly, that he had a fine nose for ore, and the apt metaphor seemed scarcely a figure of speech. He understood the requirements of his position thoroughly, and was competent to perform any duty which devolved upon him. The dark and intricate galleries of his mine were an open book to him; every drift, cross-cut, winze, and stope were joined and pic-

tured forth in his comprehension, and the most minute details did not escape him. He passed through his mines at all hours of the day and night, and no lagging or shiftless service under him was possible. His rule was autocratic, his oversight constant, and his exactions strict; yet he was a just master, for honest and zealous work was well rewarded and encouraged, while incompetent men in any position were transferred or discharged; but no man succeeded in shifting the punishment for his own faults upon the head of another. All soon realized that they were under the eye of an overseer whose sight could not be blinded by slothful tricks, or lame excuses, and worked unremittingly until the results of their work were seen in the developed bonanza. It is true that his method of supervision and government was often criticized, and sometimes, doubtless, with justice. His manner was generally quiet and urbane, even when he was at heart incensed; but in spite of this apparent mildness he gave such scant grace that men who thought themselves secure from suspicion even were discharged without warning. Though apparently frank spoken, his words were well considered, and he certainly did not wear his heart on his sleeve."

After the incorporation of the several mines in the Consolidated Virginia company, and segregating a part as the California, the big bonanza of over one hundred and thirty millions was duly opened, and the major portion placed to the bank account of the bonanza firm. This bonanza, the most northern of all, lay within the limits of the Ophir, the California, and the Consolidated Virginia mines, and had two ore bodies. The first ore body found at the surface extended down 500 feet and produced $22,000,000, from 112,000 tons of ore. The average width of the ore body was fifteen feet, and in shape was a triangle, the upper side being about 300 feet long. At a distance of 800 feet from this ore body, lay another triangle of rich ore, about 700 feet deep by 1,300 feet long, its

upper point being in the Consolidated Virginia, and its base extending through that mine and the California into the Ophir. The average width of this mass was, perhaps, 40 feet, and its gross yield has been about $115,000,000; so that these two ore bodies, comprising the most northern of the three great Comstock bonanzas, produced in all about $137,000,000. Its dividends amounted to about $75,000,000.

The second bonanza included three ore bodies in the Gould & Curry, the Savage, and the Hale & Norcross, and the Chollar-Potosí mines, the last being afterward segregated. These ore bodies were shaped somewhat like beans, with a length of 600 feet, a breadth of 200, and a thickness across the vein of about 20 feet, two of the beans standing vertically, and the third at an angle of 45 degrees to the horizon. The gross yield was about $55,000,000 and the dividends $12,800,000.

The third or Gold Hill bonanza extended from the Imperial, through the Yellow Jacket, Kentuck, and Crown Point, into the Belcher mine, with five ore bodies, two of them shaped like circular convex lenses, and one resembling a semi-circular half lens with the convex edge down. The total yield of this bonanza was about $100,000,000 and the dividends amounted to $33,600,000.

In addition to these bonanzas a number of small bodies of ore have been worked without profit, producing in the aggregate, perhaps, $10,000,000. The total yield of the lode has been about $325,000,000 and the dividends about $125,000,000. The rich ore deposit of the Consolidated Virginia, extending into the California, was discovered in 1873, at a depth of 1,200 feet below the surface. In May 1874 the Consolidated began to pay a $324,000 monthly dividend; March 1876 it raised the sum to $1,080,000, and kept up at that rate, with the exception of four months till April 1878; then paid two dividends of $540,000, and five of $270,000 each, making a total

of $42,390,000 dividends between May 1874 and December 1879. Between May 1876 and December 1879, the California mine paid $31,320,000 of dividends. The total dividends from the two mines were $73,710,000 and the gross production $108,702,500, including $58,114,300 of silver, and $50,588,200 of gold.

The Gould & Curry mine began to produce its ore in 1860, but paid no dividend until 1863, in which year it extracted 48,000 tons yielding $80 on the average, and paid $1,468,000 as dividends. In 1864 it extracted 66,000 tons, averaging $72, and paid $1,440,000 in dividends, in 1865 the average yield was $44 to the ton, in 1866 $28, and the dividends ceased, though there was a small payment in 1870. The total yield of the mine has been $15,000,000, the total dividends, $3,826,000, the average yield of its ore $47, and the number of tons worked 318,000. Its dividends were paid in 1863, 1864, 1865, 1866, and 1870, the largest payment being in 1863.

Adjoining the Gould & Curry on the south is the Savage, which has reduced 459,000 tons, averaging $34, extracted $15,700,000 and distributed $4,460,000 to its shareholders. Its dividends were paid in 1865, 1867, 1868, and 1869, reaching the highest figure in 1868, when $1,560,000 was divided.

Adjoining the Savage on the south is the Hale & Norcross mine, which paid $1,598,000 in dividends from 1866 to 1872, and extracted $7,822,000 from 313,000 tons yielding $25 on the average.

The most productive of the Gold Hill bonanza was the Belcher, which, in six years from 1871 to 1876, extracted $32,200,000 from 678,000 tons of ore, and paid $14,976,000 in dividends. The profits were limited to that period, and the best year was 1873, when the ore averaged $64.70 per ton, and the dividends amounted to $6,760,000.

The Crown Point began to pay dividends in 1866, and with the exception of 1870, paid every year till

1875; the total amount distributed to the stockholders in eight years being $11,900,000; the best year was 1873-4, when the dividends ran up to $5,300,000.

In 1881 the Comstock lode yielded about $1,200,000 of precious metal, and the mines and mills cost about $5,000,000 for their management and maintenance, the greater part of the deficiency being made up by assessments collected from the people of San Francisco.

The opening of the Comstock lode in 1859 made a new epoch in the mining history of the Pacific coast. It was the first silver mining experience of the Americans. They rushed into it with characteristic energy. They found magnificent profits. They supplied the mines with excellent and very costly mining machinery. They devised or first extensively applied improved apparatus for hoisting and amalgamating, for pumping, timbering, and ventilating. They enabled one man to do more work by the help of improved machinery and tools than ten average Mexican miners can do in the same time. In twenty years after the discovery of its mineral wealth Nevada, with about 60,000 inhabitants, produced twice as much silver as Mexico ever did, though it had more than 3,000,000 people directly or indirectly dependent for support on its silver mines.

The hoisting, the pumping, the crushing, the ventilation, the stirring in the pans, and much of the drilling in the Comstock lode are done by machinery, which in cost, efficiency, magnitude, and nice adaptation to the special purposes in view, has never been equalled elsewhere. Several of the mines have hoisted and reduced 500 tons daily for long periods; and this immense amount of work, yielding a monthly profit of $1,000,000, justified large expenditures and required the most careful study. The best school for the study of silver mining to-day is Virginia City. There is not a step in the business, from the sinking of a shaft to the final melting of the bullion, which

the miners of Nevada have not modified with advantage to themselves. In all their operations directly with the mines the firm relied almost entirely on the opinion and practical knowledge of Mr Fair, in whose judgment as miner and skill as manipulator they had implicit faith.

As superintendent of vast developments on the Comstock, and having large interests elsewhere, an enormous burden of responsibility was thus laid on Mr Fair. Not only a strong body and an executive mind were essential to the emergency, but that diplomatic power which gives man control over his fellowman, and the most mathematical and systematical appliances, and the methodical arrangement of routine were also necessary.

Regarding the mines on the Comstock, while so many of them were under his management, he had a general superintendent or deputy manager, and a superintendent for each mine, who reported to him every evening at his own house, and to whom he issued directions for the following day, while he himself made daily trips through every mine, accompanied through each by its own superintendent, thus learning from observation as well as by written reports what had been done, and directing future work according to developments.

As developments continued, and plans were perfected, there was opened underground continuous communication from the Chollar north to Utah south, a distance of three miles. This was done no less for economy in working than for ventilation; one company might thus do the pumping and hoisting for several of the other companies, and in case of fire there would be a way open for retreat.

In making the tour through the mines wide variations of temperatures were experienced, from freezing to 130°. It was only by pumping cold air into the mines that power could be obtained for running the engines, for the heat was so great that steam could

not be used. It was on the Comstock that compressed air was thus first used, the machine being a small one-horse power affair; it makes a good power, elastic, but costly.

The monthly output at this time was between three and four millions, and besides the ores and roadways and mills requiring his constant care, there were several thousand acres of timber-lands to be looked after, with their hundreds of hewers, wood-choppers, charcoal-burners, and flume and saw-mill men. Over 18,000 cords of wood were required for consumption each month, besides millions of feet of timber for support; this was carried in flumes branching hither and thither down the mountains, heaping up vast piles of wood at various points on the railroad, 70,000 cords in one pile sometimes, an inventive brain thus finding the keenest enjoyment in devising means to ends.

Obviously the secrets appertaining to such vast interests, which through the media of mining-stock manias at San Francisco and elsewhere signified riches or poverty to thousands every day, had to be carefully guarded, lest reports should be garbled and prospects rendered misleading, to the ruin of multitudes. It would not do for every one to be constantly testing the ore; hence Mr Fair adopted strict rules so as to make him secure. Every mine had a room in which the men must change their clothes, each man having six hooks, three for his mining clothes and three for his above-ground raiment. Some of the men slept in this room, so that it was kept at an even temperature, and no talking permitted. On emerging from the mine, before entering the changing room, every man was obliged to empty the remaining contents of his dinner-can into a large box prepared for that purpose, and to which the Indians resorted for food. This was to prevent the carrying away of sample ores in their cans. The roll was also called that none might remain in the

mine, or pass unobserved either in coming or going. The miner then would remove his underground clothes, and after rinsing them they were given in charge of the watchman, who saw them properly dried, and after a bath the miner put on his out-of-door clothes.

Sometimes Mr Fair, ever watchful, would make his round during the night, sometimes during the day; the hour of his appearance was not known, and any attempt to deceive him was dangerous.

The several parts of the machinery were kept in duplicate, so that if anything broke or burst it could be immediately replaced, and but slight interruptions occur.

During the great conflagration of 1875, when the entire city was burned and the fire came down upon the works, the most perfect order prevailed there, showing what courage firmness and discipline engender. Orders were immediately issued by Mr Fair to get the men out of the mine. The time-keeper was directed to call the men as usual as they emerged from the mine, stationing guards with pickhandles to prevent them from running away or scattering. Rapidly the work of hoisting proceeded, until the last man stepped forth, and the timekeeper remarked, "That is all." Then the iron doors were shut down, and a twelve-feet layer of sand let in to prevent the fire from descending into the shafts. By that time two thirds of the building had burned. Round the engineer wet blankets had been thrown, and constantly changed, and though badly injured, he stood manfully at his post until the last man was out. It was through Mr Fair's admirable system that a great calamity was averted. Even after the place had to be abandoned, the engine was kept going, thus preserving it from destruction.

Few miners contributed more than Fair to the improvement of mining machinery. Being a mathematician, a machinist, and a practical as well as scientific

miner, and possessing withal a genius for invention, the achievements of mind over matter which he produced were something wonderful. He had constructed a better class of engines, better valves, and more fittingly adapted to the work. While larger and stronger, they consumed less fuel, and so reduced to a minimum the enormous cost of pumping. He was averse to drifting east and west, for fear of tapping some large body of water which could not be controlled. Instead of this he employed the diamond drill, the hole of which could be successfully stopped by running in a dry sausage of flaxseed, and plugging it, thus stopping water of a thousand feet head.

During his very first mining experiences in the placers, he displayed a remarkable aptitude in the utilization of mechanical contrivances and the economizing of labor. It was a laborious operation, he thought, carrying dirt from the hillside to the river bank to be washed out in rockers worked by hand. So he found two trees, and had them cut down and made into canoes, which he placed side by side, and after making them firm in the middle of the stream he set up between them a water-wheel, which gave him power to run his rockers, by which means as much dirt could be washed as thirty men could deliver. He made wheelbarrows, using rawhide for tire. But this was only the beginning. For soon he saw that by putting in a dam above, he could at once lay bare the river-bed and at the same time carry the water to his dry diggings on the hillside. Then he dug out logs and connected them in a series of troughs, and throwing in the dirt let the running water wash it out, the particles of gold being caught in the rough niches of the bottom, and thus the sluice appeared. Thus early in his life labors was displayed in a remarkable degree that power of adaptation of means to ends which distinguish the man having within him the inherent elements of success, in whatsoever line of effort, preëminently above all others.

Prior to the coming into power of Mr Fair upon the Comstock, the water company of Virginia City obtained its supply by catching the melted snow, and running it into the soil of the hills thereabout, and bringing it through various tunnels to the town. It was scarcely fit for use. After purchasing the property and rights of this company, Mr Fair and his associates tapped Lake Marlett, distant a mile from Lake Tahoe, and fifty miles from Virginia City, and brought in pure water for all that region. Herman Schussler was conspicuous in this project.

But it is not alone in mining or other industrial pursuits that Mr Fair displays his superiority; as a politician and as a financier he likewise stands conspicuously forth. Filled with the essential qualities commanding success, it was not very common for him to fail in whatever he might see fit to undertake. Like the machinery he employed, he was so constructed by nature in mind and body that he must of necessity accomplish the end for which he was created. He seldom sought political preferment, but when the issue came he did not always shrink from the responsibility.

Under pressure of continuous toil, in 1879 Mr Fair's health failed him, and he made a journey round the world, spending eight months away, and returning much improved therefrom. While in Paris he was telegraphed by prominent party leaders, asking if his name might be proposed for the United States senate. He declined. When he returned they again beset him, and he still refused, until his political interests became so joined to inclination that he consented, and was duly elected. Being above partisanship, the terms democrat and republican had little significance for him, though having to declare his party position on entering the senate chamber, he placed himself on the democratic side.

As was the nature of the man, in whatever he undertook Senator Fair was as diplomatic a worker at Washington as in Nevada. He was a member of several important committees; his keen intelligence and broad practical experience brought him quickly to the core of every question, and his speeches on the floor of congress were terse, clear, and pertinent. Fearing no one, and having no ulterior end to serve, he could afford to speak purely from his interests, when others must make their opinions conform to those of party and the press. Yet he had many friends, as the upright and fearless will always do, their necessary enemies being usually the strongest witnesses to their success.

Senator Fair was no fanatic, either on the Chinese or any other question. The Chinaman, he holds, has his uses, like every other created thing. His proper employment in America is neither to marry our daughters nor go to congress; but he may very properly pick our fruit, dig ditches, and assist in railroad building and in manufacturing. He would not see too many of them coming to this country, but he perceives no indications in that direction thus far.

In financial circles Senator Fair's name has been conspicuous for many years, being synonymous with whatever is sound and stable. During the dividend-paying days of the great bonanza mines was founded by Mr Fair and his associates the Nevada bank, with a capital of $10,000,000, afterward reduced to $3,000,000. In 1886, having withdrawn his heaviest interests from mines, and not approving altogether of the management, he retired likewise from the bank. But his late associates becoming seriously involved in ruinous speculations in wheat, Senator Fair was importuned to lend his aid as the only man who could save the institution from destruction. The sentiment of a praiseworthy pride mingled with feelings of kindness and sympathy for his old associates. They had made their fortunes together, and had planted this

great landmark of their lives in the heart of the metropolis.

The senator could not resist the appeal. Hastily going over the affairs of the bank, he consented to take it in hand, assume all responsibilities, and place within its vaults all the money required for its fullest recovery and future prosperity. This was on the 13th of September, 1887. No sooner was this proceeding publicly announced, and that the bank was reorganized with James G. Fair as president, than friends began to flock in and ask, "Is it true what the papers say, that you have taken the bank, and are now its head?" "Yes," the senator replied, "it is true." And presently was seen a long line of depositors with their sacks and bank-books, giving in an abundance of material testimony of the return of confidence in the health and prosperity of the institution. It is one of the grandest feats of financiering on record, one man thus coming to the rescue of a gigantic concern, and putting it on its feet in a moment.

It appears that the bank had begun a year or two previously to deal a little in wheat in Chicago and here, but to no considerable extent. The bank owners trusted altogether too implicity to the advice and assertions of the bank employés. It is a singular coincidence, the rank rascality that had been breeding during these years of intense stock excitements in these two mammoth money institutions, the bank of Nevada and the bank of California, and not least singular the manner in which both were saved. The large reserves in the Nevada bank, private property of the people by the millions, had been carried out of the vaults, out of their private boxes even, and hypothecated to produce money to run wheat up to $2, and thus every day were five fortunes wasted. And when the collapse came, and values dropped down to their normal standard, the difference being great the losses were very heavy—between fifteen and sixteen millions on wheat alone.

Upon this, as well as upon other things, Mr Fair, when he assumed this vast responsibility, had to realize. And nowhere in the history of our commerce has greater financial ability been displayed. There were at the time over forty ships upon their way to Liverpool loaded with wheat, which must be sold at proper rates, else Mr Fair's act of resuscitation would involve serious loss to him. Obviously, if fleet after fleet were allowed to land indiscriminately, the market would drop, and the seller be at the mercy of the buyer. No; every vessel must be kept at sea until her cargo was sold. She must sail away hither and thither until that wheat was wanted. With remarkable shrewdness Mr Fair managed it, selling 2,500 quarters in the morning and 2,500 more in the afternoon of each day, thus compelling the previous buyers to take the succeeding lots, or lose on their first purchases. Thus he soon had many others interested with himself in keeping up prices.

In this way he cleaned up the famous wheat deal, knowing all the time where every ship was, when she sailed, and when she should arrive, and permitting them to land no faster than he could dispose of the cargoes by cable ciphers; and when the last cargo had been disposed of the price fell five shillings below his poorest returns! Besides the matchless skill displayed, what coolness, endurance, and nerve were here requisite to sustain the heavy pressure, and bring forth these most happy results!

A summary of Senator Fair, his character and the quality of his achievements, is hardly necessary after the foregoing sketch. If the biographer has done his duty, the man stands forth upon the pages of this history in all his native ability. For years he was one of the most conspicuous figures on the coast, and is so still. During the stock excitements his passage to and from the mines was watched by thousands with the keenest interest, beside which the interest of the multitude in the movements of a monarch were tame.

Courtiers followed him; brokers pretending to his favor and confidence piled up their profits thereon, while the cunningest in the land were captivated by a word or a smile from him whose nod caused stocks to rise or fall from one side of the continent to the other.

Senator Fair is a very wealthy man, how wealthy no one knows. He has large landed and other interests all over the country, and in the cities. He commenced to invest in real estate and buildings in San Francisco in 1868-9, and it is said now owns over sixty acres in different parts of the city. He also owns large tracts of land throughout the state. He purchased and completed to its terminus at Santa Cruz, the South Pacific Coast railroad, which cost him about $7,000,000. He tunneled the Santa Cruz mountains, replaced the old worn out rolling stock with new, relaid the road with steel rails, and soon brought the road to a degree of efficiency second to none of its size in the United States. The property he sold to the Southern Pacific. He owns the Lick house, and other like fine-paying properties. He is also largely interested in the various manufactures and other prominent interests of the Pacific coast. Mr Fair is still a hard worker. He is largely interested in the Ohio river railroad, running from Wheeling to Huntington. It passes through a fine country, and is to be continued to Cincinnati.

He possesses, in a marked degree, the faculty which is characteristic of all successful men, of attending to his own affairs, and preserving his own secrets. As illustrative of this feature of his character, it is said that he was among the first to know the value of every "ore find" on the coast; and while he might appear totally indifferent to all the flying reports of new discoveries, he was quietly ascertaining all there was to know about the matter. At the time of the Arizona diamond swindle, when excitement was carrying all the hot heads before it, he appeared oblivious of the fact that such a rumor existed, but,

at the same time, had his agents and experts close upon the heels of the alleged discoveries—had the ground all prospected and its value proved, without the least suspicion that he was in any way interested.

His natural ability for affairs was very great; while maintaining a broad range of vision, with always an eye to the main chance, he could pick his way amid the pitfalls placed in his path for his entrapment with as great ease and certainty as if all his life had been spent in attending only to the narrowest detail.

His most powerful rival for a time, the bank of California, was finally driven back, never again to recover its prestige as the controller of mines. The bank of Nevada, as we have seen, once unsuccessfully sought to do without him, and called him back when trembling under threatened bankruptcy.

For the impertinent he was a sphinx, with a grim epigram or puzzling anecdote always ready. Diplomatic in all his doings, it has always been an exceedingly difficult matter for friends or enemies to obtain any further insight into his affairs than he wished them to have. His manner is always courteous; he has a kind heart and most benevolent disposition.

One of the most notable affairs which had occurred in San Francisco for many years was the marriage, on June 3, 1890, of Mr Fair's daughter, Theresa Alice, to Herman Oelrichs, of New York, a business man of large wealth and fine abilities, prominent in steamship and other transportation lines. It was generally understood that among the costly presents, numbering in all 170, and filling a large room, was a check for a million of dollars from the bride's father.

"It requires a kind of genius," says La Bruyère, "to make a fortune, and above all a large fortune. It is neither good behavior, nor wit, nor talent, nor greatness of genius, nor strength, nor delicacy of mind; I know not precisely what it is; I am waiting till some one tells me." If La Bruyère will take, in

equal parts, luck, courage, and cunning, and give them to a man of good common sense and average ability, the recipient will not die of poverty. Every man has the chance, once in his life, of making a fortune; or, at least, of making the most of himself; but nine out of ten never know it, and, indeed, might even recite to themselves a proverb the Chinese have, "A fool never admires himself so much as when he has committed some great folly." Finally, with Cicero, I add this also, that nature, without education, has oftener raised man to glory and virtue than education without natural abilities.

Simeon Manban

CHAPTER X.

LIFE OF SIMEON WENBAN.

PHILOSOPHY OF LEGITIMATE MINING—NATIVITY AND EDUCATION—MARRIAGE—ARRIVAL IN CALIFORNIA—EARLY MINING EXPERIENCE—PROSPECTIVE TOUR—DISCOVERY OF THE CORTÉS DISTRICT—STRUGGLES AND MISFORTUNES—MINES AND MILLS—ORE-BODIES—EMPLOYÉS—OUTPUT AND OUTLAY—PROCESSES—CAUSES OF SUCCESS—CHARACTER—CHILDREN AND GRANDCHILDREN.

ON mines and mining in Nevada I have devoted a special chapter; but here I present the career of one who may be regarded as a typical miner, not only of Nevada, but of the entire Pacific coast. The expressions, "legitimate mining," and "illegitimate mining," have been for years an inherent factor in our parlance. By the former is meant the bona fide purchase, development, and sale of mines; of the latter the evils are sufficiently familiar. The terms have a significance which is commercial and moral, and notwithstanding the etymology of the words have involved nothing of the written or unwritten law of the land. The letter of the statutes devised for the regulation of mining is lived up to by the illegitimate as closely, perhaps, as by the legitimate miner. This is the difference between them: the legitimate miner, like the farmer, applies his labor and his talent in a regular way. The husbandman tills the soil, and looks to its yield for his products; so, also, the man-

ufacturer counts upon his wares for his return. Is there any principle in mining at variance with the principles of agriculture or manufacturing? In other words, why, in all wholesome reasoning, should not a mine be opened, explored, and developed altogether for what comes out of it? Should there be any other dependency than this in mining? Is there any other dependency required in order to make it what it ought to be, a straightforward, healthful, civilizing, wealth-producing industry? The proposition, to one who has not investigated it through its underlying facts, may be accepted at once as self-evident. To those, however, who have been students of the phenomena of mining in all its social relations, it is a demonstrable truth that there is no satisfactory reason why mining should be anything but legitimate in the strictest sense of the term.

Great things have been done in mining in the state of Nevada; in fact, the extraordinary annals of this state are essentially those of a mining community. With all that there may be disparaging in it, on account of the introduction of illegitimacy in its principal industry, the Silver State has a record as a coin-producer that is unparalleled. There are those who say that, on the ground of expediency, some things have been admissible and proper enough, and that such things are not fairly considered upon purely ethical grounds. They go so far as to say that, where a whole people, by common consent, or in accordance with the expressed judgment of a great majority, have done so and so, this is about what is right. Why? Vox populi, vox dei. The idea is deep-rooted in my mind that, notwithstanding the argument ingeniously made by way of apology for things done that are not consistent with the general idea of commercial ethics, that achievements in mining arrived at in the ordinary way—that is, according to the prevalent idea of some who have amassed fortunes in this department—are strikingly inferior to other achievements which have

been arrived at through a medium which is in exception to this rule. That is to say that, admitting that great talent and labor have won tremendous wealth and distinction by the manipulation of mines in connection with the stock market, it is a simpler, and consequently a grander, achievement to have worked out a life problem in this sphere of activity by concentration of one's energies and faith, through long years of toil, upon the development—or, I may say, the creation—of value in mining according to the plain principles which underlie old-fashioned farming. Of course, I would not be understood as considering the development of a mine at this day as a simple thing, no more than I would regard the scientific methods of agriculture as plain and easily understood. My idea goes mainly to the consideration of this question upon its ethical basis. Still, if my premises be true, that all mining may be done upon what is considered in this country purely legitimate principles—and there has been enough of mining of this sort in practice to demonstrate this fact—I think, then, unquestionably, from the mere commercial or industrial point of view, the immense operations that have been carried forward in the department of mining on this coast would have borne fruits vastly more beneficial to the community had there been no illegitimate element of whatever kind to criticise in this activity. The very terms employed, "legitimate" and "illegitimate," carry with them a popular judgment, as I take it, regarding mining not only morally, but commercially, a judgment which is so fixed and so nearly universal that I do not believe there is any argument of mere expediency that could so far prevail against it as to break its force altogether. In the nature of things, it would be extremely difficult for me to put my finger, positively, upon those who have been engaged in illegitimate mining; that is to say, mining so named by the immediate constituency for whom I write. But the exemplars of that other sort of mining, called by con-

trast "legitimate," are so rare and so conspicuous that not to see them and to know them in the study of this history would be blindness itself. If, upon a careful investigation, I find an exponent of this feature of mining, which is susceptible of none but favorable criticism, one who has not only done something, now and then, in the way of legitimate mining, but who has devoted his entire life as a miner to labor in this way, I should say that, unless my view be radically faulty, he is entitled to monumental, historical mention.

Nevada, or Washoe, as it used to be called in the days of excitement, attracted, principally from San Francisco as a central population, a crowd of fortune-seekers, who traversed the Sierra mountains for the purpose of procuring an immediate stake. In that crowd was a representation of, perhaps, every element of human society, good, bad and indifferent. On the whole, however, I do not apprehend that the entire history of mining excitements contains an account of any class of men, running beyond the borders of civilization, into a waste of mountains and deserts, in the eager quest of fortune, that were better than those Nevadans; but, from those early days even up to the present, there has been exhilaration—a feverishness, which is anything but wholesome. Scarcely anyone regarded Washoe in the light of a permanent home; the governing idea was in almost every case to take a ticket in the sort of lottery which Washoe mining presented; draw a prize, and run away to the states, or perhaps back to California, to enjoy it. That sort of speculation which is at the bottom of gambling was nearly universal. Things that might have been considered irregular in any other industry, or perhaps in this industry under other circumstances, seemed legitimate; as though, in this instance, as in war everything was fair. A part of the great lottery were the mining stock-boards, the principal of which was in San Francisco. There were those who sold the tickets and those who bought them. A

"pointer" in stocks was the desideratum of everybody in the swirl of the purchase and sale of these securities. The case was exceptional in which it ever occurred to anybody that there was any blemish upon money made by the fictitious appreciation or depreciation of mining shares. Occasionally, however, there would be found one, so grounded in his sense of what is right, both morally and commercially, as to withstand altogether the tide of custom and habit in this respect. Yet I am not disposed to occupy the attitude of one apologizing for Nevada as a mining community. It is notoriously true that in that district, as well as in others, mines and mining shares have been bought and sold by false representation without regard to the intrinsic merit of the property or security.

But it goes almost without saying that those men who have outlived the rest in this department, who are the survival of the fittest, who are exemplars of mining in the greatest silver-producing community in the world, have not reached their magnificent position in society and finance by such petty processes as the salting of mines, either on the lower levels or in the stock-boards. In contrast with such men, however, if there be any, for in the nature of things they must have sunk by this time to their proper level, there is one miner whom I have in mind at this time, whose whole course of labor in the respect considered has been independent and self-reliant. He went out some thirty years ago into a desolate and hostile region, to discover and acquire title in the regular way, to certain mining property. His judgment carries him to the right place; he camps there; he brings his family, and his household gods, to that spot. He studies the rock in which his future is embedded; he has faith in himself and in his prospect. At times hope is deferred until the heart is made sick; but he toils on through days of cheerfulness and depression. Being determined, courageous and philosophical at all times he ultimately achieves results magnificent for

himself and helpful to many others. But this is not all; to stop at this would be to tell only half the story, leaving out the better half. He has not only won wealth but respectability with it. His achievements as a representative of legitimate mining in that state are paralleled only by the esteem in which he is held by all who know him as a man. His aggrandizement has not been at the expense of others in any way, but with their upbuilding along with his own. What he owns under a perfect legal title he has further earned by the use of God-given talents and energy. In no respect has he sought or been willing to accept any advantage by indirection. It is as plainly written in the facts of his personal history, as though graven upon the face of Tenabo mountain, that he has done unto others as he would have them do unto him.

Occupying at various times vantage ground, in being the undisputed proprietor of a mining ledge showing marvellous prospects, it would not have been difficult for him to unload it upon the public, and to have made himself rich years ago, but his principle and his policy were those of mining in its purely legitimate meaning. It were better in his mind to want the luxuries of life than to obtain advantage by any but honest means. That he has succeeded, that he became the owner of the largest and best-paying individual silver mining property in the United States, and perhaps in the world, is therefore a matter for congratulation to all who know him. The path by which he has travelled toward this triumph is straight and well defined. His life affords an actual wealth of example greater than the treasures of his own vast mine. The young men of the country, upon the threshhold of the battle, first for maintenance and then for fortune, will see in his record a light by which their steps may be directed to the summit of a substantial and self-respecting manhood—a character which is affluence itself, with or without riches.

Of all the avocations out of which men have wrested fortunes, mining may be accounted the most problematical. There are in it so many of the elements of chance that even industry, skill, and perseverance are frequently balked of their proper results. The successful miner, like the famous poet, is born, not made. The "mute inglorious Miltons" of mining, who have in them everything except the ability to succeed, constitute a considerable class, which has our sympathy; but such a one is not the subject of this sketch.

Simeon Wenban was born in England, in the parish of Hawkhurst, county Kent, May 18, 1824, and was the son of a carriage manufacturer, who himself came of hardy, long-lived progenitors. His mother, *neé* Ann Crisford, was also of old Kentish stock, making their son a thoroughbred Englishman. When he was four years of age the family migrated to America, residing for six years at Utica, N. Y., and removing, when he was ten years old, to Cleveland, Ohio. The boy had attended, when he pleased only, the public schools; being, up to the age just mentioned, subjected to very little restraint. The only study he liked was mathematics, and in that he excelled; but he surpassed any boy he knew in any kind of game requiring agility, strength, and steadiness of nerve, having spent most of his boy life in out-of-door exercises. That wise parents should have permitted so great freedom in their child might excite surprise, were it not that the explanation is at hand. Simeon was small of his age, and therefore presumed to be delicate. Another reason was that a son of the family, several years his elder, had died: being apprenticed to a hard master for a term of seven years, his health gave way, and consumption ended his apprenticeship before he had served out his time. When the younger lad therefore refused to be apprenticed, and offered to assist his father in the shop, he was allowed to have his will, and never learned any trade. But he was not often

in the shop. The day was not long enough for his sports. So early was he at them, and so late on his return that his father was compelled to exact a promise that he would appear at the shop at least once a day, which he kept by going there in the morning on his way a-field. His mother frequently inquired, "How many boys have you in your party to-day?" knowing of a certainty that his followers would be many.

When Simeon was at the age of fourteen, his father, partly to have a retreat for his own declining years, and partly to provide a place in life for the Benjamin of his flock, purchased a farm at Richmond settlement, twelve miles east of Cleveland. But notwithstanding his love of out-door exercises, he disliked farming, which was too slow, uneventful, and solitary, and gave too little scope to his inventive and constructive faculties. Yet he managed to have a little sport even in so dull a place. In the settlement the little girls of the place used to resort in winter to an old log-house at the hill's top to start on their coasting frolics, and would peep out shyly at passers-by, after the manner of country children. One day, young Wenban, noticing a pretty child with her sled waiting for him to pass, caught her in his arms, seated himself on the sled, and sped with her struggling to the bottom of the hill. That child, a few years later, became Mrs Wenban, but it was not until after the wedding that he was reminded of the first capture.

When about nineteen years of age he begged to be allowed to build a saw-mill where he perceived an opportunity to construct a dam on his father's land. Consent being obtained, he established himself in a small but profitable lumbering business, his plan being to take half the lumber for sawing the logs brought to him, which proved a very good one.

In 1849, being now twenty-five years of age, he married Miss Caroline Shipherd, whose mother was a Miss Richmond, daughter of one of the Richmonds

after whom the town was named, and who immigrated from Massachusetts to Ohio at an early period of its history. Labor and the genial Ohio climate had developed the small lad, with the merry blue eyes, into a stalwart man, five feet ten inches in height, weighing one hundred and sixty pounds, who could lift and carry, for a short distance, more than four times his own weight. Trusting too much to his unusual strength, he ruptured a blood-vessel in rescuing a young man from a perilous position under a heavy saw-log, by which accident his health was impaired, leading to the determination, which gave direction to his life, of coming to California.

In 1850 the elder Wenban died, necessitating, as the other members of the family thought, a partition of the estate; but this one said: "I do not want any of it; I will give my part to my mother. I do not wish to live here; I am going somewhere where a more congenial prospect opens up for me." But first he put a steam-mill three or four miles from the old one, and prepared a means of income for the mother.

Leaving his wife in Illinois with her parents, Mr Wenban sailed from New York early in the spring of 1854, reaching San Francisco on the 13th of March. Placer mining had not then declined, as it did a few years later, although now it was being superseded in some localities for quartz mining, in which experimentalists were investing far more than they ever had returned to them. From San Francisco to Moore Flat was a natural transition. Mr Wenban joined a party of eight for that locality, and mining being an entirely new thing to him, submitted to be controlled by those who assumed to be better acquainted with it.

The plan of the company was to run a tunnel through the rim rock to reach the gravel bed inside, a part of their number hiring out to other miners to pay expenses, while the remainder worked in the tunnel. Wenban, who never shirked, was put

in the tunnel. After a little time the hired men, who had observed some rich placer ground and wished to make claims adjacent to it, came and persuaded him to visit the locality, French Ravine, and make locations with them, which was finally done, the older locators making no objections. But when they observed, as shortly they had occasion to, that Wenban's superior engineering knowledge gave the new company an advantage over them in the use of a water-way, they became hostile and brought suit to dispossess them, in which by dint of free swearing they prevailed. But after the eight had thus been ousted, the successful litigants proposed to take Wenban and his ditch and the disputed ground all into their company, and to give him a third interest in the whole; "for," said these astute and honest miners, "You are the only fighting man among them; we don't care for any of the others. We know that you have a right to that ground, but that makes no difference; we will beat you at law; you will lose your ground and have all the debts on your hands, which you are just fool enough to pay."

This was a new kind of logic to Wenban, but convincing. However, the proposition was rejected, and Wenban set about making a fool of himself by paying the firm's debts, his partners having deserted him, amounting to $7,000. He went to a deep gravel mine, where an engine was employed in hoisting, and bargained for a blacksmith-shop, then doing work for three companies, but whose owner would sell out. He paid for the shop out of the superfluous iron and coal which he received with the purchase, and which he sold to the blacksmith at another camp. By working nights in the shop, and twelve hours daily in the gravel mine, laboring on an average twenty hours in each twenty-four, he earned from twenty to twenty-five dollars a day, and discharged the debt of $7,000.

Few men would have been capable of, or, being capa-

ble, would have performed this arduous, self-imposed task. But Mr Wenban possessed "that chastity of honor which felt a stain like a wound," which would have nothing to do with wronging any man. He had also a great fund of hopefulness and self-confidence, which kept him calm and cheerful under the trial to which he subjected himself, and in the absence of his wife, who was still in Illinois.

During Mr Wenban's residence in Sierra county occurred the discovery of the Comstock lode and other silver mines in Nevada. In all the experiments which were made by the early operators to come at the most profitable method of reducing the ores he took a deep interest, making mining and mineralogy his study, and looking upon his personal experiences as a useful apprenticeship. In 1862 he obtained the situation of superintendent of a quartz-mill in Virginia City; but being resolved to be no longer an agent of others, left his position early in 1863 and joined a prospecting party at Austin, consisting of eight men, well-armed and equipped, and having among them Andrew Veatch in the capacity of geologist and mineralogist.

The first direction taken was towards the headwaters of Reese river, but the plan of the party being to appropriate an entire district to themselves, they found no ground suitable so far south, and retracing their steps proceeded down the river, and in a northeasterly course, for several weeks, carefully examining the country passed over. No one who has not explored the mysterious regions known as "mineral land" can have any conception of the toil endured by prospectors. The weary march, day after day, under scorching suns, the profitless detours, and scrambling among sharp rocks to get at "outcroppings," the alkaline water and dust imbibed and inhaled, the unpalatable food, the bed of earth, and the guard duty, all tell upon his endurance. Yet such is the fascination of the pursuit, and of the companionship of

nature in her grandest aspects, that few who have followed prospecting in the vast solitudes of mid-continent, ever are content to return to the artificialities of society.

The Austin party arrived at length at an isolated mountain, east of the Toiyabe range, and apparently broken off from it, about thirty miles south of the present line of the Central Pacific railroad, at that period not yet surveyed, where they encountered a dyke of quartzite in limestone, five hundred feet in width, and extending obliquely across the face of the mountain to the valley below. The peak of Mount Tenabo was 9,600 feet above sea-level, and 3,000 feet above the surrounding plain. Its base was covered with a shaggy coat of stunted pines, above which it was overgrown with low shrubs and grasses. Out of this rugged mass of rock and earth protruded the giant vein, looking in the distance like a well-constructed causeway several miles in length.

But the expert of the company had an opinion, to which he adhered, that silver was only found in granite; and although differing from him, Mr Wenban consented to look further, and being successful in finding several narrow but rich veins in granite formations, fifty-six claims were taken, the district marked out, and rules established for its government, while a part of the company returned to Austin for provisions, their supplies being reduced to flour alone.

The prospecting party had arranged before setting out with an equal number of capitalists in Virginia City and San Francisco to form a working company in case they should find what they sought. These gentlemen were now notified, and in the autumn of 1863 the Cortés joint stock company was incorporated, which erected in 1864 an eight-stamp mill, and began working the ores by the wet process, in use on the Comstock, and the only one known to them. The ores, however, proved rebellious, the base predominating over the precious metals, and the whole of

1864 was spent in fruitless experiment—a not uncommon history at that period of silver mining. The following year four reverberatory furnaces for roasting the ores were added to the works; but having superintendents who were as inexperienced as the managers, these also failed, and after experimenting for another season, the company closed down the works, having expended $200,000, and received back only $25,000.

Expecting a different ending, Mr Wenban in 1864 had sent for his family. As lumber was not to be obtained nearer than sixty miles, the cabin which he erected for their reception was of the most primitive description, which hardly kept out the winter rains. To remain here under these circumstances required a motive, a strong will, and high courage. In addition to the discouragements met with in the granite district, much trouble with the Ute Indians rendered a residence in their vicinity seemingly unsafe; but the discovery on their part that their neighbor was a kind friend, as well as an enemy not to be provoked, did more to keep the peace than the campaigns of the California and Nevada cavalry. The veriest coward loves a brave man, and the chief of this tribe, having several times met Mr Wenban defending some weaker party from their brutality, conceived for him a great regard, honoring him with his not very savory visits with much regularity, and frequently bringing royal gifts of game and dressed skins.

A number of locations had been made in 1864 in the limestone district which the expert of the Cortés company had despised. The locators of four claims, the St Louis, Arctic, Idaho, and Garrison, had all named Mr Wenban in making their claims as part owner. A controlling interest had, however, been sold to Mr George Hearst the same year, during which also Comstock values suffered a fall that discouraged mining operations, and deterred Mr Hearst from undertaking the development of his mines. Mr Wenban still had faith in the district, and resolved

to give it another trial in the limestone group of mines, and to discover for himself, to a certainty, whether or not he was mistaken, as his reading assured him he was not. He possessed an interest in these mines second only to Mr Hearst, but fearing opposition in that quarter it was necessary to proceed with caution.

Erecting a cabin for himself near the St Louis mines, he dug out a quantity of ore, from which was selected fifteen tons, for shipment to a mill. The trail to the mine, a very rugged one, was closed with snow. Having quietly engaged a mule-train owned by Mexicans, to transport the ore to Austin, at the price of fifty dollars a ton, he instructed them to open the trail from the lower end, while he, with his men, worked toward them from above, thus completing the labor in a shorter time, and none too soon, for a blustering snowstorm completely hid it again before the next morning. The result of this experiment was all that could be desired. After paying his muleteers, and fifty dollars a ton for milling, he still had sixteen hundred dollars with which to re-clothe, and re-provision his nearly destitute family.

Mr Wenban now determined, if possible, to purchase the interest of Mr Hearst, and went to San Francisco to consult with his friend and former employer, Mr Land, explaining to him that if he would come into the arrangement with ten thousand dollars, the purchase could no doubt be made, a proposition which was readily agreed to on the word of Wenban alone, and the mines were finally secured for fourteen thousand dollars. As fast as he was able subsequently he bought up all the smaller interests, and the few shares left were closed out for assessments according to mining laws.

Meanwhile he performed enough work on the Garrison mine to assure himself that it was even richer than the St Louis, the returns from a few tons of ore being four thousand dollars net profit.

At the moment when he thought himself cleared

from all drawbacks, there occurred an unexpected catastrophe in the destruction by fire of all the books and papers connected with his ownership of these mines. The only thing now to be done was to relocate all the claims the title to which was destroyed, which he proceeded at once to do, and to obtain patents for them from the United States. By this means, although somewhat abridged of their former extent, the title was made absolute, and he could safely improve his property.

To improve mining property—aye, there's the rub. Everyone in a mining country knows the saying, that it takes the output of one mine to make the next one productive. Mr Wenban had not been more than thirteen years in California and Nevada without learning that; and he began by putting back into his claims all, or nearly all, that he took out of them, in order to make a legitimate business of mining, by introducing the best methods, the best machinery, and in searching for new bodies of ore. In the early history of mining it was the practice to uncover a small bunch of ore, and sell the mine upon the strength of that—a practice not entirely done away with, but which must be abandoned before mining rises to an equality with other industries in the public estimation.

Mr Wenban always instructed his men, if they found anything in the mine which caused them to fear it would, in miner's phrase, "peter out," to remove the obstruction, and find what there was at the bottom of it. His foreman once took him to a place where the ore-body had narrowed to five feet in length and three feet in thickness, saying, "That is all the ore there is in sight, and it looks as if a couple of shots would knock it all out." "All right," replied Mr Wenban, "knock it out; but you cannot do that as easily as you think." As he predicted, when the shots had been put in the vein widened out, yielding all the ore that could be milled for six months, worth four and five hundred dollars a ton.

This quality of firmness in the exercise of his own judgment was a potent factor in building up Mr Wenban's present handsome fortune. Had he given way to any of the thousand discouragements which had arisen in his path during all the years in which he contended with destiny for a guerdon, all might, nay, almost surely, would have been lost. His self-control always enabled him to repress any show of dejection when fortune frowned, or of exultation when she smiled. Being a man, he would neither whimper nor clap his hands at the changes occurring to all humanity. Not from an inability to enjoy mirth, as his sportive boyhood showed, was he undemonstrative; but rather that, when fairly in the great drama of life, he chose to conduct himself with composure. But a laughter-loving soul looked out from under the strongly marked brows, which the firm lips seemed to restrain from voicing itself.

The group of mines, the whole ownership of which was secured by Mr Wenban, consisted of twenty-six locations, namely, the Arctic, Excelsior, Compressor, Garrison, Junction, Nevada Giant, Premium, Cummings, Conclave, Summit, Jeannette, Central Consolidated, Equator, St Louis, Idaho, Tenabo, Kingsberry, and eight others. Their altitude averaged 8,000 feet above sea-level, and 1,000 feet above the valley, and they were approached by a narrow cañon, the mouth of which was four and a half miles from them.

The mill of the Cortés company, which had cost a hundred thousand dollars, was purchased by Mr Wenban for ten thousand. It was six miles distant from his mines, the ore having to be transported to it on mule back; but that was much better than sending it sixty miles to Austin, at a cost of fifty dollars a ton. It was enlarged and used until 1885, when a new mill was erected at the mine.

No one unfamiliar with the rugged and barren aspect of the elevated plains and mineral-bearing mount-

ains of Nevada could form an idea of the obstacles to be overcome in building up a mining establishment, such as that which the indefatigable industry and good judgment of Mr Wenban added to the mining improvements of that state. Here, as in many localities, the almost entire absence of water was the most serious drawback to operations of any kind. The cost of bringing to the mines a stream of good drinking water of one-sixteenth of an inch, miners' measurement, was seven thousand dollars.

The new mill was situated on the side of the mountain, three-quarters of a mile from the mine, and 850 feet lower. The supply of water was obtained from a spring seven miles distant, and at an elevation of 500 feet. After testing the flow for one season, pipes were carried to the highest point at which it would discharge, and this became the site of the strictly Wenbanian improvements. Two artesian wells were sunk in the valley, but the water had to be forced two miles, and raised 417 feet by means of a Worthington pump. Not less than sixty thousand dollars was expended in bringing water to the mines, but an abundance was finally secured for all purposes.

The capacity of the new works was fifty, or possibly sixty tons daily, although twenty tons was more commonly a day's performance. Instead of the stamp batteries, which after many experiments with "new processes" in the reduction of silver, had come to be universally adopted, Mr Wenban finally, in 1886, experimented with the Krom rolls, and the leaching instead of the amalgamating process, and found this to be superior to the former treatment, saving more silver, and the three or four dollars in gold per ton which was lost in amalgamating the ores, and which more than paid the expense of transportation and refining.

The mines, which on first opening, showed detached and scattered bodies of ore, making it appear to every one except their owner doubtful if they would repay

the capital, often borrowed, which was being expended upon them, gradually gathered together their separated veins and bunches into regular fissures, standing in an almost perpendicular position.

Up to 1880 the mine had been worked through a vertical shaft 300 feet deep connecting with a tunnel at the bottom, making it necessary to hoist the ore; but a tunnel or adit 450 feet long was then driven in from the outside communicating with the main tunnel, through which the ore was reached at a depth below the surface of 1,200 feet, and by which it could be carried on cars to the mouth, thus obviating the employment of hoisting apparatus except at one place, where a small compressed air engine was employed. No trouble was experienced with water, which in any case would be carried off through the lower adit. In 1888 the tunnels and drifts in the mines aggregated six miles, the prospecting being all done by these means. An ore-body yielding four hundred ounces to the ton was disclosed by an adit of only sixty feet early in 1888. An excellent road was constructed from the mines and mill to the valley below, costing a large sum of money. Every part of Mr Wenban's establishment was made in the wisest and best manner, both as concerned the productiveness of his fine property, and the comfort and prosperity of those in his employ. No narrow, grinding, or grasping spirit was ever shown. He was not indifferent to the dispositions of those about him. At one time he employed Cornish miners, but when the great expense attending his operations rendered it difficult to keep the pay-roll clear, these men became turbulent and riotous. Changing them for Chinese, he found these far more willing to assist him by waiting for a portion of their pay. For this consideration on their part, although objecting to the importation of Asiatic labor on general grounds of political economy, he conceived a friendship for these men which he was not ashamed to acknowledge. An injury was always

remembered as well, although he would not allow himself to be unjust on account of it, even giving assistance to those who had been his enemies. In many ways he encouraged settlement, paying outsiders for hauling ore instead of having it more cheaply done by men and teams of his own, and purchasing milk, beef, and other provisions in preference to raising them, in order that others might receive some benefit from the mines as well as himself. No compulsion was used, but the men lived at the boarding-house or in houses of their own as they preferred. They could purchase from the well-selected stock of goods in Mr Wenban's store or elsewhere, as they pleased. Only a fair profit was asked, and that they were willing to pay.

The number of men employed in 1888 was about three hundred, at wages from a dollar and a half to three dollars and a half for miners, and five dollars for foremen, per diem. The number of animals in the service was one hundred and sixty-four. The ore at this period was carrying from seventy to two hundred and fifty ounces per ton in silver, and four dollars and a half in gold. The expense of labor for one year was about two hundred and twenty-seven thousand dollars, and for salt, sulphur, hyposulphite and bicarbonate of soda, lime, scrap-iron, wood, charcoal, etc., a hundred thousand dollars. The amount of bullion actually produced from the time Mr Wenban began working his mines to 1888 was $3,500,000, much of which was expended in making Cortés district one of the most celebrated in the state of Nevada. But for his knowledge, firmness, courage, and strength, physical, mental, and moral, the wealth of the sphinx-like Mount Tenabo might have remained for generations undiscovered. What he accomplished in bringing millions of money out of the earth, not only enriched himself and benefited those about him, but became a valuable example to others.

His mill was his pride. Here everything was arranged to do the most work in the most expeditious

and economical manner. The ores being chiefly rebellious, were put through a variety of processes, going from a drying furnace hot to a rock-breaker, thence to crushing rolls and revolving screens, and all automatically. Then followed the chlorodizing furnace, where the heat drove off the bases in fumes, and a chloride was formed with common salt, from the chloridizing furnaces to the leaching vats, where it is first treated to a water leach from two to three hours; afterwards the leaching process is continued with a solution of hyposulphite and bicarbonate of soda, which dissolves the chloride of silver, and passes from the leaching vats into precipitating tanks, into which is introduced a quantity of lime and sulphur solution; this precipitates the silver which immediately settles to the bottom of the tanks. Soon as the silver (now in the condition of a sulphide) is sufficiently settled, the hyposulphite and bicarbonate solution is drawn off and pumped back to the storage tanks to be used over again—the silver sulphide is taken from the tanks, forced through a filter press, from whence it comes in cakes; these are passed to a drying-room, from there to a furnace which frees it from the sulphur, and is then ready to be melted into bars for shipment.

Mr Wenban's great success in mining arose from the fact that he was a miner. He not only had theoretical but practical knowledge of the science and art of mining. There was nothing about it he could not do intelligently, taking the place of any man, from the lowest up. As a mill-man, blacksmith, carpenter, surveyor, or assayer, he was the equal of any. By carefully selecting his agents, and teaching them his methods, efficient management was secured. He deals with his agents and employees upon the basis of perfect confidence, and has everything so systematically arranged that those in charge of the mine cannot go astray.

That a man of these traits, and living an otherwise

unblemished life, should be regarded by his employés and fellow-citizens as entitled to more than ordinary respect, follows as the tides the moon. Whether or not men are themselves worthy, they respect worth in others. In this popularity and esteem Mrs Wenban participated. Many were the sick, weary, and impoverished travellers and immigrants relieved by her kindly ministrations, and the sweetness which she shed about her in her home was allowed to radiate through the community.

With wealth came increased appliances of pleasure and culture. The rude cabin was exchanged for the elegant home; books, music, society, and fine equipages took the place of more economic furnishings; but, withal, the genuineness and simplicity of character remained.

The most remarkable part of Mr Wenban's character is his entire self-reliance. Some men, it has been tritely said, are born to greatness, some achieve it, and some have it thrust upon them. Mr Wenban certainly does not belong to the last class, for he has successfully avoided cheap notoriety. If not "born in the purple" he was born very near it, having been created with that royal will which brooked no opposition, and accepted no blunders because they were "time-honored," having as much confidence in his own insight as in the opinions or beliefs of others, yet ever ready to accord to others the credit of discovering a truth. Every other member of his father's family was a member of some religious society. His father was what in England would be called a dissenter; his mother a church-of-England follower; his brothers and sisters belonged in America to any society they preferred. He stood aloof and alone, unable to yield the obedience required by and to creeds, none of which contained, in his judgment, the vital principles of right and justice, the prime essentials, in his view, of a godly character. Many a man has occupied this debatable ground, and has fallen

into evil courses, because people who assumed to be his spiritual superiors, solely on their merits as believers of something which nobody ever understood, assigned him to perdition. But this firm soul could not be cast down by summary judgment of others, and his stainless life is proof of the purity of purpose which inspired his contumacy in religion. An unbending will may and does exist, not unfrequently, with a tyrannous disposition, and creates a despotism; but a will to which others cheerfully and admiringly yield submission implies many high qualities besides. In the Cortés district, where not only this even-tempered firmness, but the hopefulness and generosity which accompanied it has achieved so great a victory over apparently insurmountable obstacles, Mr Wenban's word is law, and his judgment final.

It would hardly be expected, from the great latitude allowed him in his boyhood, and his preference for action over study, together with the hardships endured during his early mining experience, that much bookishness could be looked for in his habits. Yet time was found even during those years for repairing the neglect of his youth, his mind being well stored with historical and scientific facts; and among other things he acquired a sufficient knowledge of medicine and surgery to practise, in case of accident or immediate necessity, among the large number of people employed by him. It was years before the district could support a physician, during which time his knowledge of medicine proved of great value to those in his employ.

In his darkest days he was the same generous, openhanded man, whose impulses were given opportunity in the days of his greater prosperity, and times were never so hard with him that he did not drive a good team, and live, when travelling, at first-class hotels. Thus he never paraded his financial difficulties, but deported himself like one who knew how to wrest from fortune her favors, until the capricious dame

yielded, smiling in spite of herself, acknowledging that here was no accidental but a compelled success. Such men as Wenban, who move along quietly attending to what they have in hand with all their energies, have little time to consider what others think of them, and to men of this mould the state owes much.

Mr Wenban's family consists of two daughters, both charming women, Flora A., born May 26, 1850, who was married in 1885 to W. O. Mills; and Eva J., born November 19, 1852, who married in 1878 a wealthy stock-raiser, Mr Joseph W. Dean, deceased in 1885. In 1890 she married William P. Shaw. His grandchildren in 1891 were two daughters of Mrs Shaw, Flora J., born February 6, 1879, and Ethel, born October 12, 1881. Mrs Mills also had one daughter, Carrie W., born June 3, 1887, and one son, Simeon Wenban, born August 26, 1889.

In the companionship of these young people Mr Wenban has taken great delight, being at once their fond friend and wise counsellor. To give them all the advantages of metropolitan life, he decided in 1888 to remove to San Francisco, erecting a magnificent home on the southwest corner of Jackson street and Van Ness avenue, where he has also invested considerable money in real estate, and where he makes his permanent residence. He has several times visited Europe, and his early English home, toward which he had that sentiment with which men regard their native land, half of curiosity and half of longing; his mining enterprises going on under faithful agents, rapidly building up a fortune which promises to be among the phenomenal ones of the Pacific coast.

CHAPTER XI.

MINES AND MINING—UTAH AND WYOMING.

THE CONTINENTAL WAY-STATION—INCREASE OF POPULATION—DISCOVERY OF IRON DEPOSITS—THE SUPPLY INEXHAUSTIBLE—COAL—COPPER AND LEAD—OTHER METALS AND MINERALS—BUILDING STONES—THE PRECIOUS METALS—DISCOVERIES AND DEVELOPMENT—YIELD—EARLY EXPLORATIONS IN WYOMING—GOVERNMENT EXPEDITIONS TO THE BLACK HILLS AND BIGHORN COUNTRY—RUMORS AND DISCOVERIES OF GOLD—MINING DISTRICTS—COAL DEPOSITS—MANIPULATIONS OF RAILWAY COMPANIES—LABOR TROUBLES—IRON, COPPER, AND OTHER METALS.

UTAH is well represented in minerals, although as yet only a few have been largely developed. Yet mining in the surrounding territories had an early and marked influence upon her destiny, striking a blow at the seclusion of the community, while inciting to trade and intercourse. For California the Mormon settlements served as a half-way station, and divested the journey of many of its terrors, affording the traveller an opportunity for rest and recuperation. The church lost a few members, smitten by the gold fever, but gained many accessions from the overland current of immigration; partly from tired wayfarers gladdened by the sight of peaceful farms and villages, doubly inviting after their toilsome march; partly from a direct influx of Europeans, who, regarding Utah and California as almost identical, hastened hither, and were persuaded to remain.

Iron was found during the first years of occupation in different localities and in immense deposits. At Smithfield, in Cache county, were beds of hematite sixty feet in thickness. On the Provo river near Kamos, on the Weber, near Ogden, on the Wasatch,

near Willard and Bountiful, at Tintic, at City Creek cañon in the Cottonwoods, in deserts and mountains, ores were disclosed in almost every variety, except in the form of carbonates. The largest deposits were in Iron county, in what may be termed the southern prolongation of the Wasatch range. The most remarkable outcrops were in the neighborhood of Iron Springs, Iron City, and Oak City. In the Big Blowout, a solid mass of magnetic ore near Iron Springs, with a length of 1,000 feet and half that width, it is estimated that there are 3,000,000 tons near the surface. Other deposits each exhibit 1,000,000 tons, and it is probable that the district contains 50,000,000 tons on or near the surface, while the ledges are practically inexhaustible and of excellent quality. Analyses give from 60 to 64 per cent of iron, 12 of phosphorus, 4.8 to 6 of silica, and of sulphur a trace. The drawback to exploitation, so far undertaken chiefly by the Great Western iron works of Iron City, and by the Ogden iron works, lies in the scarcity of coking-coal, which, however, promises to be overcome, and in the limited market, more distant territories possessing cheaper sources of supply.

The scarcity of timber and the discoveries of iron induced the territorial legislature in 1854 to offer a premium for a profitable vein of coal within forty miles of Salt Lake City. This gave additional zest to exploration, and by 1880 more than 120,000 acres of coal lands had been surveyed in eleven different counties. Three years later the area of such lands was estimated at 20,000 square miles. The largest deposits are found on the eastern slope of the Wasatch, extending at intervals from the Uintah reservation through Sanpete, Pleasant, and Castle valleys, as far as Kanab, on the Colorado. Unfortunately the beds are of recent and not what is termed the true coal formation, yielding little coke suitable for smelting. The veins are also, as a rule, too

broken or small to be remunerative. Yet on the Weber, for miles above Echo City, the coal is of fair quality for household and steam-producing purposes, drawn partly from a depth of more than 1,000 feet. At Evanstown is a vein nineteen feet thick. Coalville has until recently supplied most of the northeastern towns. The deposits in Sanpete valley are valuable, although the seams range only from six inches to six feet. In the mountains to the south and east veins of from 10 to 12 feet are worked. Analyses from Sanpete give 50.7 per cent of coke, 34.2 of bitumen, 13.3 of ash, and 1.8 of moisture; from Castle valley 48.2 of carbon, 1.9 of ash and 40.6 of volatile matter, the coke showing 94 per cent of fixed carbon.

These exceptional features helped to increase the yield from 4,500 tons in 1869 to 60,000 tons in 1878, the latter amount covering half of the consumption, and the remainder being supplied by Wyoming. It is anticipated that further developments will be made to meet the demand for iron works. Thus in Utah as in England, whence her population has been largely drawn, is demonstrated the supremacy of coal as a primary factor for fostering mining and manufacturing industries, with the attendant growth of settlements, with railways, trade, and other wealth-creating adjuncts.

Copper is found in most of the mining districts, usually in connection with other metals. It is most abundant in southern Utah, where rich ores occur in the sandstone; but the only mines developed in 1883 were in the northwest angle of the territory, where veins averaging seven or eight feet in width, enclosed in micaceous shale and intermingled with porphyry, yielded as much as fifty per cent of metal. The production between 1870 and 1883 was estimated at 1,000 tons, and sold in New York for about $300,000.

Lead is found in abundance in connection with silver, and between 1870 and 1883 over 250,000 tons

were produced, worth on the Atlantic coast $23,000,000. Tin has been reported near Ogden. Beds of sulphur exist in the south and north, the largest, in Millard county, covering 300 acres to a depth of fully 20 feet. In Beaver county, south of Frisco, are deposits of singular purity among fissures of silicious flint, but of no commercial value. Near Brigham City are sulphurets of antimony, averaging four feet in thickness, and yielding some twenty-five per cent of pure metal. In Piute and Garfield counties are purer and larger formations. Gypsum and mica abound especially in the south; the latter also on the southeast bank of Great Salt lake. East of Nephi is a vein of gypsum 1,200 feet long and 100 feet wide. Cinnabar, cobalt, and bismuth occur, the last in paying quantities in Beaver county and at Tintic. Near the great lake is a solid mountain of rock salt, and west of it large quantities of saleratus. The carbonate of soda found in Emigration cañon was used by the first settlers for baking. In the iron beds ochre is plentiful, and under the shale, which covers a surface of 1,000 square miles, occurs the so-called mineral wax, some of it rich in gases and paraffine. Alum is found in all parts, in combination with other minerals, and in Sanpete county and Promontory range are vast beds of alum shale.

Building stone exists throughout the territory in great variety, notably granite at Little Cottonwood; red sandstone at Red Buttes near Salt Lake City; white sandstone in Sanpete, and limestone, easily quarried, at Logan. Marbles of all colors and capable of the finest polish are found, especially along the east slope of the upper lakes, those from Logan being most in demand. The green and purple slate from Antelope island is preferred to the eastern product for many purposes. Clays of various descriptions are available for brickyards, potteries, and porcelain factories.

Prospecting for precious metals was long discountenanced by the church, mainly with a view to prevent the influx of gentiles, and partly because of its demoralizing tendencies. Gold placers were not discovered to any considerable extent, but silver deposits, with a considerable admixture of the yellow metal, lay scattered in all directions; and they would no doubt have long remained undisturbed under the ecclesiastical ban, had not the disclosures in Nevada caused gentiles to search for them. In 1863 Captain A. Heitz and his followers from the military camp discovered argentiferous galena and copper in Brigham cañon, on the east slope of the Oquirrh range. In September of that year a man named Ogilbie located a mine, the beginning of the mining district of West mountain, which extends between Black Rock and the southern end of Great Salt lake, and contained in 1871 three dozen mines.

The find created an excitement among both Mormons and gentiles, and prospecting and locating of mines were actively prosecuted. In 1863 the Rush valley district was organized on the western slope of Oquirrh, a segregation of the preceding district. Within two years 400 claims had been taken up, centring round Stockton. The ores were sulphurets and carbonates of argentiferous lead, with an average assay of $55 per ton. In the Ophir district, subsequently formed at this point, assays of chloride ores reached $5,000 per ton. In the extreme southern end of this range lay the Tintic district, where the first mine, the Sunbeam, was opened in 1869. Upon its ledge there were in 1882 nine locations, selected ores from which carried from 80 to 100 ounces of silver, besides gold, copper, and lead. The Crismon may be taken as a representative mine, and yielded on an average about $35 per ton in gold and silver.

The first discovery of silver-bearing rock in the Wasatch range was made by General Connor in person, at the head of Little Cottonwood cañon. The

first ore was galena, then carbonate of lead, both in chimneys. Shipments began in 1868, but the systematic opening of the mines was deferred for two years, until the completion of the Utah Central railway. They embraced the famous Emma, located in 1869, and yielding over $2,000,000 for the eighteen months ending in 1872. It was thereupon foisted by swindling operations upon English capitalists for $5,000,000. The adjacent Flagstaff produced by 1882 more than $3,000,000 worth of ore. Immediately to the north lay the Big Cottonwood district, wherein hundreds of claims were taken up. To the south extended the American Fork district, now embracing also the Silver Lake district. The Miller claim, belonging to this group, sold for $190,000, but in 1882 the Silver Bell was the leading mine. Eastward, in the Uintah and Blue Ledge districts, at Park City, the famous Ontario mine was located in 1872. Eleven years later it had reached a depth of 800 feet in quartzite formation, averaging $106 per ton, and had yielded fully $17,000,000, over $6,000,000 being paid in dividends. Milling and other expenses were $33 per ton. In 1864 gold was discovered in Brigham cañon, producing within eight years $1,000,000. By 1882 the total yield reached $1,500,000 in gold, $8,800,000 in silver, and $5,000,000 in lead. The ore was partly galena, though largely silicious, and decomposed near the surface.

Following the Wasatch prolongation southward we reach the profitable San Francisco district in Beaver county, 15 miles west of Milford. The leading mine, the Horn Silver, had by 1882 been opened to a depth of 500 feet in decomposed galena, some 50 feet thick, and produced about $6,000,000 in silver and lead, one-fourth being distributed in dividends. The ore of the adjacent Carbonate mine consisted chiefly of trachyte, requiring concentration; and the Cave mines, in a series of limestone caves, had limonite ore near the surface. In Washington county, in the basin of the

Colorado, lay the Harrisburg district, centring in Silver Reef, a town incorporated in 1878, and so named from a silver-bearing sandstone reef, 100 miles in length, yielding in many places $30 per ton. Leeds, the pioneer location, produced $800,000, and three other companies had by 1882 taken out $1,000,000 each. Hundreds of claims, as yet untouched, promised with consolidation to develop into dividend-paying properties.

In 1883 there were in Utah perhaps 100 mining districts in operation, with 17 smelting and reduction works, all of modern pattern, producing more than 2,000 tons of bullion per month. There were 20 quartz-mills, with at least 350 stamps, the cost of a chloridizing mill being $3,000 or $4,000 per stamp. Among the largest refining establishments at this date were the Germania lead works and the Franklyn smelting works on the south Cottonwood, with a capacity of 40 and 55 tons daily respectively, the latter equivalent to 250 tons of crude ore. Mention should also be made of the sampling works of Scott & Anderson at Sandy, with a capacity of 500 tons. The average cost of mining and hauling, including dead work, was probably not less than $10 per ton, and of milling silver ore at least as much. At smelting-works about $28 were charged for smelting and refining, and $25 for freight to New York. As the average yield of galena ores, which form the bulk of the deposits, is less than $30, these rates were prohibitory, leaving only a few mines to be classed as profitable.

For 1869 the product of all the Utah mines in gold, silver, and lead did not exceed $200,000. Two years later it had risen to $3,000,000, and in 1875 to $7,000,000, at which figure it stood in 1883, the yield remaining almost stationary for the two succeeding years. Between 1870 and 1883 the yield of gold exceeded $2,000,000, and of silver $45,800,000, the total output of all metals reaching $71,500,000, or an

average of $5,500,000 a year. Most of this came from a few rich districts. Against it must be placed the expenses, which in the aggregate may be estimated at $10,000,000 a year. The large deficit must, however, be mainly attributed to improvements and to excessive rates of wages, so that it is not altogether a loss, even to foreign investors, who are paying assessments. For Utah the gain is decisive, in the addition to capital and population, and in promoting settlement, with the attendant increase in the values of property.

In the adjacent territory of Wyoming, the southwest corner of which was formerly a portion of Utah, the California gold fever first called the attention of prospectors, and many an emigrant tried the streams en route, although in vain. Father De Smet, the famous Montana missionary, had spoken of gold indications in this region, observed during his tours in the early forties, but which his Jesuitical caution and his regard for the welfare of the natives prevented him from disclosing. Nothing daunted, thirty men separated from Douglas' California-bound party in 1852, intent on searching for the metal. Eight overtook the caravan later, and reported gold on two streams, presumably in the Black hills, but not in sufficient quantity to induce the company to turn back. The other twenty-two remained to search further, but were never heard of, and probably perished from the tomahawk or from hunger. Fourteen years later the bones and crumbling implements of diggers were found near several holes and shafts on Battle creek, Black hills, which some ascribe to the missing adventurers.

As Colorado and Montana displayed their treasures, the belief was confirmed that the intervening territory of Wyoming must also contain its share; but the growing hostility of the Indians, and their raids on passing emigrants deterred prospectors. In 1857

Lieutenant Warren advanced from Laramie to the west slope of the Black hills, there to be driven back by the Sioux; yet he found time to report upon its geology and to declare that gold existed there in "valuable quantities." In 1859 a government expedition under Captain Reynolds, attended by a scientific corps under Hayden, explored the Black hills, and the region beyond to Powder and Yellowstone rivers. A member of this party is said to have found gold in Bighorn mountains; but, afraid of losing their men and the results of their labors, Reynolds and Hayden bound the discoverer to secrecy, and the locality could not afterward be traced. Both leaders admitted in their reports that decided indications of gold existed in that range, as well as in the Black hills, and that different persons had observed nuggets in the possession of the natives.

So many confirmatory reports failed not in their effect, and in the beginning of the sixties several parties organized in adjoining territories to verify them. A small number of French Canadians proceeded in 1862 to Bighorn mountains, only to disappear. In the following year another company on the way to Montana examined the Black Hills and took out $180 in three days; but the season was late and they hurried onward. In the same year an expedition left Montana to prospect the Yellowstone region, and made its way to the South pass without finding any metal. Notwithstanding this failure other Montana prospectors continued the search, but none were able to hold out against the natives. The government troops, moreover, assisted in keeping out intruders from a region conceded to the aborigines, and a party of over one hundred men from the south was thus thwarted at the outset.

Finally, in 1867, deposits were revealed on the sources of the Sweetwater, by H. Ridell and others, who discovered the Cariso lode, and made the first locations at the South pass. The gold existed largely

in decomposed quartz, which could be readily crushed. The Cariso yielded by means of hand mortars over $15,000 before the winter set in. The news spread quickly, and soon fully 700 men were at work on Willow creek, a northern branch of the Sweetwater, the earliest arrivals being from Salt Lake City. It was necessary even here to keep close together, for those who ventured far beyond received a more or less severe reminder in encounters with Arapahoes and other marauders. Many promising locations were made, among them Atlantic ledge, six miles northeast of Cariso, and Miners' Delight two miles farther. Later in the autumn placers were also unfolded in gulches along Willow creek. Chief among them was the Dakota gulch, to which a ditch five miles in length was constructed before the winter season set in.

In October South Pass City was laid out, and a few miles beyond rose Atlantic City, which soon eclipsed the other, counting in 1868 over 500 inhabitants. Around them were formed numerous mining districts, each containing a hundred or more occupants, and their importance was recognized by the formation early in 1868 of Carton county, subsequently renamed Sweetwater. The first trader was N. Baldwin, one of the original discoverers of the Cariso, who, after serving in the civil war, had come to Wind River valley and established a post for Indian traffic. W. Noble joined in the competition for miners' custom and in exploiting on his own account. He also engaged largely in stock-raising, and rendered good service as a member of the legislature.

The Sweetwater districts did not prove so rich or permanent as had been expected. In 1879 the product amounted to only $23,000, and three years later it had fallen to $5,000. Elsewhere developments have been even less substantial, notwithstanding the incorporation of several companies. Carbon county is so far the most promising, and claims several districts

with placer and quartz as well as hydraulic mines; but the grade is low, the Seminole district free milling ore yielding, for instance, from $12 to $30 per ton. Ore has been exhibited at Denver from other sections, as Ferris mountains, Cummins City, and Laramie range, but the exploitation is limited. The Black Hills mines pertain to the adjoining territory on the east; yet the traffic arising therefrom has been largely shared in by Wyoming.

Wyoming is richer in other minerals, as coal, iron, copper, mica, soda, building-stone, and petroleum, all of which promise to be sources of profit, when improved means of conveyance and other adjuncts shall permit a wider unfolding. Plumbago exists in Crook county, graphite in Albany, asbestos and sulphur in the former and in the Yellowstone region, and along the Sweetwater have been picked up agates, amethysts, and other precious stones.

Coal ranks as the principal deposit, and is found in Albany, Crook, Johnson, Laramie, Sweetwater, and Carbon counties, the last owing its name to the abundance of the strata. The report of the Stansbury expedition of 1849 also refers to croppings in Laramie range. In 1868 coal was found near Evanston, and mining began in the following year, giving rise to the town of Almy. The field is practically unlimited, and yields a semi-bituminous brown coal of good quality. The Central Pacific Railroad company gained possession of a large tract under the branch organization of Rocky Mountain Coal and Iron company of 1870. Two of their own mines were worked by about 300 miners, producing in December 1881 nearly 17,000 tons. Near by, the Union Pacific Railroad company employed nearly 300 men, who in the same month took out 7,700 tons. The latter owned mines also at Rock springs, Carbon, and other points.

Trouble with their white miners, chiefly English and Welsh, caused the Union Pacific in 1885 to intro-

duce Chinese laborers. The month after their arrival the exasperated white miners at Rock Springs to the number of 200 attacked the 400 Asiatics with fire-arms and drove them to the hills, killing and wounding about 50, burning down their dwellings and destroying their effects, many of the sick and wounded being cast into the flames. Twoscore houses belonging to the company were also consumed. Troops were sent to aid in suppressing the riot, but the murderers could not be brought to justice, owing to the withholding of testimony by the inhabitants. A few of the obnoxious miners were replaced by more subservient Mormons, not belonging to labor organizations, and the Chinese were reinstated under watchful guardianship, while at Evanston a still larger force was employed. The government has since taken steps to indemnify the sufferers from these disgraceful outrages.

Near Laramie are iron deposits, perhaps the richest in the United States, but difficult to work. The Union Pacific company have established works at that point, where they manufactured rails early in the past decade. The iron mountain of Albany county yields 85 per cent of pure metal.

Copper is so widely distributed as to hold out bright promises for future exploitation. At Rawlins it assays 40 per cent, with an ounce of silver and traces of gold. Laramie is especially rich herein, and several copper-mining districts have been formed. The first smelting works were erected at Fairbanks. At Platte cañon, a few miles west of Laramie, the Wyoming Copper company was organized in 1882 by A. J. Babbitt, a large stock-raiser. The investment amounted to $200,000, and the yield of the following year rose to 1,000,000 pounds of copper.

A mica mine, 20 miles north of Laramie, was sold in 1882 to a New York company, which soon afterward commenced operations. Coal-oil exists in five of the counties, lying near the surface, and resembling

the best Russian and Rangoon qualities. For lubricating it is unexcelled. Soda lakes were discovered in Albany county in 1869, by N. K. Boswell, the celebrated detective, and sold under pressure to the Union Pacific, which in 1853 erected furnaces. The deposit is a sulphate several feet in thickness, and covers 56 acres. Near Independence rock are several lakes of bicarbonate of soda, covering a surface of 500 acres, and suitable for glass-making.

CHAPTER XII.

LIFE OF HORACE AUSTIN WARNER TABOR.

A Founder of the Commonwealth—Ancestry, Parentage, and Education—Life at Quincy—A Member of the Kansas Legislature—Removal to Colorado—At the Leadville Mines—In Denver—The Tabor Block and Opera-house—Other Enterprises—Domestic Relations—Political Career—Criticisms and Remarks.

Before touching on the mining annals of Colorado, I will first present the career of one of her leading citizens, one who, beginning life as a stone-cutter's apprentice, has done more than any other to develop the resources of the centennial state, and to build up the fortunes of her metropolis, now seated and enthroned as the "queen city of the plains." It was in the summer of 1859 when a young Kansas lawyer, named Horace Austin Warner Tabor, first set foot in Colorado. Since that date it has been transformed from wilderness primeval into one of the most flourishing among our western group of states, and that to Mr Tabor is largely due this transformation is the all but unanimous opinion of those who have observed his career.

"The voice of the people is the voice of God;" there is much that is true, much that is wholesome in this saying, yet I apprehend that its greatest force rests in the fact that it is accepted generally without question. To discuss it is to arouse argument and antagonism, which, if you are contrary, places you at a disadvantage. Yet it is held by all special students

that the popular judgment has not always been correct. It has devolved upon them, for the sake of truth, to break down now and then judgments of a general or perhaps of universal acceptation which embody popular error. They have been required to take up the cudgels against the mighty hosts arrayed in the army of the sovereign, Precedent; but they have been strengthened by the spirit and inspiration of devotion to truth. What I propose here, however, is not so much to exhaustively analyze or to conclusively demonstrate the contrary impressions or convictions that I entertain.

The field in which I am at work is special to a very large extent. I am not only to deal with extraordinary conditions and environments—a new country and new things—but with men who partake, to a greater or less extent, of the character of the extraordinary developments in which they participate. But more than this, and above all, I have to deal with men who, though differing in some respects from all others of their kind in any other part of the world, form a class which has been recognized and defined from the beginning of history. Nowadays they are called business men, men of affairs. In the older countries generally they have not been considered—and perhaps have not been, to any great extent, controllers, rulers, or creators of government in its material forms or abstract construction.

They have not been, in the older civilizations, looked upon, unless in cases of exceptional individuality and genius, as entitled to the privilege of growing, by actual merit, into places of extraordinary distinction and honor; they have been out of the realm of the aristocracy; they have been called plebeian, and as mere tradesmen they have not enjoyed any of that divine right which is the property of kings, without which artificial title, I fancy, that not a few among those who have been called rulers, and have enjoyed the nominal functions of rulership, would have been any-

thing but kingly. In other words, I feel that it is my province to deal with kings actual, with affairs actually kingly; to discuss the beginnings, the growth and establishment of empire; to analyze the work and the character of the men who have been in a substantial sense empire-builders. I am not unaware that in doing this, professing to have always in view the strictly historical idea, I am apt to excite at once the hostility of precedent, and to contend against the law of routine, in this department of literature. Men of war, explorers, scientists, poets, *et id genus omne;* are commonly thought to occupy exclusively that claim to the attention and study of their fellows which I hold to be at least equally the right of such men as, for the most part, I am engaged in studying.

As I look back through the dim light under which we get our first record of mankind, and run along the outline of history to the present day, I observe, somewhat to the prejudice of that recognition which I desire for what I am doing, and which, nevertheless, I confidently expect to win, by reason of the substantial worth of my theme, and my labors, that the actualities of life, things in which the physical and mental capabilities of men have taken form, and have been preserved only outside of books, in experience, and, perhaps, by hereditary transmission, have been largely ignored. What, then, has been chronicled? In answering this question I have merely to point the student to the early annals of any nation; poetic forms, philosophical essays, the moral precepts of the wise have been pretty much the beginning and the end of the record of men's doings. So it is up to the present, and perhaps it may so continue indefinitely, that the man who does something which is conspicuously grand, something that strikes upon the sensibilities, or deeply stirs the emotions, will be considered primarily great, while the poet or historian who devotes his powers to portraying that luminous character will be considered also great. I would not

for a moment disparage the man who achieves on the field of battle brilliant results—certainly not so if he fight in a good cause—nor would I underestimate the art of the pen fitted to describe and preserve the picture with truth and graphic color. But is this all of literature? Is there no genius outside of the usually recognized limits of belles-lettres? The orator, the poet, the physicist, the philosopher, the mathematician—do they alone contribute to the progress and enlargement of men's ideas, and the material advancement of society? Is commerce to be eschewed? Upon what energy have nations risen—by a misapplication or a waste of what energy have nations fallen? I may say, with history in full view, that the substance out of which the foundation and the superstructure of nations are composed, is the materializations of that which is ordinarily so little appreciated in letters because so little studied—the affairs of commerce. And if this be true, if it is, as it seems to me, a proposition that must be accepted directly by all who are not the slaves of form and precedent, then what may we not premise regarding the size and weight of men who have engendered, broadened, and controlled, in its various intricate, perplexing, and problematical forms, the commerceof a community?

I do not mean to exclude from the signification of the word "commerce" a department of industry which it very largely involves—that is to say, agriculture. I heartily accept, in all its phases, the old adage that "He is a benefactor of his race who causes two blades of grass to grow where only one grew before." In fact, this is the body and blood of my research and writing. I deal with those who aggrandize, who, as this word originally meant, enlarge; who, in solving the growing problem of great, comprehensive, individual life, expand the resources and add to the wealth and civilization of the community of which they are an integral part. If there can be a more substantial, a more useful, a more actually noble factorship among

men, one demanding stronger intellect or more subtle ingenuity, I confess that I am not able to appreciate it. I speak without regard to philanthropy, which, in its broader scope, is impotent without the means of beneficence which are acquired by those in whom are combined both a keen and eager ambition for self-preferment, and a strength of mind and character by which they are enabled to reach a certain position from which to dispense benefits. I take it that philanthropy, as commonly understood, that is to say, the act of going about and devoting one's life to the amelioration of suffering, or the distribution of alms, is rather an incident, and that it is hardly worthy of consideration as a rule of human action. I look upon men who have broadened and contributed to the wealth, intelligence, safety, and comfort of a town, or state, or nation as benefactors of the first importance, benefactors by virtue of their own lives. Hence, while it is interesting, I do not consider it essentially important, on the ground of expediency, into which every motive is more or less finally resolved, to look into the history of men's lives to any greater depth than is necessary to determine their historical contribution to the welfare of others. Yet it is a pleasing feature in my study of the great controlling spirits of the western United States to find that, in their successful struggle with the elements of nature, human and material, they possess the milk of human kindness in characteristic abundance.

Thus I conclude the suggestion which I desired to make first; which is, that the men and the affairs with which these *Chronicles* deal, by virtue of themselves and of their acts in giving body and spirit to their times, in being the makers of the history of a most peculiar and most important section, whose annals are charming already, and whose possibilities for the future dazzle its most enthusiastic statistician and friend, are entitled to enjoy a prominent place in literature, in the midst of their work.

In the second place, as quite *à propos* of the subject in hand at this time, I am disposed to congratulate myself that this proposed analysis of personality and work is undertaken as a contemporary enterprise. It would not become me, nor have I the disposition, to find fault with or pass strictures upon any history of men or events that has ever been written, except after a careful, specific study, and the assurance that my criticism would not only be just, but wholesome as well. Yet we know that, as a general thing, there has been an inclination to deal less with facts than a rigid consideration of the truth requires. Satirists have said that history is another name for fiction. If the satire be justifiable at all, it is only so, I apprehend, either in those cases in which the historian of to-day, for the sake of embellishment and popular interest, substitutes his fancy for facts which, perhaps, could not be obtained in any event regarding the doings of men in the remote past, or else in the case of fugitive endeavors concerning present affairs and present men, whose ulterior purpose is at once manifest in the form which they take; which, in other words, are prepared for any but historical purposes. One of the prime advantages of the work I have in hand is to be found in its contemporary character. If I have won any recognition in the course of my historical labors that gratifies me, it is the approbation good men have accorded to me for my determination to be impartial, to state the truth, the whole truth, and that plainly. But let this be as it may, the record as prepared is to be submitted to the crucial test of criticism at the hands of those to whom the lives of my subjects are an open book. It is inconceivable, therefore, that I should deal with any life upon any other basis than that of fact. The prime value of such work is in its consistency. To be inconsistent would be suicidal. The situation of the author is difficult, but the conditions make faithful study inevitable, and promote accuracy. He may err in judgment, which is human,

but he cannot make a wilful mistake. I conceive that the benefit to the cause of truth, the advantage to the earnest seeker after positive knowledge would be greatly enhanced if all history could be written contemporaneously—not that contemporaneous history is without its defects; defects that are unavoidable, and are so evident that they need hardly be discussed. The point, however, which I desire to make, sharply and conspicuously, is this: that other things being equal, the record must necessarily be better made if undertaken while all the facts are accessible, are alive, speaking for themselves; and if the record when made, as correctly as practicable, is to be submitted at once to those who are familiar with the subject, for certain and thorough investigation.

In studying the life and character of a prominent man, our satisfaction is the more complete if we find in him qualities and powers which we ourselves possess or would like to possess. If his deeds have been noble and beneficial, we admire and take pleasure in them; his achievements become a useful and an agreeable study. The man of large capabilities, which he manifests in the doing of really great things, commands our approbation and inspires us to imitate him. The world is better for his having lived in it, if only for the example he offers This is a moral force which can never be lost altogether, it is true, but it should be known and preserved for the greater benefit in its own individuality and distinctiveness, rather than be allowed to lose all its vitality by blending with others. Such a personage is of value as a factor in civilization by reason of the standard he sets up for us; and yet he is of still greater consequence to mankind for the things which he has actually done for the community—those things which, in fact, give weight to his example.

The founders of states have even been universally regarded as great men. Their work is of itself a memorial. Do not say that their acts are talked about

only to-day on the highways and in the market places, among contemporaries, and that their names will soon be forgotten. If this were so, men would indeed be ungrateful, and their appreciation a poor recompense. But it is not so. Those who come first; the pioneers who possessed the wisdom to see and the will to make use of virgin opportunities to win affluence and control for themselves, and in so doing to contribute vastly more, in the aggregate, to the wealth and prosperity of others, must live always in the memory of their countrymen, to say the least. Unlike the conquerors of old who planted the seeds of empire in foreign soils and reared mighty superstructures on the foundations which they laid, they have not built upon ruins. Our founders wrestle with nature. It is their distinction to reclaim the wilderness; and to gather golden crops, by honest toil of mind and body, from the soil or from the secret places under the earth. Their every act is advancement, expansion.

The work which has been done in the foundation and formation of the commonwealth of Colorado is grand, and so are the men to whom the achievement is largely due. We may lose sight of them for a moment in the dust and din of our rapid progression, but posterity will not lose sight of them; history will not let them die. The greater the state becomes, the higher the refinement reached, the broader the culture attained, the better will these men be understood, and consequently the more appreciated; the brighter will shine their good deeds, and the more interesting and instructive will be the perusal of the history of their lives.

The discriminating reader prefers to deduce his judgment from a consideration of the facts. These will be duly presented in order that they may speak for themselves; but if I, who have studied the case, were allowed to anticipate, and if comparisons were permissible I would say that the subject of this inquiry, Horace Austin Warner Tabor, has done at least as

much for Colorado, and certainly more for the capital city, Denver, than any ten of their citizens among whom the credit is to be divided. If I am correct in this statement, we should know all about him, what manner of man he is mentally, morally, and physically, take note of him in all the phases of his career, and faithfully reproduce his career.

Rochford hall, Essex, was the ancestral seat of the Tabors in England, and from that spot came in early times to America the founders of the family in New England. The paternal homestead when Horace was a boy covered an area of 160 acres, on which was raised a little wheat, oats, and barley, with vegetables for the family, and hay for the live-stock. The father, Cornelius Dunham Tabor, was born in Topsham, Vermont, on the 23d of July 1799, and died at Denver in the eighty-ninth year of his age. The mother, whose maiden name was Sarah Ferrin, was English by birth, but of Scottish ancestry.

Cornelius Tabor was a man of considerable energy and independence of thought, rather below medium height, yet strong and well built, of powerful intellect, and of a pronounced and positive character. He had charge of the district school for many years, teaching during the winter, and in summer working on the farm together with his sons, though in his younger days Horace found time to attend school also at the latter season.

The mother was tall of stature, and though of slender frame, capable of severe and protracted toil. She was a woman of strong natural powers, firm, courageous, yet of tender heart, and of no small sentimentality. She was a congregationalist, while her husband was a methodist; in moral and religious observances both were strict, but with no touch of fanaticism.

Horace was born, November 26, 1830, in Orleans county, Vermont. His early life was spent among the rugged, health-giving hills of his native state. His best school was the farm, the graduates from

which have been the brain as well as the brawn of the great west, from Colorado to California, from Mexico to Alaska. The atmosphere about him was one of labor, thrift, integrity; the people God-fearing, honest, self-reliant men and women. To live among them, being of good manly stock, and having a laudable ambition, meant to grow up patient, indefatigable in toil, economical, true to oneself and neighbors, and loyal to country. What a nursery of men has been the New England farm! A good place to emigrate from, certainly, as is sometimes pleasantly remarked, but those who learned the lessons of life thereon have been made conquerors by force of their experience It was a hard existence, that on a small Vermont farm, the soil worn out, and stock having to be fed six months in the year. But these conditions develop manhood.

There were four children, Lemuel R. Tabor, who still follows the life of a farmer in Vermont; T. F. Tabor, who became a stone-cutter at Quincy, Massachusetts; then Horace, and last of all a sister, who married, lost her husband, and now lives with her children in Denver.

Horace was a loyal student, of superior mental powers, and hence always held a foremost place among the pupils of his class. It was characteristic of him to throw his whole soul and mind into whatever he did, whether in his studies or at play. He acquired a fair knowledge of the usual branches. Mathematics he readily mastered, his disposition being to grapple with principles; while, having a taste for correct expression, he found no obstacles in grammar; in geography he took but little interest, for, as a boy, he realized the waste of time and labor devoted to this study, unless taught in connection with history.

Upon the death of his mother, when he had reached the age of seventeen, his father married again. After this life on the farm was not so pleasant as before. The death of a mother leaves a void in the heart

which nothing else can fill. Horace longed for a change. There was no possibility of such advancement in his neighborhood as his ambition craved. He felt restrained and cramped in the narrow surroundings of the locality; he became restless in the desire for opportunity. He finally obtained his father's consent to join his brother at Quincy, there to learn his trade as a stonecutter. It was not, however, until two years after his mother's death that he set forth to seek his own fortune.

He journeyed by way of Boston, from which Quincy was but eight miles distant. Hitherto his experiences of men and affairs had been within small limits. He was of an observing turn of mind, and what he saw impressed him. Finding himself for the first time in the midst of a large city, he rambled through its crowded streets. The roar and tumult were to him a strange and long-remembered experience. He wondered as he thought of the great world beyond. In the vast, surging sea of humanity he was but an atom. But the palpable realization of this fact did not dishearten him. It rather strengthened him in his determination to go to work and take a place among men, large or small, according to his talents.

On reaching Quincy he began his labors in the workshop of his brother, and as neither was married, made his home in a boarding-house. He worked with a will, and within a year was master of his trade. By habit, if not by nature, frugal and saving, he had too much good sense to squander what had cost him severe labor to acquire, and might be of great usefulness to himself and others. Horace was never in his life without money. He was always on the high road to independence and affluence. He regarded it, and rightly so, as a shame and a sin for a young, able-bodied, and healthy American to be destitute. He cannot lack the necessaries or the comforts of life except by his own fault.

Upon the completion of his term of apprenticeship, and with his trade well in mind and hand, he struck out for himself, going at once to Bath, in the state of Maine, where he soon found himself at the head of a large force of men engaged in building the custom-house. It was but a fitting recognition of his worth, thus soon to be placed in such a responsible position, for the young stonecutter was a natural mechanic and a good mathematician. He could go into a blacksmith's shop, though he had never learned that trade, and fashion a tool wherewith he could make anything or build anything of which he had ever seen a plan or model. His talent in this direction amounted almost to genius.

He now began to take contracts and engage in business on his own account. This was but the natoral consequence of his inherent ability and independence of thought and action. What another could do he was able to achieve; where there was profit for one possessing inferior will or application, there most certainly must be profit for himself. With perfect confidence, therefore, he accepted a contract for constructing the large columns of the custom-house at Bangor, and executed other important commissions.

Thus time passed on until the spring of 1856. Mr Tabor was doing fairly well in his business, but for some years he had felt that there were better opportunities for advancement in the rapidly developing west. Kansas was then intensely excited over the question of free-soil or slavery which was discussed all over the country; so Mr Tabor heard much regarding this fertile region. He had never believed that human slavery was in any sense a just or righteous institution. He had always taken an interest in the political issues of the day, and here was an opportunity at once to throw his influence on the side of the right, and also to secure some land, the possession of which would be a stepping-stone to prosperity and good citizenship.

He removed to Lawrence, where, shortly after his arrival, an election was held in a one-story log cabin with a mud roof. During the previous year the slaveholders of Missouri had kept the country in a ferment. Frequent raids were made on ballot-boxes by the border ruffians, whenever they thought an election had gone against them. In vain were indignation meetings held; in vain were protests made; it was a reign of violence, and violence alone must govern. A bogus legislature had been improvised under mob authority, and the rule of law-making vagabonds imposed on Kansas by the Missourians. Then there was the Wakarasa war, followed by more mobbing of ballot-boxes, and the skirmish at Easton.

Mr Tabor reached Kansas at a period when immigration was fostered by the anti-slavery people of New England, a large colony of whom was settled at Lawence, and from the day he went there until he left was in the midst of turbulent times, times in which the rule of governors was brief and the election of a fresh legislature was of very frequent occurrence. Now Mr Tabor was by instinct a man of peace, but though never aggressive he was no coward, and preferred war to a sacrifice of principles.

Up to this time the western counties of Missouri, at no small cost of time and money, had continued their struggle for the conquest of Kansas, and at the election at Lawrence some ten or twenty thousand people had come from Missouri either themselves to vote early and often, or to prevent fair voting by others. Such was the crowd at the polls that voters were hoisted to the roof on one side of the building, coming down to the place of voting on the other, with repetitions by the same person *ad libitum*.

Then on the 21st of May 1856 came the sacking of Lawrence. President Pierce had proclaimed it an act of treason for the people of Kansas to defend themselves, so that in the pillage of their town by the slave-holding rabble the citizens offered no resistance.

The achievement was heralded in the Lecompton *Union* as the "glorious triumph of the law-and-order party over fanaticism in Kansas."

Mr Tabor was quickly recognized by the anti-slavery men as a valuable addition to their party; a man fearless and firm, and in no wise to be turned from what he deemed the path of duty by the guns and bowie-knives of the southerners. He was therefore heartily welcomed into its ranks and soon afterward elected a member of the state legislature.

The pro-slavery party endeavored to prevent the legislature from convening at Topeka on the day appointed, which was the 4th of July. Some of the members elect of that body were confined in prison, and others were in concealment to avoid arrest. There was a general call throughout the country for citizens to congregate at Topeka on the 3d of July, as there were rumors of a threatened invasion by border ruffians from Missouri.

In the meanwhile bands of miscreants and guerillas infested the country, inspiring a reign of terror, which prevented a large attendance, so that less than eight hundred persons, aside from members of the legislature, were assembled at the free-state capital on the appointed day. But even these, with the look of fixed determination which their faces wore, were sufficient to cause the ruffian element to hesitate before entering upon such serious work, and to bethink themselves of more peaceful measures.

At this juncture a military force from Fort Leavenworth, under Colonel Sumner, with numerous bands of pro-slavery propagandists, approached Topeka, and encamped on the south side of the town. These warlike demonstrations on the part of the government brought forth a deputation of citizens, who appeared before the tents of the threatening host and demanded of their leader what he proposed to do. The colonel replied that in his opinion the peace of the country would be greatly endangered if the legislature per-

sisted in carrying out its purposes, and recommended its members to disperse.

But this they refused to do. Mr Tabor and a few other determined men urged them to assume an attitude of defence, and to notify Colonel Sumner that the people then gathered in Topeka were law-abiding citizens of the commonwealth, but that they would not permit the United States or any other power to trample on their sacred rights so long as a drop of blood remained in their bodies.

Had such a course been adopted, Colonel Sumner would probably have retired his force before permitting the blood of American citizens to flow for simply exercising their rights as such, rights of which even the power by which they were conferred could not deprive them. But the counsels of the timid prevailed.

About ten o'clock on the morning of the 4th, Marshal Donaldson, accompanying Judge Elmore, arrived in Topeka, the latter bearing proclamations from President Pierce and Secretary Woodson, acting governor of Kansas, forbidding the legislature to meet or hold sessions. Two hours later Colonel Sumner entered the town at the head of his troops, and formed in line in front of the legislative hall. There were two companies of regulars and a couple of cannon. Loading the guns before the eyes of all, and leaving stationed beside them two men with burning fuse in hand, the colonel entered the legislative hall. "Gentlemen," he said, addressing the assembly, "this is the most painful duty of my life. I have orders from the president of the United States to disperse you, and disperse you must."

There was no alternative, for the stone building in which they were assembled would have been brought down about their ears by a few shots from the cannon. So they adjourned to some future time and quietly withdrew. It was with difficulty that the members of the legislature and the law-abiding among the citizens could prevent the people from grinding to

dust this handful of soldiery, so indignant were they over the wrongs inflicted by their own government.

Such was Mr Tabor's matriculation in the school of politics, and the rude experience which he then acquired served afterward to strengthen his lifelong devotion to the cause of republicanism. To Colonel Sumner, however, he bore no animosity, and it was with unfeigned regret that a few years later he heard of the death of this gallant officer, while fighting the battles of the union, though he had been among those who threatened his life and that of his colleagues when asserting their rights as representatives of the free-soil party in Kansas.

Meanwhile he had carried out his intention of securing for himself a homestead, acquiring 160 acres by preëmption and 320 by purchase near the town of Manhattan, and planting some fifty or sixty acres in corn and vegetables. The purchased land he bought on credit, and borrowed the money to enter the remainder, for at this date his available capital did not exceed two hundred dollars, most of his savings being remitted to his relatives, whom from boyhood he had partially supported. Thus, when approaching thirty years of age, he found himself heavily in debt, and with prospects in life that were far from encouraging. Moreover, he was now a married man, being wedded in 1857 to Miss Augusta Pierce, to whom was born in the following year their only child, N. M. Tabor.

In 1858 came news of the gold discoveries in Colorado, and a few months later the plains were covered with emigrant wagons extending almost in an unbroken line between the Missouri and the Rocky mountains. Early in the following spring Mr Tabor resolved to join this exodus, and renting his farm, of which he is still the owner, set forth for Denver, where he arrived on the 20th of June, one of the pioneers of the future capital of the centennial state.

Denver in 1859! Truly the place presented a

bizarre appearance. Originally a trading-post, it now contained perhaps a hundred one-story houses, built of cottonwood logs and mud-roofed, clustering along the west bank of Cherry creek, near its confluence with the Platte. On the other side of the stream, in what is now East Denver, was a solitary log hut, the residence of General William Larimer, after whom is named one of the business streets in the city. Not more than two or three of these dwellings contained windows of glass; there was not a handful of nails in all the settlement; the floors were of earth, which in the wet season turned into mud; the rains passed through the roof, which nevertheless retained so much moisture that, to use a common saying, "it rained indoors for two or three days after it had ceased on the outside." Such was then the metropolis of Colorado, which in 1890 contained nearly 130,000 inhabitants, with its miles of streets, its costly business structures, its handsome and tasteful residences, and its property valuation exceeding $75,000,000, the centre of the mining, stock-raising, commercial, and railroad interests of the state, and with a future the greatness of which no one can foretell. Of the men through whose talent and industry this transformation is mainly due it is difficult for me to speak in terms that do them justice; but to no one so much as to Mr Tabor is the city indebted for its later and greater development.

There are still living not a few who, arriving here some thirty years ago, found themselves hundreds of miles from any other settlement or source of supply, and gladly would they at times have given their gold-dust, weight for weight, in exchange for bread. But there were many who had neither bread nor gold-dust. Thus far the placer diggings had proved in the main a disappointment, and as for other resources, the country was as yet undeveloped. Greeley, the immortal Horace, who had passed through Colorado only the month before Mr Tabor's arrival, had pronounced

the ultimatum of its destiny, and had offered up a prayer. The ultimatum we will omit and give heed only to the prayer, which was in this wise: "I fervently trust that the fond expectations of these gold-seekers, however chastened, may not be disappointed. For the sake of the weary, dusty, footsore thousands I have passed on my rapid journey from civilized Kansas to this point, I pray that gold may be found here in boundless extent and reasonable abundance. Throughout the next six weeks they will be dropping in here, a hundred or more per day; and I trust that they are not to be sent home disappointed, spirit-broken, penniless. If they must recross the great desert with their slow-moving teams, may they be enabled to do so with lighter hearts and heavier purses. For the very mothers who bore them would hardly recognize their sons now toiling across the plains, and straggling into this place, hideously hirsute, recklessly ragged, barefoot, sun-browned, dust-covered, and with eyes shielded (where they have them) by goggles from the prairie sun reflected from the desert clay."

To what extent this prayer of Horace Greeley affected the fortunes of Horace Tabor it is not given unto us to know; we can only say that he never found himself obliged to go back to Manhattan disappointed, spirit-broken, and penniless, and we may further state that he never found himself obliged to exist in any such fashion anywhere, or at any time.

Continuing from Greeley: "A true picture of gold-seekers setting out from home, trim and jolly, for Pike's peak, and of those same gold-seekers, sober as judges, and slow-moving as their own weary oxen, dropping into Denver, would convey a salutary lesson to many a sanguine soul. Nay I have in my mind's eye an individual who rolled out of Leavenworth, barely thirteen days ago, in a satisfactory rig and a spirit of adequate self-complacency, but who, though his hardships have been nothing to theirs, dropped

into Denver this morning in a sobered and thoughtful frame of mind, in dust-begrimed and tattered habiliments, with a patch on his cheek, a bandage on his leg, and a limp in his gait, altogether constituting a spectacle most rueful to behold. It is likely to be some time yet before our fashionable American spas and summer resorts for idlers will be located among the Rocky mountains. As to gold, Denver is crazy. She has been low in the valley of humiliation, and is suddenly exalted to the summit of glory. The stories of day's works and rich leads that have been told to me to-day by grave intelligent men are absolutely bewildering."

Mr Tabor had come to Colorado for the express purpose of gathering gold enough to free his land from debt. This he expected to do by mining, for it was a mining country, and indeed not supposed at that time to be good for anything else. The first of his operations were in Clear Creek county, where he took up a number of claims and worked throughout the summer. Although there were in that district only a few inferior placer mines, yet he made more than enough to redeem the mortgage on his farm. But now he had no though of returning, as was his original purpose, for the country was already beginning to exercise over him the fascination which, to most of the older settlers, has made Colorado the one spot on earth in which they care to dwell.

The winter of 1859 he spent partly in Denver and partly in Colorado city where he built a small house, receiving as a bonus a number of town lots. The early spring was passed in prospecting tours, during one of which he found gold in abundance on the banks of the Cache creek, but lying in a bed of black sand, from which, without the aid of quicksilver, it could not be separated. With this he was not provided, and was therefore compelled to abandon his claim, which afterward passed into the hands of capitalists and proved to be of exceeding richness. Neverthe-

less, to Mr Tabor belongs the merit of the discovery, and on this spot, where was afterward built the town of Granite, he was the first white man to encamp.

But the most valuable service which he rendered in unfolding the mineral treasures of Colorado was in connection with the Leadville mines, discovered in the autumn of 1859 on the head-waters of the Arkansas, to which location was first given the name of California gulch. If not one of the actual discoverers, he is one of those who were first on the ground, and by his persistence, courage, and well-grounded confidence in its future has contributed perhaps more than any single individual to the prosperity of that famous district which, except for the Comstock lode, has added more than any on the Pacific coast to the world's supply of the precious metals.

To Leadville, or Oro city as was originally termed the single log hut which then occupied the site of this great mining centre, he removed in the spring of 1860. Word came to him from the discoverers that gold had been found at the gulch, and as provisions were scarce he was requested to bring with him his cattle, on which the party subsisted until a supply of flour and other necessaries was obtained. Here, though not without some reluctance, he made his home in what was then the very heart of the wilderness, and from which the nearest settlement was hundreds of miles distant. Before the close of the summer the gulch was filled with prospectors, betokening an abundance of precious metal. Notwithstanding the drawbacks of a scanty water supply and the briefness of the season, the ground was worked for several years, and with satisfactory returns. During this period much delay and inconvenience were caused by the heavy boulders which lay on the surface, and which the miners removed from their way, all unconscious of the rich deposits they contained in the form of carbonates.

Meanwhile other camps, as Buckskin, Hamilton, and Montgomery, sprang into existence almost in a

night. In 1861 the gulch contained a population of more than 10,000, and was now the mining centre of Colorado. Along the five miles of its extent, and on the side of the ridge, were thousands of tents and wagons. In the latter their owners slept, and under them were kept their provisions, while rough boards served as tables and boxes as seats—their only furniture. By the wayside gamblers plied their trade, three-card monte being the favorite game, and many an unwary miner was relieved of his store. But in these and other characteristics California gulch differed but little from other mining camps.

For a successful career in such a country and with such environment Mr Tabor's experience in New England, and later on the borders in Kansas during one of the most troublous periods of its history, was an excellent preparation. Here he was resolved to make his way, seizing every possible opportunity, holding fast to whatever he might undertake, and holding fast above all to the country.

For the first five years the settlers in Colorado about equalled in number those who returned to the eastern states, or made their way to Idaho, Montana, Nevada, New Mexico, or Arizona. They were continually coming and going, and it was considered as greatly to a man's credit if he remained and persevered. To say of a man that he was in the country to stay was, indeed, to give him the highest recommendation. A great many turned back before they had crossed the plains, and some soon afterward; but Mr Tabor belongs to the class who remained and helped to make the country what it is.

For about eighteen months he continued at work in California gulch, which besides being the first one discovered was also the best of the neighboring locations. One of the most remarkable features is that where the best pockets of gold were found there were afterwards discovered the best deposits of silver and lead Hitherto it had been supposed that they could

not exist in conjunction; but in Colorado geological formations have disproved many an accepted theory.

Having now accumulated several thousand dollars, and meanwhile located more than twenty mines, in the autumn of 1861 Mr Tabor opened a store at Buckskin, or as it was then termed, Buckskin Joe, in Park county, the latter name being that of the man who discovered the first mine in this locality. Here he remained until the placers were almost exhausted, when he transferred his stock of merchandise to the gulch, and in connection with his store took charge of the post and express offices. Meanwhile he continued his prospecting operations, if not in person with the aid of others, whom he furnished with supplies in return for a share in such claims as they might discover. For more than twenty years he had a number of men in the field, and to this purpose, indeed, devoted most of the profits of his business. Thus the success which awaited him a few years later was not, as his detractors would have us believe, the result of accident, but of persistent, intelligent, and well-directed effort. Such men fortune is apt to favor, bestowing her gifts on those who display the strongest calibre in the struggle of life, just as in battles it is said that providence is always on the side of the heaviest artillery. Moreover, if he had never engaged in mining he would doubtless have acquired a fortune by other means, for he had a natural aptitude for trade, was remarkably successful in his career as a merchant, and none knew better how to overcome difficulties, and to turn even adverse circumstances to advantage.

In 1873, for instance, when compelled for his own protection to assume a contract for 300,000 ties, to be delivered to the Pueblo and Arkansas Valley railroad, afterward merged into the Atchison, Topeka, and Santa Fé, he showed a remarkable business capacity in carrying to a successful issue that which, under less able management, had proved an utter failure. The contract had originally been awarded to a man

named Green, who, being largely indebted to Mr Tabor for supplies, and beset by clamorous creditors, assigned it to him for the benefit of all concerned, having perfect confidence in his ability and resources. During the following winter Mr Tabor took out from 40,000 to 50,000 ties, and placing on them a private mark, had them conveyed to Cañon city, together with those already furnished by Mr Green. Here the latter were attached, and only with much difficulty were arrangements made whereby they could be forwarded to their destination. And now came a still more serious impediment. After all the ties had been cut, several months were required to carry them to the point of delivery, and this must be done by teams, for no snow had fallen during the spring, and the river was too low for their transportation by water. A large force was organized, and notwithstanding all obstacles the work was carried to completion, and all the conditions fulfilled under his own superintendence.

In the spring of 1877 Mr Tabor was still conducting his store at Oro city, but with prospects that were not of the brightest. During the first five years the mines had yielded over $3,000,000, but later the output had rapidly decreased, and for 1876 was less than $20,000. In 1868 the discovery of a gold lode, named the Printer's Boy, had caused a ripple of excitement, but this had quickly subsided, and gradually the population dwindled until, at the time of his railroad contract, it did not exceed fifty persons. Matters began to look gloomy at California gulch, and but for Mr Tabor's unshaken confidence in its future, and the liberality with which he extended credit to all who deserved it, the camp would long ago have been deserted. Still the huge boulders continued to vex the soul of the miner, obstructing his labors and giving rise to much superfluous profanity. The character of the rock of which they were composed he did not for a moment suspect, or at least did not take the trouble to investigate.

Among the denizens of Oro city was a man named W. H. Stevens, who in 1876 discovered what he supposed to be a lead mine on the southern side of the gulch. From the boulders which lay on its surface he selected samples, which, partly from curiosity, he carried to the assay office of A. B. Wood. They yielded from twenty to forty ounces of silver to the ton. And now for the first time was disclosed the wealth contained in these boulders which had caused so much annoyance. Further explorations revealed the existence of richer ore and also of carbonates of lead in the hills surrounding the mining camp of Oro. Each of them took its name from that of the mine first located thereon, or from that of its discoverer, though afterward becoming the centre of groups of claims, clustered as thickly as around the Comstock in its earlier days. Thus Carbonate, Iron, and Yankee hills were called after the mines of that name, and Fryer hill from one of two men who staked out on it the first claim. In the gulches were also locations which afterward proved to be rich in veins of carbonate. The normal position of the lodes appears to have been in horizontal, or as they are termed, blanket veins, trending slightly to the east, and varying in thickness from a mere thread to thirty or forty feet.

It will be well remembered by all who took any interest in mining at the time these blanket veins were discovered, that they were considered a delusion and a snare. The theory had now become fairly established among mining men, that the vein must dip at an acute angle, and the nearer to perpendicular the better; and, also, that if the mineralized rock were not contained within walls of granite or granite structure, there was something wrong with it, and it would soon "peter out." The fissure vein at that time was regarded as inexhaustible, becoming richer the deeper the explorations proceeded; in a word, the peculiar country rock, the peculiar formation, and most of all, the peculiar angle of inclination which characterized

the Leadville deposits and caused them to be called "blanket veins," made most mining people in the west think that though they might be good for what was in sight, that would end them. This only goes to show that the science of mining has grown by experience, sometimes by accident, and I would not be surprised if there is as much yet to be learned about mining as has hitherto been learned. Certainly the development of these blanket veins at Leadville worked something like a revolution in mining ideas. Suppose it did not suit the fancy of the men who had preconceived opinions, to cut through one of these veins vertically and follow it along the horizontal place indefinitely, but rather to start on a regular vein at the surface, and proceed therefrom indefinitely toward the centre of the earth! Leadville's product in bullion has shown that these horizontal deposits are very important, to say the least, and their importance may be demonstrated to an extent at present not contemplated if it should turn out, as some predict, that these strata or beds of mineralized ore go down parallel one after another, and perhaps extending as far below the surface as does the one true fissure vein. But all this is merely speculation.

In the following year miners from the northern counties gathered in California gulch, and before winter it contained more than a thousand inhabitants. In June the first building was erected on the original town-site of Leadville, in which was soon afterward merged that of Oro city, and now the district began to assume importance. Shafts were sunk and excellent prospects disclosed; but as yet there were not half a dozen claims that paid for the working. To Mr Tabor belongs the credit of opening up the first valuable property that was systematically developed in the great mining camp of central Colorado.

In April 1888 two men, Rische and Hook, who in miners' phrase had been "grub-staked" by Tabor, or supplied with provisions in return for a share in

whatever they might discover, began prospecting under his instructions on Fryer hill, where were found most of the mines to which Leadville owes its fame. There were no surface indications, but following the line of the contact vein, which it was thought should cross the hill in a direction which he indicated, within a few days they struck ore at a depth of less than thirty feet. This they at once reported to Mr Tabor who examined the prospect and pronounced it extremely favorable. The men continued at work and soon developed a fine body of mineral, from which the first wagon-loads forwarded to the smelting works yielded $200 to the ton. After some $30,000 had been realized, the interest of Mr Hook was purchased by the remaining partners for $90,000, which amount was taken out within sixty days thereafter. Within a few months Rische's one-third share was secured by Chaffee and Moffat for the sum of $262,500, and the property placed on the eastern market. Finally Mr Tabor disposed of his own interest to the same parties, for the round sum of $1,000,000. With the further history of the Little Pittsburg, as the mine was named, this biography is not concerned.

In its vicinity a claim had been taken up called the Crysolite, in which one of the owners offered his one-fourth interest to Mr Tabor. The man had "salted" it, as doubtless Mr Tabor was aware before closing the bargain. Nevertheless, on account of its promising location he paid $9,000 for his share. While the former was congratulating himself on his success in disposing of what he deemed a worthless property, the purchaser after going down a few feet further, struck a rich body of ore, that eventually returned a clear profit of $350,000. Among other prominent mines in which Mr Tabor was interested is the Matchless, from which he netted an additional $500,000 and the Henrietta and Maid of Erin, both of which as late as 1889 were producing large quantities of high-grade ore.

From the time when eastern capital was introduced

into Leadville through the purchase of Mr Tabor's share in the Little Pittsburg, the future of the camp was assured. At first men wondered and hesitated, questioning the permanency of the district, and also whether the mines would hold out in depth. But soon a few of the more adventurous, who had invested their thousands, reaped millions in return, and now every hole in the ground that gave promise of striking ore found eager purchasers. He who was a pauper to-day might become a millionaire on the morrow, and the merest tyro had an equal chance with the veteran miner who for years had toiled among the hillsides and gulches, unconsciously spurning the fortune that lay at his feet.

Meanwhile Leadville had grown in proportion, and from a mining camp with a few log cabins in 1877 had developed, two years later, into a town of 20,000 inhabitants, with solid business blocks and costly residences, with banks, hotels, churches, opera-houses, gasworks, water-works, and all the adjuncts of a thriving and populous city. Far into the pine forests its suburbs were pushed, and lots which, in the spring of 1878, were slow of sale at $25, were readily purchased in the following summer for $5,000. Almost in the centre of the town was the site formerly occupied by the post-office, and the store of Mr Tabor, to whom more than to all others was due this wonderful transformation.

Says the Denver *Afternoon* of November 19, 1889: "Not only Leadville, but the whole state of Colorado, is under obligations of gratitude to ex-Senator Tabor for his unflagging faith in Leadville mines. Never has he ceased to push the work there. Night and day gangs of men have been at work under his direction and at his expense, digging, delving, blasting, prospecting for pay mineral, which Mr Tabor felt certain was there, when others laughed at his credulity. Day and night his money had been paid out; millions he has spent searching for pay ores, and often his

ready money has thus been eaten up, and notwithstanding his vast income and his unlimited resources there have been times when he was forced to borrow, and then the envious little creatures who always delight more in seeing men fail than in witnessing their success laughed and rubbed their hands and slapped their legs and poked each others' ribs, and told each other and everybody else that 'Tabor is busted.' And the would-be big politicians, fearing Mr Tabor because of his popularity with the people, set up the champagne for each other, and telegraphed all over the union that 'Tabor has become so involved that he cannot recover;' and thus did they hope to see him fail and fall. The fools! Tabor's popularity with the people does not depend upon his millions. Rich or poor, the men in the mountains will always respect and love Mr Tabor. He is never dishonest, never unfair, never tricky, either in business or politics; and he is ever liberal, no man ever more so, financially and politically."

But this is only the same old story in different form. Certain pioneers in the west open up the way, and make it easy for those who follow in their wake to do that which could not have been done had not a plain trail been marked out and trodden smooth for them. Horace Tabor and a few others, having intelligent faith in California gulch, and relying upon themselves to make the most of their environment, camp there. They discover gold first, and they mine for that metal altogether; later they find silver, and after that lead, which seems worthless at the time of its first discovery, but becomes a useful and lucrative factor among the other minerals.

Great smelting works are brought into existence by the presence of this mineral in composition with the more precious metal. The expansion of mining property, starting with a sluice here and a hole in the ground there; the consequent development of the little settlement from a few cabins made of green

logs, occupied by a handful of men only, into a city of over 20,000 people, doing business and dwelling in substantial, elegant buildings—all this is plainly an evolution, an evolution of ideas and labor. Evolution, once started, goes on by its own impetus; life, once infused into a locality such as this directly attracts vitalizing forces from those quarters which are always eager to contribute men and money; thereupon comes discovery, then more discovery, until, finally, we may say that the world of science, and all that can be utilized of human activity, is brought to bear on one point, formerly considered insignificant, to test the capabilities of nature's deposits and the knowledge of nature's laws. Evolution, in its workings through centuries as traced by Darwin—that sort of evolution which is altogether natural, and excludes human factorship—is an agreeable study; but how much more interesting to know that prodigious development, both of nature and of civilization, which is accomplished in a score of years! And also how conspicuous become one or two men as the factors who conceived and who gave momentum to this evolution, "staying with it," too, if I may be allowed to use the parlance familiar among miners, until all the ability of mining men and the mining district is taxed to its maximum for the production of material results! Horace Tabor, in this mixed evolution of natural resources and human ingenuity, stands out not only among those who were at the beginning, but also as chief among those who held commanding positions all through the history of this growth, and is to-day head and shoulders above all the rest.

During his later residence in Leadville, which terminated in 1881, Mr Tabor led a busy life. He organized the Leadville Improvement company, which owned a portion of the city, and laid out Harrison avenue, without which organization and action the town would never have possessed a single wide and regular street. He was identified for a time with the

Leadville bank, the affairs of which remained in a flourishing condition so long as he was connected with it, but which failed two years after he had disposed of his interest. A company of Leadville citizens began in 1885 the erection of a costly hotel to meet the wants of the travelling public, but were unable to carry the financial burden involved, whereupon he came to the rescue and furnished the means for its completion. With a portion of the $1,000,000 paid to him by Chaffee and Moffat, he erected what was then by far the finest and most costly opera-house in Colorado, thus displaying conclusively his confidence in the future of the city. Through his efforts also mains were laid and water introduced during winter, when the ground was frozen to a depth of several feet. Thus was probably averted a conflagration that would have rendered homeless 20,000 people and entailed unheard of suffering, for the town was then seventy-five miles from the nearest railroad and the intervening country was thickly covered with snow, rendering communication slow and difficult.

In all of these instances of activity displayed by Mr Tabor in the way of substantial improvements, such as met the immediate wants of the community and left a wide margin also for considerable future growth, I note a disposition in him which he posesses in common with all of those extraordinary persons who go spiritedly but judiciously ahead of the immediate present, preparing amply in advance for those needs and contingencies which can be fairly calculated upon by a man of broad and comprehensive views, and of ability to forecast subsequent requirements. I am all the more struck with the discretion and foresight of Mr Tabor when I consider the lack of those qualities manifested in the recent terrible conflagration at Seattle, Washington. There was a town or a city of remarkable enterprise, and of great business resources and activity, and it was a fair presumption,

until the contrary was made known, that Seattle possessed a competent fire department, and an ample supply of water to meet any emergency of fire. And yet within twenty-four hours the whole city, at any rate nearly the entire business portion of the city, involving a loss of perhaps $10,000,000, is consumed. How do we account for this dreadful oversight or lack of forethought? It seems hardly credible, only we know that it is true, that in that city of great prosperity and progress, and an inexhaustible supply of water available, the fire department comprised only two worn-out engines, and a command of only a meagre quantity of water for three or four hours' use.

In 1875 Virginia City, Nevada, suffered fearful loss, and would have been altogether consumed had it not been for its excellent appliances against fire, its excellent fire department and an unlimited supply of water thrown from hydrants under tremendous hydraulic pressure.

I have no record of a fire hitherto during the winter just referred to at Leadville, but it is safe to say that, considering the manner of life in the flush mining camp, and the character of hastily constructed buildings, the city located in a gulch might have fallen a victim to the devouring element and have been entirely destroyed in less time than it required for the destruction of Seattle. The point I desire to make in this connection in my study of the acts and features of the character of Horace Tabor is what this incident indicates. It shows pretty clearly that he belongs to that sort of men who alone could be depended upon for the advancement and solidity of the communities in which they chance to live, men who are never satisfied with the present merely, but who connect the present so intimately with the future that the two must be always considered together as inseparable, in other words, who ensure future safety by immediate provision against all reasonable contingencies or wants that may arise.

It was soon after the sale of the Little Pittsburg that Mr Tabor's thoughts were first seriously directed toward the yet undetermined metropolis of Colorado. He had a large capital to invest, and it was important to make a wise selection. He first seriously considered the advantages of Pueblo, and, had he so decided, Pueblo would certainly be to-day the capital and metropolitan city of the state. Though Denver already contained some 40,000 inhabitants, and was increasing each year with a steady and permanent growth, it was still an open question whether that city or Pueblo would take the lead from the incoming railroads and the development of the mines. The Leadville mines were tributary to the latter, for they were at the head of the Arkansas river on which it is situated, with the Topeka railroad complete to the town and a direct trunk-line outlet to the eastern states. Denver had no such advantages; there was no direct line and no railway in this direction, except a dozen miles of the South Park road, with the Rio Grande built toward Leadville as far as Cañon city. This was in fact the only route that Denver had, and the situation was fully understood, both by the Denver and Rio Grande, and Atchison, Topeka, and Santa Fé companies.

Both were eager to build up the Arkansas valley, while the Rio Grande claimed the priority of way in Grand cañon, through which it was supposed that only one road could be carried. War was declared against the Santa Fé, and so determined was each company to push on to Leadville that active hostilities were commenced and barricades and rifle-pits constructed. Of course they soon learned that this was not the way to settle the controversy, and then they carried it into the courts. Both parties were enjoined for a year, and the matter was finally settled by giving the right of way to the Rio Grande, and allowing the Santa Fé, if they so desired, to run over their track. If either had been allowed to push for-

ward at once, there would have been a road to Leadville over a year before one was actually completed, and everything would have come direct to Pueblo, which would thus have been made the metropolis, while Denver would have remained a comparatively insignificant town.

Meanwhile an opportunity had been given for the South Park company to go forward, raise money, and grade through the Platte cañon, which they did as rapidly as possible, and when the rush of travel came from the east, Denver was ready to receive it, and from Denver traffic turned southward up the Platte, so that the profits of the business almost built the road for a hundred miles. As quickly as the receipts came in ties and rails were laid down, until a point was reached within twenty-five miles of Leadville, where they must branch off to the Arkansas river. In the mean time the other roads had put forth their utmost efforts, but with the result of assuring to Denver the traffic with Leadville.

Perhaps Mr Tabor never displayed to better advantage than on this occasion what may be termed his genius of observation. No sooner was the controversy settled, and the South Park line nearing completion, than he foresaw that the commerce and railroad traffic, the courts and professional men, the mining interests and mining operators, and indeed everything else, must centre in Denver and Leadville, between which cities there must be a mutual dependence. All this he perceived before any other man in Denver, or at least before any one acted upon it. With him thinking and acting went hand in hand.

Having decided on Denver as offering the best inducements for the investment of capital, his next thought was to erect a class of buildings worthy of the future greatness of the city, for those as yet in existence were of an inferior description, most of them frame structures, few more than two and none more than three stories in height. With this view he pur-

chased the property on the corner of Sixteenth and Larimer streets, where now stands the Tabor block, and here he determined to build a large and sightly edifice of stone, one that would be an ornament to a great commercial metropolis. As yet no quarries had been opened near Denver, since for building-stone there was but little demand, but for this he would not wait; he was resolved to build at once a building that would be commensurate with the outlook of the city. He therefore contracted for the material with parties in Chicago, by whom each stone was chiselled and fitted ready for its place, even those for the sidewalk being forwarded with the rest. Thus was reared, like Solomon's temple, the first imposing business structure in the capital of Colorado, a magnificent, six-story building, with brownstone front, ornate but tasteful in construction, still in many respects the finest, and, with two or three exceptions, the largest in the capital. On one of the panels under the arch were engraved the words *Dies Faustus.* It was, indeed, a fortunate day for Mr Tabor, though there were few who believed it, for the venture was a bolder one than all the combined capitalists of Denver would then have dared to attempt.

While thus giving tone and direction to the commercial enterprise of Denver, assisting more than all others to establish there a commercial centre in which merchants of the better class would care to live and do business, Mr Tabor has also contributed largely toward the intellectual entertainment of her citizens. To him is due in a measure the reputation which that metropolis now enjoys as the "city of homes," the seat of a higher culture than exists to-day at any other point between the shores of the Mississippi and the Pacific. At this date there was but little of the intellectual environment which to men of taste and refinement is a necessary adjunct of civilization. Schools, churches, and libraries there were in abundance, but there were no societies for the advancement of art or

science; there was no museum or picture-gallery; there was but one concert or lecture hall, and there was not a single temple of the drama worthy of the name. It had long been felt as a reproach that at Leadville, Pueblo, and several other towns there were better theatres than at the capital. This state of things was one of the incentives that induced Mr Tabor to erect the opera-house which bears his name, an edifice of world-wide reputation, and among the most tasteful, convenient, and handsome structures of the kind in the United States. This he did at a time when there were few who cared for such amusements; few who appreciated them, though there is, perhaps, no higher source of instruction and entertainment than is conveyed in the masterpieces of Verdi or Meyerbeer, or in the plays of Shakespeare, when presented by men and women of genius; such performances, for instance, as were given at this very house by the Booth and Barrett company in the season of 1889. The building of the Tabor opera-house at a time when, I may say, an edifice of its size and finish could neither be filled nor properly valued by the small and unsettled theatre-going class in Denver, was an act of anticipation, of provision in magnificent form for the demands of a certain future.

The site chosen for the building was on the corner of Sixteenth and Curtis streets, a short distance beyond the business block; and in making this selection we have still another evidence of Mr Tabor's foresight and sagacity. At that time certain English capitalists, residents of Denver, were combining to force the town in the direction of the Windsor hotel, in which they had already invested more than $1,000,000. But in his opinion it was destined to extend in an opposite direction, toward Capitol hill, at the head of which he soon afterward purchased a large number of sightly locations. The soundness of his judgment has since been fully demonstrated, for the Windsor hotel is still on the outskirts of the city, while the

opera-house, on the site of which stood in 1879 an old-fashioned brick mansion, in the midst of an apple orchard, is now in the heart of the city of Denver, where from its position it is probably destined to remain.

Before undertaking this task Mr Tabor travelled in the east and in Europe, accompanied by an architect, visiting the principal cities which contained noteworthy opera-houses; he then made his plans, and gave orders that the building should be erected, regardless of cost, and in its construction displayed a comprehension and taste which no one had dreamed of before. Still, that he should master this problem ought not to surprise any one who understands the man. The scheme occupied his mind. The idea fascinated him. To develop it was a recreation as well as labor. He set himself to study, not to become an architect in the broad or technical sense, but to master all the practical details that would enable him to do just what he has done. By general reading and actual observation he got all the information that he deemed necessary from the experience and architectural work of others, and out of all he evolved his plan. In perfecting his design he displayed characteristic thoroughness and boldness in every particular.

The first company that came to Denver, and all that followed, pronounced it the most beautiful theatre in the world. Says an intimate friend of Mr Tabor's: "I once had occasion to see him on business, and found him seated on some framework, about where the dress-circle is now, and we talked about the building. I said: 'I was amazed at such a magnificent structure. What a thing you are doing for Denver in erecting such a building as this.' 'I am going to have it just as good and beautiful as money will make it,' he replied, 'but you are much mistaken if you think I am building this other than as a business undertaking; the public may not look at it in

that way, but I can say to you that I am building this for myself, and to make money. From one standpoint it is a selfish enterprise, perhaps, for I know that it is a good investment.'"

I have no doubt that Mr Tabor conceived and carried forward to the end his opera-house because, as he says, he looked upon it as a good investment. It certainly has proved to be so; but if it had been considered by him purely as an investment, and apart from every other consideration, I suspect that he might at that time have put his money into some other undertaking or undertakings from which he would realize at least as much remuneration, and this in a shorter time. Still, although I may be peculiar in my views of such things, I am, nevertheless, very clearly of the opinion that, had Mr Tabor built his opera-house for no other purpose than to make money, he did that for which he is entitled to the highest credit; and I say this not only from a consideration of the beneficial results growing from the fact, but from an analysis of the very motives which actuated him in the scheme. Considering the enterprise on its money-making basis alone, upon what did Mr Tabor calculate for his compensation? He must have said to himself, "I will build a great and beautiful edifice, a dramatic temple, complete and perfect in all its appointments. I will do this now by the expenditure of an enormous sum of money. How am I to be repaid? In what form will my profits come? They will be in the future, and they will increase not only in proportion as the city of Denver grows, but also as year by year, the fitness of the Tabor opera-house becomes more and more manifest, attracting intelligent and appreciative theatre-goers; in other words, according as the house I have built draws to it the lovers of dramatic literature and the students of dramatic art." This must have been one of the factors in his calculation, and, if I am not incorrect in this assumption, Mr Tabor has been conspicuously

and in a very practical and wholesome sense an educator. The drama compasses all that may be learned of what men do and say in their intercourse with each other; it presents in the best and most captivating forms the lessons of human life; to the extent to which it goes it affords an education of itself; and Mr Tabor, in providing this means of cultivation to a community, or by so greatly enlarging and improving the opportunities of dramatic culture in Denver, has only to be commended if he did conceive his scheme for the purpose of making money, for the reason that his expectations of profit could be reasonably based upon nothing but the very best ends that could be possibly proposed in the building of an opera-house.

But I cannot bring myself to think that Mr Tabor was purely selfish in this matter. I believe, rather, that he entertained a laudable ambition to do something which was good and progressive in order to distinguish himself, and which at the same time, in all probability, would compensate him fairly for his outlay. What does a man work for? Few men toil and struggle for the mere pleasure of piling one dollar on top of another, and surely the facts of Senator Tabor's life, and his reputation, indicate that he is not an accumulator in this sense. He has on every occasion evinced public spirit and liberality. There is greater satisfaction, I take it, to minds constituted like his in erecting a monument to his own judgment and honor than in the swelling of his bank account. He is not a man, if I understand him, who would prefer an investment because it would bring him into publicity, nor yet is he a man who seeks seclusion. Perhaps when he said to his friend that he was "after money and nothing else," in the erection of the most conspicuous and delightful building in Denver, he did not mean precisely what he said, and it would be only natural if, under the circumstances, he should be modest enough to disparage himself in this grand enterprise; or it may be that, overwhelmed with the

congratulations of appreciative people on the one hand, and laughed at by many short-sighted men on the other, it seemed the discreet thing to avoid compromising himself with either set. He could safely say, "I am putting my money into this, and I am doing it as a business man; whether I lose or win is my own responsibility." I think this is about the sum and substance of the whole matter. I know that Mr Tabor is not an egotist in the ordinary sense of the term, nor is he guilty of what is egotism simon pure, that is, the affectation of modesty. At this day, at any rate, I am sure that the architect and builder of the Tabor opera-house is more gratified by the beneficence of that institution as an educator and civilizer, than he is by the dollars and cents that are added continuously to his coffers by its use.

The building is of stone and pressed brick, 125 by 226 feet and five stories in height. From the roof is a beautiful view, extending over 200 miles, with Long's peak plainly visible and Pike's peak toward the south.

The opera-house proper is constructed upon the selected features of the Covent Garden theatre, London, and the Academy of Music, Paris, and combines the beauties and excellences of both. To the accomplishment of this purpose neither time nor outlay has been spared. Its cost in money was $850,000. To say that it contains every modern convenience is but the feeblest description; indeed it combines both convenience and elegance, is proportionately correct, conveniently planned, and with the minutest detail disposed of in a practical and artistic manner, constitutes a harmonious whole. The theatre entrance proper is from Sixteenth street, a large semi-circle arch with a span of sixteen feet, over which is a stone balcony supported by two polished granite columns, with elaborate capitals. Entering the vestibule we find an ample space of eighteen by thirty feet in size, floors tiled and walls handsomely wainscoted with marble to

the height of six feet. At intervals of about ten feet marble pilasters extend to the ceiling, supporting lintels of the same material, intermediate space being tinted a light terra-cotta.

Elevated ten steps is the foyer, a carved cherry screen separating it from the vestibule. The foyer is also tiled, and wainscoted full height with cherry. It is lighted from a large domed skylight glazed with cathedral glass. On entering, to the right is the ticket office. On the left is the ladies' reception and waiting room, with lavatory connecting. The auditorium is eighty by eighty feet, sixty-nine feet high from parquet floor to ceiling, and is in division of seats as follows: parquet, dress-circle, balcony, gallery, and fashion boxes, the last opening from three tiers. The seats are so arranged as to give an excellent view of the stage from every part of the auditorium, and the acoustic properties are unsurpassed. The whole of this vast amphitheatre is finished in natural cherry, hand-carved, and richly upholstered and carpeted, ceiling and walls neatly frescoed.

The proscenium is thirty-four by thirty-four (opening) with a splay of about seven feet framed by elaborately carved cherry columns which extend to the ceiling. The ceiling is divided by beams, in the centre is a compressed dome; immediately below is a large crystal chandelier with over 100 jets, the heat from which creates an upward current and materially assists in the ventilation of this area. The auditorium is ventilated with a fan, fresh air being forced in through small registers equally distributed over the parquet and dress-circle floors, thus equalizing the temperature and purity of the air; the fan is used in winter for driving the heated air through the registers; in the summer it supplies fresh cool air instead. The heating is by means of steam, being uniformly distributed by indirect radiation. The entrances and exits are from the rear of auditorium out through the main entrance, and from landings to alley, also fire escape

from balcony and gallery to alley. The stage is eighty by forty-five feet, including space for wings, etc. Total height is sixty five feet from stage, height above proscenium being used for manipulating flies, etc. This part is ventilated independently of auditorium. Stage entrance is from Curtis street. From this entrance waiting-rooms, dressing-rooms, lavatories, etc., connect with passage. There is also an entrance from alley for paraphernalia. The mechanical arrangements are of the very best, and everything connected with the theatre is most complete. It is a modern achievement the thoroughness of which characterizes its projector. Its completeness, stability, and beauty are a manifestation of the builder's faith in the queen city, and in himself.

The roof is of tin, and that of the cupola of slate, with sides of tin. All the floors are double, the upper layer of each one being of ash. On the ground floor is a great number of offices, with several large stores. The theatre will seat 1,500 persons, and from every seat is a full view of the stage.

In 1885 a conflagration occurred in Denver, which damaged the building to the extent of several thousand dollars, and but for Mr Tabor's care and foresight in plan and construction would have burned it to the ground. At the time the "Boston Ideals" were playing, and such was the confidence of the people in the precautions taken for their safety, that on the very night after the fire the audience was the largest one of the engagement. Hose can be attached to the top of the building and water thrown to the height of fifty or sixty feet above the roof, beyond which rise the partition walls, making it as nearly fire-proof as possible.

The fire-room contains four boilers, which heat the building and furnish power for the pumps and engines. One large Worthington pump supplies water for the elevator, and, if needed, can be used in case of fire. Another is for house-water service, and a third to

supply the boilers. The engine operates a no. 8 Steudevant blower for purposes of ventilation. The engine-room also contains a large heater, giving hot water for the baths in different parts of the building. This water can be heated either by the exhaust from the pumps and engines or by steam. The heater receives its supply from a large tank on the top, and the heating is done by the low pressure return system of steam-heating. The supply pipes are so arranged that the heat can be regulated in any part of the building from the engine-room.

His business block and opera-house completed, Mr Tabor resolved to build up the city in the direction of Capitol hill, and partly with this object in view erected thereon an elegant and costly residence, commanding one of the most beautiful and extensive views in the world, with the Rocky mountains clearly visible, when outlined by their mantle of snow, for a distance of two hundred miles. In the spacious grounds, which occupy an entire square block between Grant and Sherman avenues, groups of maple, elm, and ash cast their shadow on the trim and spacious lawn, while evergreens, flowering plants, and creepers almost conceal from view the porches of the dwelling. Not only from its location, from the glory of the surrounding landscape, but also from the beauty of its design and the tastefulness of its environment, the Tabor mansion is one of the choicest homesteads in this city of homes.

Of no man in all that prosperous city can it be more truly said that he has created wealth. His enterprise and foresight, his soundness of judgment, and his perfect confidence in the future of Denver have enriched the city generally, and especially those citizens who own property on the line of Sixteenth street. At first the more conservative of her capitalists shook their heads. "He does not know what he is about," they said; but ere long it was seen that Mr Tabor knew perfectly well what he was about. He was about getting rich, or rather, adding

to his riches, and to those of others who had the discretion to follow his example. Presently, visitors from the east and abroad admired and commended his judicious and well-timed investments, and then his critics began themselves to purchase real estate in the quarter of the city which had been selected by him. Large amounts of English capital were profitably invested by his advice in Denver and elsewhere in Colorado. The state or the capital of the state at almost every point in his career received some benefit. Yet, notwithstanding this, which everybody recognizes, there are few men who have been so persistently disparaged, or with whose affairs there has been so much officious intermeddling.

The following paragraph from a leading journal of New Mexico is suggestive, and will be referred to further on:

"Governor Tabor of Colorado seems to be public property in that state, and the people and press of Denver are attending to the private business of the millionaire with an assiduity that is remarkable. He cannot discharge an employé, buy a carriage, or hire a servant but his action is commented upon and generally condemned. Tabor may not be a saint, but the benefit he has conferred on Denver should protect him from these contemptible assaults. Ordinary decency and common gratitude seem to be forgotten by his self-elected critics, and it will not be surprising if they, at an early date, insist on dictating his bill of fare and regulating the cut of his clothes."

"Ever foremost" is the heading of an article in a Denver paper of June 1883. "Through Senator H. A. W. Tabor's enterprise the first artesian well in the city of Denver is secured." The article then goes on to explain that the question of obtaining water by means of artesian wells had been occupying the minds of the people of Denver, and that, as usual, while others were only talking of it, Mr Tabor had gone forward and solved the problem by boring to a

depth of 390 feet, below the opera-house, and reaching a good flow of excellent water.

In the exposition of the National Mining and Industrial association, held at Denver in buildings costing $200,000, Mr Tabor was among the foremost of its promoters. Says a correspondent of the Albany *Journal*, speaking of this enterprise: "It is an undenied and undeniable fact that there are no score of men in the state who have done so much altogether as this man Tabor. It is wonderful how he has instituted and encouraged business enterprise all over the state, building magnificent business blocks in various cities, starting furnaces and smelting, creating banks and encouraging manufacturing; but it is in developing the mines where he has been of incalculable benefit. He has also aided many individuals who have subsequently grown wealthy and powerful, and who have a great relish for sneering at him now, but who, without his assistance, would never have emerged from poverty and obscurity. Criticism, therefore, of Mr Tabor ill becomes any citizen of Colorado, for there is not a foot of land in the state that is not more valuable from what Tabor is and has been, and there are few people in the state who have not profited by or are under obligations to this successful pioneer and public benefactor."

In 1885 was organized the Tabor Investment company, which is probably the most conspicuous and important mining association in the world. The officers are H. A. W. Tabor, president; Peter McCourt, vice-president and treasurer; T. L. Wiswall, secretary; and L. Seaman, superintendent. The business of the company is the buying and selling of mines, and the filling of orders for capitalists in all quarters of the world. The company has agencies in New York, London, Paris, and Amsterdam. In America it has a reliable corps of mining experts searching the mineral regions for choice properties, and it controls mines

in Colorado, Mexico, Nevada, New Mexico, California, Utah, and elsewhere in all parts of the continent.

Among others, the company owns the celebrated Poorman mine of Boulder county, which has been paying $5,000 a month in dividends, working only ten men. It has recently disposed of its rich Ni Wot group of gold mines in Boulder county, with a fifty-stamp mill, to English capitalists for $1,000,000. This property has already produced over $1,000,000, and should pay dividends of at least $10,000 a month. The company has also 640 acres of placers in the San Miguel country; and with mines everywhere, and dealing only in paying properties, it is difficult to conceive of an association which is capable of doing more for the advancement of the state.

In addition to permanent improvements in Leadville and Denver, to the extent of many millions, and of real estate the present value of which cannot be readily computed, Mr Tabor is the owner of 460,000 acres of land in southern Colorado, and of many valuable mining interests in Leadville, Aspen and elsewhere, not only in that state but also in new and old Mexico and in Arizona.

Among his more recent acquisitions is the Vulture mine and mill in Arizona, purchased in the spring of 1889, but of which, through the machinations of an English company, and the treachery of an agent to whom he had intrusted his power of attorney, an attempt was made to defraud him. Placing the matter in the hands of his superintendent, he gave him the following instructions: "Do not endanger your life in the matter, for the mine with all its wealth is not worth a life; and do not permit any lives to be taken under any circumstances. Do your best, however, to capture the mine, and after you secure it hold it at all hazards." By such peaceful and judicious measures the property was secured to its rightful owner, and thus another rich mine will contribute its treasures to increase still further Mr Tabor's ample fortune.

Perhaps, however, the property which will eventually prove more valuable than all the rest is the grant which he secured, in conjunction with others, from the government of Honduras, in return for establishing a line of steamers on one of the main rivers of that country. The extent of the grant depended upon the distance navigated, and small steamboats of light draft were built, which could ascend the stream for 250 miles. An eastern journal remarks: "His interests in Honduras are immense. He owns four-tenths of 360 square miles of magnificent territory in that country—territory that is inexhaustible in mineral wealth, mahogany timber, and otherwise. The cost of placing this vast quantity of mahogany on the markets of the world will be but trifling. In fine, the combined interests, mining and otherwise, of Mr Tabor will make him the richest man in America in ten years. When asked if these many great concerns did not give him much mental trouble and anxiety, he said no, that when the business of the day was over, he dismissed from his mind any further consideration of them, and consequently went forth fresh in the morning, prepared for any emergency. It is almost staggering to hear him talk of millions as glibly and unconcernedly as other men talk of hundreds. Mr Tabor is far from being visionary. His conversation displays to the observer a man of excellent practical ideas. He does not look like a man whose head would be easily turned by the course of events, whether these events should lift him to the highest pinnacle of fame in the councils of the nation, or make him the greatest moneyed king of his day."

In concluding this sketch of his business enterprises, it should be mentioned that Mr Tabor has a large interest in copper-lands in Hardeman county, Texas, containing rich ore, that in 1889 he was elected president of the Aspen and Southern railroad company, and in the same year to the presidency of the Denver Resort railroad.

While recounting the leading incidents in the life of one whose priceless boons to his adopted city and state have been but ill-requited, some mention is required of his domestic relations, which in common with his business and political career have given rise to acrimonious criticism. On the first of March 1883, being then divorced from his former wife, on whom he had made a handsome settlement, Mr Tabor was married to Elizabeth Bonduel McCourt, at Washington, where, as will presently appear, he was then United States senator from Colorado. The wedding was a brilliant affair, and was celebrated in the parlors of the Willard hotel on the evening of that day. The ceremony was performed by Father Chappelle of St Matthew's church, amid a fairy-land of flowers into which the parlors had been transformed. The bride, a blonde of rare personal attractions, wore a decollete robe of heavy white brocaded satin trimmed with marabou feathers. The *ensemble* was striking, her exceptional beauty rendering the toilet brilliant in its simplicity. Among the guests were the president of the United States, Mr and Mrs McCourt, father and mother of the bride, Mr and Mrs Haben, her brother and sister-in-law, Philip, Peter, and Claudie McCourt, and other relatives and friends. Mrs Tabor was at this time twenty-one years of age, of full, fine figure, with dainty hand and wrist. Her dark golden hair was plentiful, lending a fine effect to the large, expressive blue eyes. Her features were perfect, particularly the mouth, her smile being exquisite, showing small regular teeth of dazzling whiteness. Says the Washington *Post*, "The bold originality of the method and hour of celebrating his marriage, and the splendor of its surroundings are exciting much comment, and none that is not favorable to the senator's taste and independence. Those who have met him personally have learned to appreciate his amiable and frank character, united to a clear, quick mind." Another journal speaks of the lady as "one of the

most beautiful women that ever entered Washington society." The senator's gift to his bride was a diamond necklace worth $90,000.

Mrs Tabor is as lovely in character as in person. She is intelligent and refined, of an amiable disposition, kind-hearted, and a most devoted wife. Of her two daughters, Elizabeth Bonduel Lillie Tabor, the elder, was born on the 13th of July, 1884, and the younger on the 17th of December, 1889.

"The pictures that have appeared in papers of the present Mrs Tabor are simply caricatures," says the Albany *Journal*. "She is without doubt the handsomest woman in Colorado. She is young, tall, and well proportioned, with a complexion so clear that it reminds one of the rose-bush mingling with the pure white lily; a great wealth of light brown hair that is always dressed in a simple but artistic manner and shows that it grew on the head that wears it; large, dreamy blue eyes, and which sometimes kindle with enthusiasm, twinkle and flash like that brilliant gem that fastens the lace about her swan-like neck; a Mary Anderson mouth and chin and a shoulder and bust which no Colorado Venus can compare with; delicate feet and a tiny hand with tapering white fingers and I have done with this pen-picture, except to add that she is unostentatious; that she dresses richly but in perfect taste, and that when she walks she moves as majestic as a queen. She shows also a sweet disposition and an affectionate and genuine nature."

Peter McCourt, Mrs Tabor's father, was a native of Armagh, Ireland, where he was born on the 4th of June, 1818, his parents taking him to Canada when he was two years of age. Thence he migrated on reaching manhood to Utica, New York, where he began business, afterward removing to Buffalo, then to Milwaukee, and in 1849 settling in Oshkosh, Wisconsin, where he died May 14, 1883. He was long engaged in the clothing trade, and amassed considera-

ble wealth. Of his fourteen children twelve survived him, Mrs Tabor being the fourth daughter. He was a man of sterling worth, active in every good work, prominent in politics, energetic and shrewd in business, a fond husband, a loving father, and an upright man. His children are most of them well settled in life, and all of them of the highest respectability.

A round of festivities at Denver, Leadville, and elsewhere welcomed home the senator and his wife. Political demonstrations, receptions and seranades everywhere testified to his popularity and to the approval of his course at Washington. At Leadville, as a mark of respect, the bridal party was met at the station by the Tabor light cavalry and the Tabor hose company, and escorted to quarters prepared for them.

To his wife and children Mr Tabor is greatly attached, and in their beautiful residence on Capitol hill is presented a picture of quiet and contented domestic life such as is rarely witnessed anywhere. Always ready and willing to contribute to the happiness of others, and possessing that real charity which makes every deserving person a neighbor, they are free from intolerance and bigotry, kind at heart, cultivated in mind, refined and simple in their tastes. From beneath their roof there is a constant radiation of good influence and generous acts, noiselessly giving cheer and aid.

Of Lillie, or, as she is usually called, Baby Tabor, it may be said that she is an exceptional child, a feature of Denver society, of Colorado society I may say. Her budding life is, moreover, an incident inseparable from that of her distinguished father, hence this alone justifies some mention.

Remarks the *Graphic*: "She is a child of rare beauty and brightness, attracting attention wherever seen. During the visit of Thomas Nast to the family last fall, he was so struck with the little one's sweetness and exceptional beauty, that upon his return to

New York he made a full page drawing of her for the *Bazaar*, which many may have seen in the holiday issue. Receipt of a copy of the paper by mail with Nast's compliments, was the first intimation Mr and Mrs Tabor had of the picture, as the artist had dropped no hint of his purpose while there.

"Baby Tabor is now two and a half years old. She is the child of her father's later years, and of course his idol. She is a laughing, winsome thing, with large, bright, sapphire-blue eyes, shaded by long, black lashes, and light golden, curly hair, a typical blonde. Her features, which are as nearly perfect as can be, wear an expression of roguish sweetness that charms every beholder. Her middle name, Bonduel, is that of the Wisconsin clergyman who baptized Mrs Tabor. When three months old Baby Tabor was taken to Oshkosh, to be christened in the old church which Mrs Tabor's father had built, and in which she had been baptized. The robes in which she was christened were marvelously fine, being of the most costly point lace, covered with a cloak of white embroidered velvet, trimmed with point lace and marabout feathers. Her tiny hat was of the same material. The baby's wardrobe at the present time consists of fifty lace robes and dainty velvet gowns of the richest description. She has a profusion of jewels, of rare and unique designs, and of great value, presented by her father and from friends everywhere, even from Europe; and every pin placed in her clothes is garnished with a diamond. The parents have dressed her lavishly, but considering their wealth not extravagantly If this is a weakness, it may be readily excused in them. At all events, it is strictly their own affair, and their judgment therein is entitled to some weight, possibly it should be conclusive.

"Yet for all that she is not a spoiled child. She has never been under the care of a nurse, Mrs Tabor preferring to perform all the duties of mother and nurse herself. She is a merry, good-natured child,

and goes with her parents everywhere. She attends the theatre very often, and seldom cries during an entire performance. Whenever she gets her hat on at night, she exclaims 'opera!' meaning that she wants to go to the play. One night last year, half an hour after the curtain had gone down upon Maggie Mitchell's 'Fanchon,' the writer of this saw ex-Senator and Mrs Tabor and Mrs McCourt standing under the shadow of an electric light, while the baby in rich, short robes was dancing merrily and pointing to her shadow on the ground, in imitation of Maggie Mitchell in the play. She is probably the widest known baby in the west. She has been photographed by all the leading artists in Denver, and the pictures have found their way everywhere, even into foreign lands. An artist in Italy has lately reproduced one in marble. The baby, strangely enough, always poses herself for a picture without assistance. She is very fond of flowers, and will cry if she sees a rose picked to pieces. May her beauty and grace never depart, and her whole life be long and as free from trouble as her childhood."

Baby Tabor was made a daughter of the regiment, being adopted by the Tabor guards of Boulder, as is testified in the following communication addressed to Mr Tabor, on the 15th of July 1884. "In honor of the advent of Baby Tabor, the Tabor guards beg leave to send you a slight testimonial in the form of a medal commemorative of the happy event in your family. The Tabor guards also desire to file here and now its purpose of relieving you and your estimable wife from the cares and burdens of said baby by adopting it as the daughter of the company. Temporary care of our adopted daughter shall be entrusted to Mrs Tabor, for whom the company shall ever ask good health and continued happiness and our best wishes for the health and happiness of the baby, and that your hopes may reach a glad fruition in her growth to noble womanhood."

On the 22d of February, 1882, Mr Tabor invited the children of Denver to a grand matinée performance of "Pinafore." The opera-house was packed, 2,000 finding admittance and 1,500 disappointed ones left outside. Glancing at the spectacle the senator turned to a friend and said: "I never was more pleased in my life, I only wish we had seating capacity for 5,000."

Let us now turn to his political career, for in the arena of politics, as in business and mining, Mr Tabor has been a very conspicuous figure. Of the part which he played when a member of the Topeka legislature in Kansas, mention has already been made. As mayor of Leadville, to which position he was chosen soon after its incorporation, and as treasurer of Lake county, he rendered such excellent service and contributed so generously toward public improvements and to the support of his party, that in 1878 he was elected on the republican ticket the first lieutenant-governor of Colorado. This office he filled in a manner befitting its dignity, and by all it was admitted that, as ex-officio president of the senate, he was one of the most able men who ever guarded its deliberations.

In January 1883 he was chosen United States senator for the short term by the Colorado legislature. His career at Washington was such as to command the respect of all, and he was regarded both within and without the walls of congress as a man of shrewd observation and of a high order of intelligence. In the society of the capital he assumed his appropriate place among the best and broadest men at once, with a dignity and ease characteristic of him, and gratifying to the new circle of friends among whom he was placed by a grateful constituency.

Perhaps the esteem in which he was held was never more clearly displayed than at a banquet which he gave at Willard's hotel on the evening of the 24th of February 1883, among the guests being the presi-

dent of the United States, members of the cabinet, foreign ambassadors, and a number of senators. In describing it the Washington correspondent of the *Evening Chronicle* says: "As an entertainer his recent banquet at Willard's is proof that he is not a novice in hospitality. His choice of guests indicated the discrimination of a veteran in social life, and the quality of the creature comforts was correspondingly choice and costly. Mr Tabor is the first Colorado senator, probably the first of the distinguished body with which he has had too brief connection, who has entertained the president with a large company of congenial guests in a manner that was so consistent in its refinement and liberality. During his brief connection with senatorial life Mr Tabor has been an example of industry, and shown a careful appreciation of his high position."

Among the bills which the senator introduced were one to provide for the establishment of a military post in western Colorado, and another for the protection, preservation, and extension of the forests of the United States. He attended strictly to business and devoted himself to the interests of his constituency. His term of service was brief, but he accomplished all that any man could during his incumbency.

In 1884 Mr Tabor became a candidate for the governorship, entering into the great contest between Senators Hill and Teller for the control of the delegates for the state convention, and had their promise of support, but was afterward betrayed by his pretended friends, causing the nomination of Eaton. Notwithstanding this disappointment, two years later he accepted, very reluctantly, the chairmanship of the state central committee, and during this campaign twelve state officers were elected by large majority. He continued to act as chairman of the state central committee for two years, during which the party was more thoroughly organized than ever before in the history of the state. As a consequence, the repub-

lican party was overwhelmingly successful in local as well as general elections.

In 1886, also, at the urgent request of his friends, he again became a candidate for the senatorship, under a promise of support from many members of the legislature. On this occasion the most powerful corporations in the state combined against him; this they did because he was known to be a friend to the people.

In 1888 a demand went forth from the people and the press of the state, that Mr Tabor should be nominated for governor. Mr Tabor did not desire to be a candidate, but the solicitations of his close friends becoming so urgent, and the unanimity of feeling among the people so demonstrative throughout the state, he very reluctantly allowed his name to be used, under the promise that his party would not throw any obstacles in the way of his success, and went to the convention with the firm support of the most loyal element among the republicans. On the first day's balloting he received the highest vote, and would undoubtedly have been nominated but for a motion made for adjournment. This was at first voted down; but the delegates immediately began to vacate the hall—three-fourths of them were on the outside, when a small minority moved for a reconsideration of the vote, and that an adjournment be made until the next morning. The motion was declared carried. A more dastardly proceeding never before occurred in any political convention.

During that evening all the elements in opposition to Mr Tabor worked to compass his defeat. They made all sorts of overtures to his friends and succeeded in influencing the less stable among them, though the counties above named, and his staunch and loyal supporters in his own and other counties, stood by him manfully, and no influence of any kind could move them. The convention met the next morning and numerous ballots were taken without result. During an adjournment, however, a combination was

formed against him, and through the withdrawal of other candidates in the afternoon session he was defeated by Cooper, though he had one hundred and sixty-seven votes on the last ballot, including his old reliable and trusty adherents, who have since been known as the old guard of the republicans. His friends did not consider it a sacrifice, and they would be ready to go through the same contest again, and would stand by his colors just as firmly and valiantly.

Referring to the campaigns of 1884 and 1886, a prominent citizen of Colorado remarks: "He has been vilified more than any man ever was before in politics. The sleuth-hounds of those whom he refused to serve have followed him into his private business, to try to wreck his fortune. The sanctity of his family life has been invaded and made a subject of public criticism and attempted ridicule. The leaders of the party in the state have slapped him on both cheeks and spat in his face. But he has never wavered in his allegiance to his party, to the state, to the people, nor to his manhood, in the maintenance of principles, regardless of personality. At times he has appeared to me in the light of a stoic, except that his philosophy has been rather that of earnestness than of indifference.

"In 1884 when he was a candidate for governor, he was needlessly assailed in two or three public speeches made by prominent leaders of the party. He felt these assaults keenly. He was shamefully treated in the state convention, and if ever man had cause, from the heaping of insult on injury and perfidy on injustice, to desert a party, he certainly had in the campaign of that year. Far from such a course was his policy. No sooner had the convention adjourned than he set himself to work to bring about a compromise in Arapahoe county, which he effected, and then he gave freely of his money and his time to elect the ticket. Before he would accept the chairmanship of the state committee in 1886, he received

the personal pledge of all the prominent party men of the state, that they would help him in the campaign. Unfortunately those pledges were not kept, and except from ex-Senator Hill, he received but very little aid from the party leaders. He bore the burden of the compaign himself without complaint, and worked day and night for the success of the ticket. Two-thirds of the campaign expenses he paid out of his own pocket.

"It is, perhaps, useless to comment on the result of the campaign of 1885, but such confidence, respect, and affection have the rank and file of the party in the state for ex-Senator Tabor, that it is safe to say that, had he not been chairman of the committee, a good portion of the ticket would have been defeated. An incident occurred in the campaign which illustrated the unselfishness of the man and his devotion to duty and to party. One of the candidates on the ticket was an editor. In 1884 when Tabor was a candidate for the nomination for governor, the candidate referred to had bitterly denounced him. Tabor had never seen these articles. Naturally such assaults read for the first time would arouse a spirit of revenge in almost any man. Tabor read the articles, put the papers away and said not a word to any one about them until after the campaign was over. The candidate referred to did not pay his assessment. Tabor made up the amount himself and paid the expenses of holding meetings for him in the principal towns in the state. But I fancy that Mr Candidate may be still among the unconverted. That Gulliver cannot seem to a Lilliputian anything but monstrous is only natural after all.

"The time has come in Colorado politics, we hope, when such men as ex-Senator Tabor will be treated as they deserve. There is no position in the gift of the party which he has not earned, and to which by all rules of right and justice he is not fairly entitled. The repeated attacks on Tabor have led a great many people to believe that he is not adapted to public life.

Few men in the state are better adapted to it. He has splendid executive ability and abundance of tact, is well posted on matters of public importance, has clear, keen perceptions, and an inexhaustible fund of good humor. He is an entertaining companion, a true friend, and a sincere man. He impresses every person with his frankness and has great control over those with whom he comes in contact."

Let us hope that the time may come when justice shall at length be done to Senator Tabor, who has so ably and continuously labored in behalf of the people as against the oppression of monopolies. As the champion of the silver interests, he was the president of the last great convention held in Denver to prevent the Cleveland administration from demonetizing silver, or further restricting or suspending the coinage of silver money. He has always advocated, and has visited Washington at his own expense to urge upon congress the passage of a law providing for unlimited coinage.

As the United States is the greatest producer of silver in the world, he deems it bad policy to allow a foreign government, and that one the largest purchaser of silver, to set the price on this metal and degrade it to a commodity. America is fully able to sustain the unlimited coinage of silver, and if the people of Great Britain want bullion let them pay a full price for it. We are in a position to maintain the dignity and the price current of the silver dollar, in whatever volume they may issue from our mints, if our own government will legislate without fear of England and Germany, and at the same time give the mines a chance. Is Uncle Sam so poor that he cannot afford to accept the miner's bullion and give him its equivalent in dollars, the cost of coinage deducted, or still better, not deducted?

Cheap silver bullion with us is like a two-edged sword: England takes the silver to India and exchanges it for wheat and cotton, and we are thrown

out of the market. Open our mints to silver; coin all that is brought. The reason why this is not already done is that congress cannot come to the conclusion that we are a people, a nation able to take care of itself. Another reason is that in the east a large portion of the people, particularly those who have money to loan, would much prefer the one standard. For, should you wipe silver from the earth, the value of gold is doubled, and gold securities will have to be paid in gold. If silver were thrown out of existence no man could pay his debts. The credit class would own everything. Unlimited coinage never would place silver at a discount; 412 1–2 grains would be a dollar the same as to-day. The effect of the unlimited coinage of silver, which will probably take place ere long, would be prosperity unparalleled. Times would be equal if not superior to the state of things following the war. Grain would advance, for Great Britain could get no more cheap silver. Wheat would never again be as low as it is now. Congress is responsible for the suffering of our farmers in this respect. With free coinage, manufactures as well as mining would be stimulated; likewise agriculture, as there would be a greater demand for all our products. Many consider this a local question; on the contrary it is national. For example, demonetize silver so that it would not be worth more than fifty cents an ounce, and what would be the result? The emporiums that furnish us with articles we need would be closed, and here would be a population of several millions who would be thrown out of occupation. What would be the result? They would flock back from the mountains into the crowded cities where these markets had been closed, the money-lenders meanwhile foreclosing on all who were in debt. The picture is appalling. Let the people look to it. These are the senator's views as stated by himself; there is no doubt, as he says, the question is a national one.

As in business affairs, so also in political matters,

Senator Tabor has not lacked ability. Both his judgment and his will have been sufficient. He has been handicapped by the very thing which should have entitled him to the very highest consideration—his own integrity of purpose and loyalty to friends. If my information is correct, and I feel sure it is, is not the senator to be congratulated? It would be difficult to add much to the distinction of his political career as already recorded; every office he has filled has been dignified by his incumbency. It is decidedly better for him not to be made governor, or to miss a second term in the national senate by the treason of party or personal friends, than to win either preferment by playing their own game with traitors and ingrates. The glory of Socrates was that he preferred to die rather than accept his liberty on terms that would demean him in the estimation of good men. "I am certain," said he, "if I should have engaged in politics I should have perished long ago. He who will really fight for the right, if he would live even for a little while, must have a private station and not a public one."

Senator Tabor's temporary failure to reach the point proposed in politics, as paradoxical as it may seem, is not due to his want of knowledge of men. His estimate of people I find to be as correct as his judgment in affairs. His faculty in the former regard has contributed no less, I take it, than in the latter, to give him power and influence. I question if there is a man in public life in Colorado who has a more thorough understanding of political matters, or a more exact knowledge of politics than he possesses. But we have only to run our eyes down the list of men eminent in national politics, as well as statecraft, to find abundant and striking examples of wounds inflicted within party lines and among ostensible party and personal friends. There are so many ways that are dark; there were so many combinations against him, made by individuals and corporations of such

seductive force, that it can be easily understood how he could be thwarted in his ambition. Those who Mr Tabor's judgment told him would be true proved so in every emergency. Those whom he did not know and whom circumstances compelled him to depend on, furnished the reeds that broke when pressure came.

Let the people of Colorado consider for a moment what they owe to Senator Tabor. Let the people of Denver consider what their city would be to-day had he never left his farm at Manhattan. I do not say that there would be no Denver had he not come hither; but it has been clearly demonstrated that the city here built would be little like the present queen of the plains, if he had had no hand in the fashioning. When the balance of power and popularity was trembling between this and other places, who but he directed public opinion and imparted confidence by the investment of millions? Suppose that just at this time, the young and impressionable epoch of city-building, he had thrown his strength and influence elsewhere; suppose he had said of Pueblo, for example, "Here is the place for Colorado's great city; here is the place for the political as well as the commercial metropolis" and had there erected the magnificent blocks of buildings which bear his name, buildings in every way far superior to any usually found in places far more advanced than this Rocky mountain town; it requires no great prophet to determine what the result would have been.

A man like Senator Tabor, whose adaptation of powers and capabilities to the minds of the masses was no less conspicuous than his inherent genius and superiority of judgment, becomes not merely a leader or representative of other men's minds, but one who frames their opinions. It is difficult to find flaws in a course of action which is constantly creating wealth by the million, not only for himself but for his fellow-citizens. There is no argument so overwhelmingly

convincing as a brilliant and uninterrupted success. If therefore during the period of his earlier prosperity Mr Tabor had said: "Here it seems to me should be the place," or "there is the fittest spot for the metropolis," and had supported his opinion by investing his money in accordance therewith, such words and acts, emanating from such a source, would have been sufficient to make it so.

As the community grows, and new elements and individuals spring up with broader industries and expanded ideas, the later-comers are sometimes apt to forget what they owe to the original founders and builders of empire. Like the bending of the twig, or the direction given to the training of a child, small things sometimes produce great results in the earlier development of a city. It behooves not the later-comers in a community, who through good fortune or superior ability rise to honor and distinction, becoming prominent in politics or leaders in society, to allow their conventionalisms to run away with their common sense and their sense of fairness and justice.

Nowhere has it been the case more than in Colorado that the acquisition of wealth depended, not so much in studying the almanac of Poor Richard, or in following the maxims of bygone days concerning industry, economy, and the rest, as in seizing opportunities, in possessing the intelligence to know and the ability to do. This is not luck, as some would have it, though chance and opportunity may have much to do with it. Five thousand men may rush to a new mining region, one knowing no more of the subterranean location of the metal than another; yet it is not altogether chance that gives fortune to the five who strike in here, or try over yonder, or spend money liberally and intelligently in prospecting.

No one can examine that matchless specimen of modern architecture, the Tabor opera-house, its perfect plan and arrangement of detail, the auditorium with its graceful curves, its grand columns, exquisite

carvings, and luxurious appointments, the stores opening upon the streets, the offices above, and the furnaces, pumps, and artesian well in the basement—no one can see and appreciate all this, knowing meanwhile that it was contrived entirely by the owner, who was practically his own architect, and who to this day, after it all has been successfully running for years, does not see in what respect he could alter it for the better—I say that no one, seeing and appreciating all this, and the talent and intelligence necessary to its accomplishment, will for a single moment contend that the fortune achieved by this man in and about California gulch was the result of accident.

Men and gods do not always harmonize in the efforts of the one and the rewards of the other; fortune is not always the reward of skill and application, but there are men who can to some extent defy the gods, command fate, and achieve the impossible, or that which to the ordinary individual is impossible. Such a man is Mr Tabor. Opportunities were present, it is true, but no more to him than to thousands of others, who were too stupid or too sluggish to seize them. It is a great thing to be on the right spot at the right time, provided it is the right kind of a man who is thus favored; but to others it may be of no avail.

Mr Tabor never adopted the Italian proverb, "If you would succeed, you must not be too good," if by goodness is meant that pharisaical fastidiousness which cloaks with cant and hypocrisy, religion, morality, and all the more charitable and reverential impulses of our nature. But if by goodness is inferred loyalty to friends, kind-heartedness, benevolence, and all those high and humane tendencies which rise superior to doctrinal religion or any set forms of worship, we can safely say that Mr Tabor never found it in the line of his inclination to sacrifice any of these for gain.

Very few of the advantages of life which he has

been so successful in securing have been in any sense the result of chance. His victories were achieved upon hard-fought fields of battle. His purposes and principles were identical with himself, were part of himself, and from them he never swerved. There is a directness of thought and action in him which only strong men possess. His mind penetrates the mysteries of business, so that he distinguishes at a glance upon what a matter hinges. The country has ever been full of inefficient persons; indeed, it is singular, where there are such great possibilities for every one, to see how few are successful. If chance alone were at the bottom of it, would not the prizes be more fully and evenly distributed? The necessities and vicissitudes of his early life, and strong will and iron constitution, as well as the times and circumstances by which he found himself finally environed, all combined to develop a powerful and progressive man. Any object which seemed to him desirable he generally found the means to accomplish. His good common sense and sound judgment were to him a never-failing source of revenue. All of his enterprises were undertaken and carried out with a directness and thoroughness which few could equal. Such was the momentum of his mental and physical force that whatever he undertook to do was already half accomplished. There was no miracle or magic in his successes, as there is no cant or hypocrisy intermingled with his daily life. He is in every direction solid and strong, being as right-minded and logical in his sympathies and charities as in the conduct of his business. His native sense and kindness of heart accompany him everywhere, and constitute important factors in whatsoever he does.

Mr Tabor, miner, mayor, governor, senator, financier, builder, is a man of goodly presence. His personal appearance harmonizes with my idea of his achievements. His build, carriage, and look evidence power, resource, confidence. He is about six feet tall, with

strong, well-developed frame. Though slightly stooping at the shoulders, he stands a little more than erect, for his head is thrown well back. He moves with an easy, springy step, not scrutinizing the soil as he walks, but taking in with composure the whole scope of things above ground in advance of him. Only when standing at rest and wrapped in thought do his eyes seek the floor at his feet. Such moments have been as precious to him as to the general in the field. By his aspect you perceive him to be a man of large views and corresponding capabilities. He is very active, but he puts forth no superfluous energy in going. His movements are quick, but so steady that he gets over more ground than another who bustles and makes a greater showing of speed. He impresses you as one who knows just where he is going and when he will get there; with regular and certain tread he moves towards a definite object in view. With positive step, each foot put down or raised with a sort of snap, you see him moving ahead on a straight line, as though all the world and the future are before him, the past and its affairs out of mind and behind him. He does not impair his vitality as many men do by chaining themselves to the past. He preserves its lessons of experience, but he neither broods over it nor rolls it under his tongue as a sweet morsel; it is his stepping-stone into the future. What has been finished ceases to concern him; he is the typical go-ahead American, ever beginning something new, or finishing something begun, accomplishing only to accomplish. With him conception and execution are as one thought. The sale of his stock in the Little Pittsburg Mining company for $1,000,000, his purchase of 880 shares of the First National bank of Denver, and acquisition of the Matchless mine at Leadville for $117,000, took place in the space of a few minutes. When a transaction was done, it was done. His elastic wits rebounded from the pressure instantly, and he started forth, with alacrity and

unhampered, in quest of other game in the field of commerce and industry. Says Nordau: "Those men who combine genius in judgment with genius in will rank the highest of all. These are men of action, they who make history, who form nations intellectually and materially, and dictate their fate for years to come, organizers, legislators, creators of states." If the distinguished anthropologist had had Senator Tabor directly in view I do not know that he could have spoken more pertinently of him.

He has a well-poised head, firmly set upon broad, square shoulders. His features are generally well defined and symmetrical, his hands and feet shapely and unusually small for a man of his massive trunk. His forehead is high and broad; its contour is neither Grecian nor Roman, yet suggestive of both; the same remark applies equally to his nasal organ. Any tyro in physiognomy can read in his expression a marked faculty to acquire and control. But his full, dark-brown eyes are the speaking feature of his kindly but commanding countenance. They meet your glance squarely. You instinctively put your trust in the man of whose mind and heart they are the good-humored index. You discern back of them honesty, broad, deep, and generous—a charity of good-fellowship which is frank and sympathetic, which offers good faith, and enjoys nothing so much as a return in kind. This is both the inference of physiognomy and a substantiated fact. His heart is as open and as big as his eyes say. His reputation for honesty is universal—honesty of the old-fashioned sort, without reservation or equivocation. His name inspires confidence. He has come out of all his enterprises, with millions going hither or yon at his say-so, without taint or imputation of taint upon his integrity. There are those who, looking more to consequences than to motives, affirm that he has been too trustful of others because too straightforward himself, but while he is of unsuspicious nature and disposed to

forgive, he is as capable of hate as any man I know. He enjoys his hatreds. His contempt for his enemies, and he has some powerful ones on his list, is only surpassed by his loyalty to his friends. In his friendships and in his enmities he is equally outspoken and bold. He cannot do too much for the former, nor is it in him to compromise with or conciliate the latter, except upon occasion when, for the sake of a principle, or out of respect to the majority with whom he is allied, it is manly that personalities be set apart. He is not built right to be a policy man. If he were, I should probably not be discussing him, or, if so, I would be occupied with quite a different and a less agreeable individuality, but one which might by diplomacy succeed in politics where he has failed.

I can readily see how a man of his traits should win such a degree of affection and popularity as he enjoyed among the miners of Colorado, by whom he is better known than any other man in the state. They knew him to be as I have described him, and they admired in him that self-possession and courage which is best manifested in that sort of carriage and address which puts personal encounter out of the question—a presence and character which subdues without offending. During the year that he was mayor of Leadville, when an officer's life might be jeopardized at any moment, he wore a pistol for the sake of caution, but never had occasion to put his hand on the weapon. In whatever society he has found himself he has been at his ease. His manners are agreeable, and his information is wide and varied. He started out with the rudiments of an education, with the tools with which to educate himself. He has accomplished this by reading, for he has found leisure in the midst of his pressing and weighty engagements; and, even better still, by friction among men whose society is a school itself. His knowledge of the drama, in which the mirror is held up to nature, human nature, is extensive and accurate Where can one study Shakespeare

better than in the Tabor opera-house? Being a close and appreciative observer, his extensive travels in the United States and Europe have contributed to the enlargement and accuracy of his ideas, and given him a knowledge of history and geography that cannot be obtained so well in any other way.

Withal, he is still as ever the same generous, open, unaffected citizen, the architect of his own fortune, and chief among the chiefs to whose talent and industry the world owes a great and happy commonwealth, with all that this implies.

Eminently a product of the conditions and opportunities which in no small degree he has himself created, it might be said of him as Napoleon said of himself, "My son cannot replace me; I could not replace myself."

CHAPTER XIII.

MINES AND MINING—COLORADO.

THE OLDEST OF AMERICAN GOLD DEPOSITS—ANCIENT SHAFTS OF THE CLIFF-DWELLERS OR OF THE SPANIARDS—CALIFORNIA PILGRIMS—CHEROKEES—GOLD DISCOVERED—TOWNS—PIKE'S PEAK—LARGE MIGRATION—GEOLOGIC FORMATION—CHARACTER OF THE DEPOSITS—PROSPECTINGS AND WILD RUSHINGS—PARKS AND PEAKS—MINING LAWS—YIELD—MILLS AND PROCESSES—LEAD, IRON, AND COAL.

IN this, the oldest portion of the continent, nature stored within the rocks the treasures which, through the agency of man, were destined to transform here, as in other sections, a wilderness into a flourishing state. Thus hidden, few looked for them, notwithstanding the traditions of golden nuggets carried in the shot-pouches of the early mountaineers, and of the published statement of the explorer, Pike, that an American, James Pursley, whom he met in New Mexico, showed him lumps of gold obtained from the South park, and asserted that the Indians, knowing of placers in that region, had roused the curiosity of Mexicans so far as to lead them on a futile search. Old deserted shafts and copper vessels, said to have been discovered in southern Colorado, are attributed to the ancient cliff-dwellers, although they should, with more likelihood, be ascribed to the Spaniards.

It was only when the California discoveries had aroused the attention of the world that gold-hungry pilgrims occasionally halted to test the now repeated rumors, some on the Platte, others in the south. Among these wanderers was a party of Cherokees, in quest not exactly of gold but of a new home for their Georgian tribe. Following the Arkansas and Squirrel

creek route, they reached Cherry creek, and there found gold, continuing their journey thence to California. The discovery was verified by a cattle trader, and by military expeditions which followed the same road in 1857, and previously, but so little metal was obtained that no excitement attended it.

The Cherokees had meanwhile returned from California, and after many efforts succeeded, in 1858, in organizing an expedition to the Cherry creek gold field, composed of thirty Indians and twelve white persons, under the leadership of George Hicks, senior, and John Beck. Among the white members was G. McDougal, brother of the governor of California, who had a trading-post on Adobe creek. They prospected in vain from the Arkansas to beyond the Platte river, but finally W. G. Russell found fair diggings on a dry creek seven miles south of Cherry creek.

The curiosity roused by the expedition and its known object sufficed to start others on its heels. One from Lawrence, Kansas, searched in vain for placers to the south and north of Arkansas river, and then sought compensation in laying out towns near the present sites of Colorado Springs and Denver, for which, however, neither settlers nor buyers appeared. Other and more resolute adventurers from Missouri gathered along Cherry creek, and spent part of their leisure in laying out Auraria, in opposition to which a party from Leavenworth founded Denver, on the opposite side of the creek.

In the autumn D. C. Oakes, of Auraria, returned east with a diary of W. G. Russell, the gold discoverer of this year, and published it under the title of *Pike's Peak Guide and Journal.* This was widely circulated, together with some similar publications. The result was an excitement fully equal in many respects to that of 1849. With the early spring thousands of wagons were on the way, their white covers bearing conspicuously the inscription "Pike's Peak," often with the addition of some jocose legend. On one was

emblazoned "Pike's Peak or bust!" On its return, soon afterward, were added the words, "Busted, by thunder!"

The migration during the season is estimated at 100,000 persons, a number far exceeding the annual rushes to California. Business depression and the political trouble in Kansas had prepared the people for such a movement, and it needed only the glowing reports from the Rocky mountains to give it direction, after which it poured onward without waiting for their confirmation. Disappointment was therefore to be expected. The diggings so far explored were meagre in extent and yield, and as few among the incomers knew anything of indications or mining methods their inefficient search proved of little avail.

In addition to failure came reports of the violent deeds committed by some of the most desperate characters ever to be found in the train of man's migrations. This with other causes sufficed to start a veritable stampede, and homeward the crowd hastened, faster than it had come, loud in bitter denunciations, and vowing vengeance on the author of the *Pike's Peak Guide*. Nearly two thirds of the emigrants returned, and almost as many more, then on the way, or preparing to move westward, were deterred by the warnings of the baffled fortune-hunters. Many a trader emptied his load on the roadside, rather than tax his exhausted animals to drag it farther.

Another cause for the discomfiture lay in the abnormal geologic conditions. The formation of the plains was simple enough, with its cretaceous and post-cretaceous strata; but in the mountains the most skillful geologist found himself at fault. Through the tertiary basis of the north and middle parks, appeared masses of volcanic rock stretching westward over the White River region. The South park is an indescribable jumble, and that of San Luis is of recent formation. The Front, most of the Park, all of the

Mojoda, and part of the Sangre de Cristo ranges are of granite and allied metamorphic rocks. The southern portion of the last named is carboniferous, and the San Juan mountains are volcanic, while the Elk mountains are a medley of volcanic peaks thrown up among silurian and carboniferous strata, and flanked by cretaceous areas.

The laws of nature were suspended during the formation of these remarkable strata, and accident alone gave the clue to mineral wealth. Contrary to general experience gold was here found in metamorphic rocks, and also in tertiary formations, principally in gneiss, and in many refractory combinations with different metals and minerals; if free-milling, it contained silver and sometimes lead. While in the trachyte mines of the southwest the ore was chloridized.

Silver deposits were equally eccentric in their character. One of the most remarkable in the South park region was in horizontal flat veins, from a few inches to a foot in thickness, separated from each other by deep layers of barren rock—blanket lodes they were called. They could be traced through lofty heights, by the croppings on either side. Equally surprising was it to find silver in trachyte rocks, or enveloping pebbles and bowlders like a crust, or in fine threads. It usually took the form of sulphuret of silver and lead, the argentiferous galena; but also presented other combinations with carbonates of lead and various metals, sometimes as a chloride or as horn-silver.

The trend of the fissure-veins is northeast and southwest, generally with clearly defined walls, and corresponding in direction to the cleavage of volcanic rocks and the dikes along the plains. An earlier cleavage in the metamorphic rocks runs southeast and northwest, marked by the overlying material. The veins occasionally lying along the cardinal lines are of small extent.

Although thousands forsook the country in disgust, other thousands remained to give it a trial, whose search was, however, rewarded with the most meagre of results. Not until 1859 were any valuable additions made to those already discovered, the first one being on the Gold Run affluent of Boulder creek, and in a gulch on the south Boulder, followed by others which soon brought into prominence the town of Boulder. In May, G. Jackson, a Californian, made a rich discovery on a branch of Clear creek named Chicago bar, after his party. Several other camps rose in the vicinity, centred round Idaho springs.

The richest spot of all, and one of the richest in the world, was stumbled upon by a party under the guidance of a Georgian named John H. Gregory, who was driving a government team to Laramie, on the way to Fraser river, but was detained through lack of funds. He claimed to have found indications on the north fork of Clear creek, and on being "grub-staked," that is, given provisions and outfit in exchange for an interest in his discovery, he led a party hither. Ground was discovered which yielded an ounce of gold to the panful of dirt. Gregory sold his claim for $22,000 to E. W. Henderson, subsequently receiver of the land office at Central City.

Each successive development raised a flutter among the crowd of less fortunate prospectors, and a rush ensued to the several locations out of all proportion to the area of available ground. The more promising sections had already been absorbed by friends of the discoverers, or by early arrivals, leaving little or nothing for their successors. Meanwhile an army of gold-hunters swarmed over the adjoining country; and thus, after diligent search, one creek and gulch after another was made to yield its treasures. The tributaries of north Clear creek were especially remunerative, so much so that when water became scarce the miners in Russell and Gregory gulches alone spent $100,000 in bringing a supply from Fall river. The

later counties of Clear creek and Gilpin were soon filled with camps, and speculators hastened to avail themselves of the excitement by founding a number of towns.

The revived rumor of former discoveries to the south led a number in that direction, especially to the Fontaine-qui-Bouille and other head waters of the Arkansas, while South park disclosed deposits which attracted the usual throng. Thence passed others, including the later millionaire H. A. W. Tabor, who lived for many years on the present site of Leadville, before its actual wealth was revealed, and here found mines so rich as to draw a population of 10,000 within a year. The place was called California gulch, and its leading camp Oro City. Chalk creek was also disclosed, and soon afterward a rush set in for San Juan, which camp, after some early disappointments, was found to possess considerable merit. As a result of this southward movement arose a number of towns, as Pueblo, and Colorado, Fontaine, and Cañon cities, striving to turn a share of the gold product into the avenues of trade and speculation.

For the preservation of order, and for the protection of their claims, the earliest occupants of the placers passed mining laws based generally on California rules, and framed by men who had mined in that state in early days. Although claims were limited to one for each selector, any number could be purchased. The size of a gulch or creek claim was fixed at 100 feet along the gulch, or from bank to bank, and mountain claims, at 100 feet on the lode, by 50 in width. The latter were little in demand at first, for few understood quartz mining, which, moveover, required costly machinery and labor as compared with the surface deposits. Some camps elected a president of the district, a recorder, and a sheriff to enforce the observance of the regulations.

The reports of these discoveries and operations set

once more aglow the excitement in the east, supported as they were by the statements of Horace Greeley and his journal, which, in addition, praised the climate and scenery of Colorado in the highest terms.

Once more the stream of migration began to flow toward the mountains, and thousands of wagons stretched along the Platte and the Arkansas, escorted by bands of fortune-hunters, a few content to engage in farming and stock-raising, but the great majority bound for the diggings, whose yield for 1860 was thus augmented to threefold the product of 1859. The total is difficult to estimate, the only reliable data being furnished by the United States mints, which in 1859 coined $622,000 of Colorado gold, and in 1860 over $2,000,000. Large amounts of uncoined gold were also in circulation, and of a further quantity no record has been preserved.

The yield was raised within a few years to $7,500,000, sufficient to afford a just claim to an official branch mint. Clark, Gruber & Co. began in 1860 to coin gold pieces at Denver, and later Parsons & Co., at Hamilton, weight and purity being duly considered.

The chamber of commerce of Denver in 1861 adopted rates varying from $15 per ounce for Russell gulch gold, to $20 for Blue river gold, common retorted and dirty metal bringing only $12. Previous to this gold dust had been uniformly accepted at $18, and much counterfeit metal in dust and brick form had been circulated. In 1862–3 congress made an appropriation for buying the private assay houses at Denver and establishing a government mint, which proved of great service, although it remained virtually a mere assay office.

As in Nevada the real nature of the deposits was for a long time misunderstood. Diggers sought for gold, preferably in placers, as quartz required too great an

expenditure of capital and labor. With so many workers the surface claims were quickly skimmed, and with decreasing richness and returns the exodus of miners began to exceed the influx. The flat, gulch, and bar diggings of Arapahoe had been stripped of their wealth by 1860; Clear creek and Boulder counties had been similarly rifled by 1861; Gilpin held out two years longer, and the parks experienced a subsequent revival. Under such circumstances the now unfolding treasures of Idaho, Montana, and Nevada received additional lustre when compared with the placers of Colorado, and a host of departing miners swelled the tide of migration to the former territories.

Of those who remained many applied themselves to solve the problem of the rocks. The richest of the gulch mines had proved to be croppings of quartz ledges, and by the middle of July 1859 the first arastra was put in operation at Gregory gulch by Lehmer, Laughlin, and Peck. Two months later Prosser, Conklin & Co. had a steam stamp-mill at work, and a second started soon afterward, together with half a dozen arastras and mills moved by water-power chiefly on North Clear creek. Others were busy in taking out ore for the larger mills which must soon be erected. The ledges were in many places easy to work, and as the returns of some mills, notwithstanding their defective apparatus, exceeded $100 per ton, there was sufficient encouragement for exploitation. At the close of the following year Clear creek alone had 71 steam quartz-mills, with over 600 stamps of an average weight of 416 pounds, and 38 water mills, with 230 stamps somewhat less in weight, besides 50 arastras. The Boulder region had 9 mills, 4 of which were moved by steam, and 29 arastras. South park and California gulch had several. The first furnace was erected in 1861 by L. Tappan, assisted by I. Bennett, chiefly to provide lead bullets for the campaign against Indians. The

second furnace for smelting gold ore was built at Black Hawk in 1864 by J. E. Lyon, but proved unserviceable.

Much of this enterprise was fruitless, however, for often so little gold was saved as not to pay expenses. It was found that quicksilver, which in Nevada and elsewhere saved the free gold and carbonates by amalgamation, had no effect on the sulphurets and pyrites of Colorado. A new method was evidently required. Much money was expended in unprofitable experiments, and many mines were abandoned, which have since paid handsomely. The yield fell from $7,500,000, until in 1867 it amounted to only $1,800,000, a decline which naturally drove miners to other fields. Hence a large amount of mining property was thrown into the hands of eastern capitalists who had advanced money for machinery and experiments, and for a time remained idle, the production being supplied by a limited number of claims, and with the aid of simple stamp-mills and arastras, which now came into general use, through unwillingness to spend more money on experiments. Some claims, like the Horsefall, continued to yield nearly $100,000 a year, but the ores from others proved too refractory, after reaching a certain depth.

The eastern owners were not willing to sacrifice mines of evident richness because their clients had failed. Some of them sent for European experts, and their methods were so improved upon by native ingenuity as eventually to solve the problem. It was moreover established that silver and not gold was the metal to be sought. For years silver ores had been rejected in ignorance of their value, and it was only of late that the mistake had been discovered. Assayer John Torry had in 1859 pointed out the predominance of silver in ores submitted to him, and D. C. Daley in 1860 recorded the Ida mine in Clear Creek county as a silver lode, assaying 100 ounces to the ton. Several similar locations were made, among them the celebrated Seaton mine, although it was

worked for gold alone until this failed to pay. An examination of the mine discovered by Cooley and Short on Glazier mountain, in 1864, gave further evidence that Colorado was above all a silver region. The Belmont was the first silver mine to pay for working. Most others failed to respond to smelting or other processes, and it was only in 1868 that success was finally achieved, and the stamp-mills once more resumed their crushing.

Prominent among those who contributed to this result was N. P. Hill, professor of chemistry at Brown university. A visit to Colorado in 1865 revealed to him the imperfection of the existing methods of treating ores. After studying carefully in Wales and elsewhere the processes of ore-reduction, he returned in 1867, and, organizing the Boston and Colorado Smelting company, erected furnaces at Black Hawk. This solved the problem of reducing refractory ore, and thus operations were resumed on many abandoned mines. The company gradually increased its establishment, which in 1879 was removed to Denver, and Mr Hill's great services to Colorado were recognized by his election to the United States senate. His career will be related more in detail in a later chapter of this volume.

Others followed in his footsteps, and reduction-works multiplied throughout the districts to such an extent as to speedily increase the number of mills. By 1870 there were in operation the works of Cash & Rockwell at Central City, which claimed to save ninety-eight per cent of the precious metal; Garrott and Buchanan's and Stewart's at Georgetown; Brown's at Brownville; Baker's a few miles off; the International company's in the East Argentine district; the Swansea, four miles from Georgetown, and in Summit county those of the Sukey and Boston association. Smelting works erected in Omaha and Chicago also competed for the ores, while those of

richer grade were shipped to England. The average assay of the silver ores was $118, of which the mills guaranteed eighty per cent to the miner, the expense of transportation and crushing reaching $40 or $50 per ton. Low grade ores had to await their time or be worked on the spot.

The result was that the yield of the mines rose by 1870 to $5,000,000 and by 1871 to $6,000,000. Gilpin county alone produced $18,000,000 in the nine years ending 1880, of which nearly $2,700,000 was the product of the latter year. In 1868 it had 38 mills in operation with an average of nineteen stamps; but the production was as yet mainly gold. Two years later it had 170 mines in course of exploitation. Clear creek, with fewer mills, had nearly double the number of mines, on which some work had been done; Boulder had about 100 mines; Lake county 70 in the one district of Red mountain, and Summit county 20, though few of these last had mills, or improvements of any importance. The maximum yield of the state was attained in 1882, and after a decline for several years was estimated in 1886 at $26,000,000, and in 1890 at $31,000,000, these figures including base bullion. With two exceptions the latter was more than double the output of any other state or territory. The census of 1880 enumerated 175 smelting, stamping, and reduction works, and in 1883 $14,000,000 worth of ore was treated at Denver.

The revival and development of silver mining was attended by a number of frauds, companies being formed to take advantage of the prevailing excitement by saddling worthless properties on the public. There was also the usual manipulation of good mines by speculators, with fictitious dividends, assessments and other devices for raising or depressing the value of shares, together with the customary mismanagement and waste of funds on costly machinery and processes, without due inquiry into the merits of the mines.

Clear creek county, the scene of some of the ear-

liest developments, produced between 1864 and 1884 bullion to the amount of $28,500,000; yet few of the mines had reached any great depth. One of the deepest was the Terrible, where on the 1,300 foot level assays yielded 200 ounces of silver to the ton. The population of the county, placed in 1880 at 8,000, centred at Georgetown, whose reduction works added largely to its business. Arapahoe, where the first gold discoveries were made, possessed only a few placers, which were soon exhausted, while Gilpin, the smallest county in the state, produced during twenty-four years over $43,000,000, nine-tenths being gold, equivalent to one-fourth of the total production of Colorado. The auriferous lodes occupy an area of one mile by four, along which lie the towns of Black Hawk, Central, and Nevadaville. The silver belt, found only in 1878, extends across Clear creek, from York gulch to Dory hill. The consolidation of small mines and ditching enterprises has tended to sustain the yield, notwithstanding the increasing depth and working expenses, and the large proportion of low grade ore. The production in 1883 reached $2,200,000. In Boulder the annual output has been only half a million, chiefly silver, and in Park county only $400,000 in 1883, many of the mines being idle.

A singular experience was that of Leadville, the story of which has already been related in connection with the biography of Horace A. W. Tabor. The rush set in during 1877–8, and Leadville sprang into existence to absorb the original camp of Oro, and become within two years one of the leading cities of the state, with a population in 1879 of 35,000. The lodes were so rich as to yield over 1,000 tons of bullion from 3,300 tons of ore. Tabor, Rische, Marshall, Du Bois, the first mayor of Leadville, Rowell, and others became millionaires within an incredibly brief period. The first smelter was erected early in 1878, by the St Louis Smelting and Refining com-

pany, and by the close of the following year over a dozen were in operation, with 34 furnaces, which in less than twelve months produced 37,700,000 pounds of bullion from 210,000,000 pounds of ore, containing $7,700,000 of silver, $16,376 of gold, and $1,500,000 of lead, and to this must be added $2,750,000 worth of ore reduced elsewhere. The first outlay incurred, the expenses diminished, while the production of Lake county rose by 1882 to over $16,000,000 for the three metals. Chaffee county, which was formed out of a portion of Lake in 1879, is chiefly famed for its iron mines, though with a small yield of bullion.

In 1890 Leadville still retained its preëminence as the mining centre of Colorado, having entirely recovered the prestige which in previous years it had partially lost. All or very nearly all of its huge smelters and mills were yet in operation, producing a goodly yield of gold and silver, with an enormous output of the metal from which it derives its name. Except for the Comstock lode, and that only in its best days, the output of this famous camp has never perhaps been equalled in the history of mining. It would seem to be even a more permanent district than the Comstock itself, and while subject to fluctuations, in common with all others, has not suffered such periods of extreme depression as have been witnessed on Nevada's great mineral lode.

Custer county has a number of rich mines. The capital stock of the Discovery on Silver cliff was placed at $10,000,000. The Maine, discovered by E. C. Bassick, was of a phenomenal character, with a chimney filled with bowlders of true conglomerate ore, new to mineralogists, with kernels incased in telluride of gold and silver, some lumps assaying $7,000 per ton, chiefly gold. It yielded $1,000,000 annually.

Pitkin and Rio Grande counties produced little of the precious metals. Summit ranks only eleventh among the bullion-yielding districts since the excision of Eagle county, which in 1883 produced $940,000 from one group of mines alone.

The west slope of the great range was prospected and opened in 1861; but the hostility of the Utes drove out all but one party, which remained for years in a state of siege in Union park. In 1872 prospectors penetrated once more, and made so promising a disclosure of silver veins as to lead to the formation of a large company, under the presidency of S. Richardson, geologist, which founded the town of Gunnison. It was not until 1879, however, that the first important silver mine was located by W. A. Fisher. Half of the claim he donated to a stranger, to whom he had promised a share in his first location, in recognition of a casual offer of assistance. The stranger sold his share within a few days for $100,000. Other rich disclosures followed close on each other, attended by the usual influx of people, and the rise of several camps. The Utes had latterly shown themselves more compliant, but the prospective invasion of whites aroused their former hostility. They committed a massacre at the agency, and threatened a bloody and protracted war; but the continued inpouring of miners, nearly equal in magnitude to the Leadville movement, served to intimidate them. Moreover, in 1881 the railway entered Gunnison, and gave its powerful aid to protection and development. Some of the ore assayed $2,000 per ton, while a multitude of mines made handsome returns, notwithstanding the increased working expenses caused by remoteness from centres of supply. Within six years of its organization the county claimed 14,000 inhabitants, fully one-third being in Gunnison.

San Juan county includes the wildest and most inaccessible region in Colorado, yet a body of miners, headed by the mountaineer, J. Baker, penetrated it as early as 1860 to test the stories of the Navajes concerning the sources of their gold bullet ornaments. They found traces of the metal, but so faint as to offer no inducement, and thereupon returned as best they

could; but not all, for many perished from cold, starvation, or the tomahawk. Baker himself was afterward killed at the entrance to the grand cañon of the Colorado. So suffered in many a place the vanguard of civilization on this continent. Before the inexorable laws of nature, the heir of centuries of intellectual growth is no more than the jelly-fish to the sea which casts it upon the sands to perish.

The sad fate of the expedition prevented further prospecting, and in 1868 the county was ceded to the Utes as part of their reservation. The attention called to it by the treaty with this nation, and by the boundary dispute with New Mexico, seemed, however, to rouse the interest of miners, and in the following year they entered Las Animas, and found there the Little Giant gold lode, assaying as high as $4,000 per ton. Other discoveries were made, chiefly of silver, and a large influx of people followed. This being a violation of the treaty, troops were sent to expel the intruders, but after some threatening demonstrations the Utes were persuaded to relinquish possession. In 1874 more than 1,000 lodes were located, chiefly composed of argentiferous galena, impregnated with grey copper, of which the best yielded from $150 to $2,000 per ton. The Uncompahgre district contained a better class of ore, and from the Hotchkiss mine, in an adjoining district, 150 tons of selected rock yielded an unprecedented sum. Not far off, the San Miguel cuts through gold gravel deposits 150 feet above its channel, evidently the bed of some mightier stream which in the remote past rolled its golden sands towards that vanished sea to which geological facts point a significant finger. Out of this region was formed the counties of La Plata, Hinsdale, San Juan, Dolores, and Ouray. The last claimed, in 1884, a production exceeding $4,000,000, one-fourth coming from the Red Mountain district. San Juan yielded only about one-tenth of that amount.

Among other metals in Colorado lead is abundant, Lake county standing preëminent as the largest lead-producing district in the United States. Tin exists in different places. Copper is found in combination with the precious metals, but the Salida mine, in Chaffee county, has so far the most promising copper deposit.

Above these in importance ranks iron, both for abundance and quality. Notwithstanding the youthfulness of the state and the abundance of more attractive metals, the production of iron and steel in 1886 amounted to $3,000,000. In Boulder it forms the most valued of the county's resources. In 1864 J. W. Marshall, after whom the mining town of Marshall was named, erected there, with aid of others, a blasting furnace, and made two hundred tons of pig-iron from the red hematite ores which abound in the locality. The Davidson Coal and Iron Mining company, incorporated in 1873, with a capital stock of $160,000, by W. A. Davidson and others, bought a tract of eight thousand acres of mineral land from the Colorado Central railway. Other enterprises are also preparing to develop the iron deposits of Boulder.

The best mine in the state is the Calumet, of Chaffee county, consisting of magnetic and hematite ore, with seventy to eighty per cent of pure iron. Ten carloads are carried daily to the extensive works of the Colorado Coal and Iron company at South Pueblo, which owns the mine. Here is also smelted iron from Costilla, where are the largest deposits in the state. A portion is conveyed to the works at Denver.

A St Louis company established at Gunnison large steel and iron works, and bought coal and iron lands all over the country, but failed for lack of coking-coal. With increasing facilities for conveying coal and iron, the exploitation of this metal will grow apace, and sustain a number of cognate industries.

The San Juan region possesses a large variety of minerals, such as coal, bituminous and anthracite, limestone, bog and magnetic iron, fire-clay, and building-stone, as well as wood and charcoal, and appears designed by nature as a centre for reduction works and foundries. Chaffee county sends daily over two dozen carloads of lime to the smelting-works at Pueblo and Leadville. It also boasts of beautiful varieties of marble and granite. Building-stone and potter's clay abound in Jefferson, Frémont, and other counties, Frémont having, moreover, alabaster, and the others mineral paint.

Saline springs were discovered by C. L. Hall in Park county, containing from six to fourteen per cent of salt, the manufacture of which was begun on a limited scale in 1861–3. A company was then formed, which erected works at an expense of $25,000, and developed the industry; but the advent of railways permitted the introduction of salt at rates so low as to render it unprofitable.

Quartz crystals are scattered in great variety over the country, including carnelian, heliotrope, and other varieties of chalcedony, onyx, jasper, sardonyx, chrysoprase, rose quartz, black quartz, moss agate, and aventurine. Frémont county possesses one of the few jet mines in the world, and in the San Juan region small garnets and rubies have been found, and indications of diamonds discovered, so as at least to lend color to the famous diamond-field swindle which a few years ago called attention to this border, and implicated several prominent capitalists and scientists.

The most esteemed of the mineral deposits is coal, ranking by the side of iron. It exists in immense quantities, and in almost every county. It is of several geological eras, some of it merely lignite, while other beds are petroleum-bearing, as in Grand and Jefferson counties, and in the southern portions of the state occurs anthracite in large areas. Of the last, Garfield contains valuable deposits, and its former

county-seat bears the suggestive name of Carbonate. Frémont and El Paso both claim immense fields, and in Mesa and Montrose are smaller veins, with a prospect for more valuable developments. La Plata county produced 12,000 tons of semi-anthracite in 1883; Huerfano yielded in the same year 100,000 tons, from the mines of the Colorado Iron and Coal company of Pueblo; Gunnison, which depends mainly on its coal and iron lands, exceeded this quantity. Boulder has a free-burning lignite, jet black, and of high lustre, first developed in 1860, and which brought into existence the towns of Marshall—whose mine produced 50,000 tons annually after the railway was completed in 1878—and Louisville, on the Colorado Central railway, named after the man who supervised the exploration. The mine at the latter point was sold in 1879 to the Union Pacific. The coal lands of Las Animas county are fifty miles square, and the quality is of the best for heating or coking purposes. As much of the coal in other districts does not coke, this is in great demand, and the coke-ovens of El Moro and Trinidad furnish large quantities to the smelters of Pueblo, Denver, and Leadville. In 1883 the production was 370,000 tons, worth $833,000, from which came 136,000 tons of coke. By 1886 the total yield of Colorado's coal fields was valued at nearly $6,000,000, indicating a surplus for exportation as well as for increasing the iron industries.

With such varied resources in metals and minerals, the mining industries of Colorado promise to be of lasting benefit to the state, with an ever augmenting number of mines and reduction establishments, of workers and camps, all of which are providing wider markets for the hitherto restricted farm products. The legislature has manifested its appreciation of the importance of this branch of industry by founding a state school of mines, which occupies a fine building at Golden, and is supported by a direct tax, and by occasional appropriations.

Within recent years there have been discovered in Colorado petroleum deposits that will bear comparison with those of Pennsylvania, their yearly product being already counted by millions of gallons. By a well-organized system of distribution, the oil is marketed not only in Colorado, but in adjoining states and territories. To Isaac E. Blake is due the conception and management of this system, whereby he has accumulated a princely fortune, after meeting, in his earlier career, with many a sharp reverse.

James E. Blake

CHAPTER XIV.

LIFE OF ISAAC ELDER BLAKE.

PETROLEUM—ANCESTRY AND EARLY ENVIRONMENT—AMONG THE OIL WELLS—IN COLORADO—FREIGHT COMBINATION OIL-TANK CAR—REVOLUTIONIZING OF THE OIL BUSINESS—IN CALIFORNIA—WEALTH AND HONORS—CHARACTER AND POSITION.

IF it be true that the struggle of a brave man with adversity is a sight most acceptable unto the gods, then should the people of this western world be held in especial favor by the powers above. As in emergencies the most trusted mariner is he whose experience has been gained amid storms and tempests, so in many a doubtful fight have the successful men of our day acquired the courage and self-reliance which at length have wrested victory from defeat. While there is perhaps no portion of the world more thickly strewn with financial wrecks, nowhere else has so much been accomplished in so brief a period; nowhere have the new adaptations of labor, skill, and intelligence been more efficient in removing obstacles and developing latent resources.

Take, for instance, our petroleum deposits. It is but a few years ago that their very existence was unknown, and long afterward we continued to pay out many millions a year for an article that lay in abundant supply beneath our feet. But in 1874 there came to this coast, in the person of Isaac Elder Blake,

a man of wide and practical experience acquired in oil regions of Pennsylvania. He was, moreover, possessed of excellent business qualities, shrewd, adroit, far-sighted, and with a remarkable power of combination. Under his direction was established the plan referred to for the economical distribution of oil, whereby a vast saving has been effected to the people of this coast. Well worthy of a place in these pages is the man by whom these results have been accomplished, not only for his more recent services to the community, but for his earlier career, his early struggles, difficulties, and triumphs, his family connections, and his ancient lineage. In the churchyard of Bunwell, in Norfolkshire, England, is a monument erected in 1646, in memory of John Blake, and on its face a coat of arms, with the motto, *Bene præparatum pectus.* From this family is descended, through a long line of ancestors, extending to the days of the Norman conquest, the man whose biography is now presented to the reader.

In the doomsday-book one Robert le Blac is described as the owner of a freehold estate in Kent. In Norman manuscripts dated 1086, and only within recent years translated into English, are mentioned among others of this line Odo and Unifried le Blache. In 1185, Richard Blake was one of the Norman knights who followed in the train of Prince John during his invasion of Ireland, and receiving in return for his fealty certain grants of land, founded there a branch of his family. In the fourteenth century others of this name were baronets of Langham, in Suffolkshire, and of Twisel castle in the county of Durham. Humphrey Blake, of Plainfield manor, Somersetshire, was the father of Sir Robert Blake, the great admiral of the commonwealth, who in several hard-fought actions defeated the navies of Van Tromp. He was also brother of John Blake, whose son William, a cousin of the admiral, and a native of Pitminster, Somersetshire, was the first one

to arrive on these shores, settling in 1630 at Dorchester, Massachusetts, with his five children, William, James, Edward, John, and Ann. To this origin is traced the descent of Major-general John Blake, one of the heroes of the revolutionary war, and of the war of 1812. On an April day in 1775, he first heard of the fight at Bunker Hill, while at work on his father's farm, and on the very same evening he joined the ranks of the patriots, serving with distinction until October 1780, when General Washington granted him an honorable discharge, "consenting with much reluctance, because he had been with him for several years, and he had ever found him a faithful and successful officer."

From James, the son of William Blake, is descended in direct line, through several generations, Isaac Elder Blake. His father, the Rev. Isaac Blake, was a clergyman of the methodist episcopal church, his circuit lying partly in Canada and partly in northern Vermont, where his homestead at Derby, in Orleans county, which has belonged to the family almost from time immemorial, is still in their possession. This portion of the state was then but sparsely settled; its resources were but little developed; its climate harsh and forbidding; its landscape rugged and cheerless. Thus, while supplementing his income by the proceeds of a small farm and saw-mill, it was only with the strictest economy that the minister could support in comfort his family of eleven children. Physically, he was a man capable of great endurance, a little above medium height, and with features somewhat of a German cast. Mentally, he was a deep thinker, one given to much introspection, careless about the external things of life, intent on matters spiritual, and with strong religious tendencies, but one whose views were never circumscribed by the dogmas of creed. In 1861, though well advanced in years, he joined the union army, enlisting in the eighth Vermont regiment, and was afterward appointed chaplain to the third Loui-

siana regiment of national guards. By both these regiments he was greatly esteemed for his zealous and faithful ministrations, and it was while addressing a member of the Vermont 8th, who lay at the point of death, words of comfort and consolation, that his own voice was hushed, never again to be heard on this side of the grave.

His wife, who had been Miss Azubah Caswell, was of an opposite temperament, one who gave heed to outward appearances of life, especially in the affairs of her own household and family. With strong affections, she was strong in her likes and dislikes, of decided views, and possessing a vein of sarcasm which on occasions would make itself felt. Though with no trace of false pride, she had the dignity and self-respect which become a wife and mother, and she was justly proud of her English ancestors, among whom were several known to fame, her grandfathers on both sides being distinguished officers in the revolutionary war.

Such was the environment in which Isaac Elder passed the days of his boyhood, and with his advantages af birth, training, and example, it is no wonder that early in life he gave promise of the sterling qualities which the years of his manhood have matured.

Bolton, in the province of Quebec, was his birthplace, and the day the 4th of August, 1844, the incident of his Canadian nativity being due merely to the fact that the family was then sojourning in southern Canada on account of his father's duties. As a child he gave evidence of a remarkable power of memory, and at the age of three could repeat a short history of Joseph, though as yet he did not know a letter of the alphabet. He was an impulsive boy, acting rather from intuition than reason, and yet with a strength of will that displayed itself even in infancy. After reading a newspaper article on the small vices of life when in his eighth year, he was so impressed with its remarks

that he resolved to abstain from all stimulating liquors, never to taste either tea or coffee, nor to use tobacco in any shape. To this resolution he has ever since adhered, and here we have one of the strongest instances of the firmness of purpose which is one of the leading traits in his character.

Until thirteen he attended the district school for six months in the year, after which he enjoyed somewhat better advantages. With his quickness of apprehension and facility for memorizing, it was no difficult task to keep always at the head of his class. After reading his lesson two or three times he could recite it as readily as if the printed leaf was before his eyes. Mathematics he could not acquire easily, and for this branch he had little taste; nevertheless he retained the first place, though in competition with students several years his seniors. At sixteen the scholar had himself become a teacher, being granted a certificate on account of his special qualifications two years in advance of the age required by regulation. Most of the pupils were older than he, and among them were several unruly lads, who had enforced the resignation of his predecessor, by the summary process of throwing him out of the window. But Isaac's reputation as an athlete had preceded him, and there were none who had the hardihood to attempt any liberties with the youthful professor.

While thus engaged, the civil war broke out, and after completing his engagement he at once set forth to join his father in New Orleans, where a commission awaited him as lieutenant in the third Louisiana. At Boston he received a message requesting him to await his arrival, and on reaching that city his father earnestly besought him to abandon his purpose. He had witnessed the utter demoralization caused by army associations to thousands of young men of brilliant promise, and to such temptations he did not wish his son to be exposed. Moreover, there was every reason to believe that the war was drawing to a close.

Vicksburg had fallen; Gettysburg had been fought, and already the days of the great rebellion were numbered. At least he should wait until his services were required, and at present there were more men in the field than were needed to fight his country's battles.

To this the young man reluctantly consented, and soon afterward secured employment with a mercantile firm at Newton, a suburban town in the neighborhood of Boston. At that time his ambition inclined toward the profession of the law; but first of all he would give himself a collegiate education, and during his two years at Newton, employed every moment of his spare time in preparing for Harvard.

But it was not as a lawyer that Mr Blake was destined to make his mark in the world. In 1864 came news of new oil discoveries in Pennsylvania, and with it one of those waves of speculation that sweep periodically over the commercial centres of the union. Every one was rich, at least in imagination, and among the customers of the store, oil was the one topic discussed, the one topic deemed worthy of discussion, each man comparing with his neighbor the prospective income from their several investments. No wonder that in such an atmosphere a youth of his impulsive temperament did not altogether escape the infection. He was now in possession of some $600 to $700, accumulated by years of hard work and self-denial. This amount, together with his earnings as a teacher during the vacations, would be sufficient to pay his college expenses; but teaching, as he knew, was the hardest of work, and could he not secure this further income by purchasing a few shares in some promising venture? The newspapers were filled with the prospectuses of oil companies, offering sure returns of from 50 to 500 per cent a year, and that some of them at least were bona fide, the names appearing on their list of directors should be a sufficient guaranty. Finally he yielded to the temptation, investing about

one half of his capital in the stock of two corporations in which he had confidence.

And now mark the results of this trifling speculation. If Mr Blake had decided otherwise, had he kept his money in hand, and at the end of his engagement entered Harvard and prepared for his profession, he would doubtless have become a successful lawyer, and probably a senator. But whatever his career it would have made itself felt in the political rather than in the commercial and industrial world. He would never have discovered how best to utilize the vast petroleum beds of Colorado, sufficient, it is said, to supply the entire territory west of the Mississippi. He would never have invented a system of shipment, storage, and distribution which has since been adopted throughout the United States. In too many instances the first stroke of speculation, especially where it proves successful, and thus leads its victim on to bolder hazards, is but the first step downward into the abyss of ruin, ruin financial, moral, and physical But to a man of his strength of character, there was no danger of such a result. On the contrary, his venture proved the stepping-stone to fortune; but not at once for its immediate results led to anything rather than to fortune.

By his acquaintances he was asked to proceed with them without delay to the oil region; but this he could not do, for his term of service would not expire for several months, and to break his agreement was not for a moment to be thought of. Meanwhile they went forward without him, but soon returned from the oil districts, bringing reports of the most gloomy character, and now he was advised by his friends to trouble himself no more about them. But Mr Blake was one of those men who, once resolved on a certain line of action, was not to be deterred from his purpose. At the expiration of his term of engagement he left for Petroleum centre, where was the location in which he was interested; but it needed very little

investigation to show him that his certificates were absolutely worthless. Not a whit disheartened, he began to consider the situation, and after some inquiries concluded that the shipping of oil from Petroleum centre to Oil City must be a profitable occupation. The oil must be conveyed by way of the creek, and for this purpose he bought a flat-bottomed boat for $230, leaving but a few dollars. He then wrote to his brother-in-law, Dudley M. Davis, to join him, and while awaiting his arrival, proposed to make a trial trip, whereby he might at least earn enough to cover expenses. But again disappointment awaited him. On applying for a cargo to the owner of one of the most productive wells, he was told that he must have barrels in which to put the oil, and that before he could do business he must first of all secure an order from one of the shippers at Oil City. Here was an unexpected difficulty; but this was not the worst, for on reaching Oil City he was informed that for every load of oil there were a dozen good, experienced men to carry it, and that in any case the risk was too great to intrust it to others. Nevertheless, in conjunction with his brother-in-law, he secured a few orders, mainly through his success in landing a cargo after a very hazardous trip, when many other loads were a total loss. Soon, however, the water ran so low that navigation became impossible, whereupon he sold his boat, receiving in payment a note of hand which proved worthless, and is still in his possession. He then sought employment as a driller; but at first was met by the same answer as before, that there were no vacancies for inexperienced men. At length Mr Blake began to realize that to succeed in this world an excess of candor or ingenuousness is somewhat of a disadvantage. The world takes a man very much at his own valuation, and he who is disposed to hide his head under a bushel will assuredly be left undisturbed in his seclusion.

Hearing by chance of one who was boring a well

already 900 feet in depth, and required an expert for the more difficult work, he applied for the position. By adroitly turning the conversation, he avoided all questions as to his previous occupation, and was then and there engaged. Now Mr Blake knew no more about drilling an oil-well that he did about driving a locomotive; he did not even know how to fasten the drill on the rod; but on this occasion he wisely kept his own counsel. He was to go to work on the morrow, and meanwhile he had some hours of leisure before him, which he employed in closely observing at a safe distance the operations of an experienced driller, putting to him at times a few judicious questions of a comparative nature. In the morning he appeared at his post with an air of perfect confidence, and so closely did he imitate his fellow-laborer that no one for a moment suspected him to be other than an adept at his calling.

The next step was to obtain a contract for boring a well, and this work he executed thoroughly and with despatch, so that three others were at once awarded to him, in payment for which he was to receive a share in whatever the wells might produce. By this time he had accumulated about $3,000, and the time had come when he should enter college; but he would wait until the work in hand was finished. Still another disappointment was in store for him, however, for through a fall in the price of oil the contracts resulted in disaster, and he was left without a dollar in the world.

This was, perhaps, the darkest hour of his life, for now the bitterness of disapointment, the frustration of a noble and worthy ambition, entered deep into his soul. His young nature rebelled at this undeserved calamity, and for the moment he was utterly discouraged. Fortunate it was that the crisis found in him a man of strong and determined character, one who by nature and training was endowed with self-command, with self-reliance, and with a hopeful tempera-

ment. Quickly he rallied from the shock, and determined that here he would remain until success were won, though to win it should require a lifetime. By men of such dauntless resolve the battle of life is already won, for though defeat should be suffered a hundred times, the final victory is none the less assured.

Within a week Mr Blake had found employment, for men had not been slow to recognize his qualities. Soon his debts were paid to the last dollar, and after disposing of his engines and surplus tools, he found that he had still a surplus of some $500. A few months later he was appointed to a responsible position in a large oil firm, at a salary which, with perquisites, amounted to $3,500 a year; and now he was again on the road to fortune, though at the time he little dreamed that fortune was already at his door.

In partnership with one of the employés, he had secured a piece of ground on which the indications were favorable, and on this he sunk a well to a depth of nearly 1,000 feet. Almost in a day he found himself a rich man, for here was developed a flow of some 12,000 barrels per month, the largest in all that region. With the price at which oil was selling, $4 a barrel, his income amounted to $1,000 a day, and as the product of the well decreased, its value advanced in about equal proportion, so that for a time his revenue was not diminished. Soon his possessions were further increased, as a reward for one of those acts of kindness which often mean so much and cost so little. After boring this well, a company was at work on adjacent ground, where they were pushing downward to strike the flow which he had discovered. The contractor was an old Scotchman, whose drill one day became imbedded in the rock, and could not be recovered without the use of certain tools. Although every foot of ground that he made was so much taken from his own chances, Mr Blake at once lent him all that he needed, for with the man himself he had no cause of

controversy. The Scotchman was very grateful, and a few months later told him of a property that could be purchased at a moderate price and gave every promise of a handsome yield. In this he secured an interest, from which he netted a clear profit of $100,000.

Thus at the age of twenty-four, Mr Blake, who but a year or two before had not a dollar to call his own, was already in the possession of an ample fortune. And now he bethought him of his college course and of the profession of the law. But to the position which he hoped to win through this calling he had already attained by other means, and the incentive no longer remained. Moreover, as will presently be related, he was now a married man, and also a man of family. Finally, he decided on a musical education as a substitute for the classics and mathematics of Harvard, and this decision he has never regretted, for with his rare vocal powers and his taste for music, inherited largely from his father, it has probably furnished him with a truer source of gratification than all the Greek and Latin in the world. Removing to Boston, he attended, together with his wife, who is also an accomplished vocalist and musician, a three years' course in the conservatory of music. Later we shall observe the effect on his after life of the training which he then acquired.

Meanwhile his affairs had prospered steadily. Still his oil-wells continued to yield a goodly income, to which he added at times by a judicious stroke of speculation, netting, for instance, $25,000 by a single operation on the eve of the Franco-Prussian war. Having now gained confidence in his own judgment, he began to launch out more boldly, and was already spoken of as one destined to rank among the oil magnates of the land. And so indeed he was; but not in Pennsylvania. First of all, however, he was to undergo yet another reverse of fortune, and that one the heaviest of all his lifetime, though less severely

felt than when, a few years before, he had lost the $3,000 which then seemed larger in his sight than all that he has since acquired.

In 1872 the price of oil was far below average figures, and yet with an increasing consumption, and with a constant diminution in the supply. Up to this date only one stratum had been found to contain oil in large quantities, the product of which was rapidly decreasing, and below this it was supposed that no further deposits would be discovered. Under these conditions Mr Blake purchased for future delivery 1,000,000 barrels at an average of $2.50 per barrel, or a total of $2,500,000. His premises were certainly of the soundest, and but for an unforeseen occurrence the result would doubtless have been a handsome profit instead of the financial disaster which was impending. It was now the month of June, and in July a part of his contracts would mature. During the winter months prices had been steadily advancing; at that time there was a considerable margin in his favor, and to make sure of his position, he had personally inspected every well in the district, without remarking any material change. At this juncture, it chanced that on taking the level of the various wells, a difference was found, amounting in some instances to 40 feet, and in one of them, as an experiment, borings were made to this farther depth. The result was that a flow was struck of 1,700 barrels a day! Other wells were of course sunk deeper, many producing thousands of barrels daily, and oil fell to 40 cents a barrel.

The crash was terrific, and nothing short of the bank of England could have withstood the losses which now befell those who were caught on the wrong side of the market. After meeting his obligations as they matured, until he had paid out the last available dollar of which he was possessed, Mr Blake still found himself about $40,000 in debt. His oil-lands and whatever else remained from the wreck of his

property he offered to surrender to his creditors. But to this they would not listen. They would simply take his note of hand. The disaster which had befallen him was simply his misfortune, and in no sense his fault. It was one that it was almost impossible to foresee; one that might have overtaken the most far-sighted and conservative of operators. It was enough that, so far as he could, he had satisfied to the last cent contracts which had been made only by word of mouth. He had done all that became a man of honor, and what more could they expect of him?

It was then that his attention was first directed to Colorado as a promising field in which to repair his fortunes, and one which offered special inducements, in the high price of oil, and other advantages. And now his genius came into play, the genius of observation and adaptability, with which no man was more largely gifted.

Arriving in Denver in 1874, he found that oil was selling at 25 cents a gallon, one half of which price represented the cost of freight from the Missouri river. So dry was the climate that when forwarded in barrels it must be at once drawn off to prevent leakage, through the shrinking of the wood-work. Hence the bulk of it was forwarded in packages direct from the refinery, and these, when empty, were thrown away as useless. At once it occurred to Mr Blake that the packages were unnecessary. In the petroleum belt of Pennsylvania, oil-cars had been used to some extent for local traffic, and for shipment in bulk to St Louis. All that was needed in Colorado was a car so constructed that it could be utilized on the return trip, together with an improved system of distribution. Thereupon he went to work, and before the end of the year had invented and patented his "freight combination oil-tank car," which from the first proved an unqualified success. He then constructed at Denver and other points storage and wagon tanks, into which the oil could be pumped, and

from which conveniently delivered to dealers. Within three months this system of shipment, storage, and distribution, devised solely by his own practical ingenuity, had been adopted in Colorado, Utah, and Wyoming. At first, through danger of fire, there was some difficulty in persuading the railroad companies to haul the cars, but this was finally overcome, and in due time the invention was utilized in every portion of the United States, and is now being introduced into Europe.

In the spring of 1877 oil deposits in paying quantities were discovered at Newhall and Pico cañon, in California, where wells were sunk and a strong flow encountered. Thereupon Mr Blake repaired to San Francisco and laid before the owners his system of distribution. Its advantages were immediately recognized, and then was formed the Continental Oil and Transportation company of California, which was afterward consolidated with the Standard Oil company, Mr Blake being appointed, when about to return to Denver in 1885, president and manager of the Continental Oil company, which was itself a consolidation with a similar enterprise in Colorado and the Rocky mountain territories.

When first he arrived in the state, Mr Blake was of opinion that Colorado would produce all the oil required for her own consumption, and this opinion has since been fully justified. From the company's wells at Florence were produced in 1888 an aggregate of 42,000 gallons a day, furnishing 95 per cent of the total quantity consumed by the territory which it supplies, with sales amounting to 4,000,000 gallons, while those of the California branch were twice that amount, both of them showing a constant and regular increase both in output and demand. Thus, through furnishing an article of almost prime necessity by home production, a saving has been wrought to the Pacific coast of many millions a year, largely through the enterprise and ingenuity of this public-spirited gentle-

man. Meanwhile he has again become possessed of an ample fortune, though arriving in Colorado burdened with a load of debt, which it need not be said he has since repaid to the last dollar of principal and interest.

Says his friend, the author of *An Inglorious Columbus:* "He undertook in California to revolutionize entirely the methods of conducting the oil business. It is always a slow and difficult task to turn any business from its old channels into new ones, and many a man of broad views and keen foresight has been disappointed in his efforts to bring about, during his lifetime, changes that he saw must ultimately come. Mr Blake entered upon the task with but scanty resources, and with opposition from some of the strongest men and most powerful corporations in the land. He succeeded; but more wonderful to me than his success was the fact that he never had any doubt that he would succeed. He saw the end from the beginning, and never wavered in his confidence.

"Many a man in his success prospers at the expense of others; all that he gains others lose. This is not the case with Mr Blake. He has prospered by handling his business more economically and on better principles than were known under the old methods, and the whole Pacific slope has been benefited by the development of its natural resources, and by the supply of oil at lower prices than would have been possible under the methods that he set aside.

"Another point that is noticeable in Mr Blake's career is, that although he has had the responsibility of conducting great business enterprises, which extend across the entire continent, and has had a weight of care and hard work resting upon him such as would have crushed many another man, he has never suffered himself to degenerate into a mere money-making machine. The man Isaac E. Blake was always more to him than his possessions, and he never thought enough of money to be willing to forget his higher nature."

And thus another of his intimate friends: "Mr Blake is a man of very great executive ability and of the most remarkable modesty. He has a very clear insight into the details of business. He grasps a business argument very readily, and is able to judge readily the effects of surrounding circumstances on a business enterprise. He sees a long way beyond the present, and seems able to foretell the results of combinations in any line of business. He is an unusually good judge of human nature, and manages to gather round him for all subordinate positions men of peculiar fitness for the places they occupy. He is particularly gifted in the art of drawing out from people with whom he converses information which they are not desirous of imparting. He is one of the most acute of questioners, and very subtle in his deductions from any hints or intimations."

Though in business hours Mr Blake applies himself exclusively to business, at other times such cares are laid aside, and his leisure moments devoted to his family, his church, and such recreations as accord with the tastes of a musical connoisseur. As a member and musical director of the Trinity methodist episcopal church, he has done more than any other man in Denver to promote its interests, subscribing handsomely toward the building fund, and presenting it with an organ which has been pronounced by critics a perfect specimen of the mechanics of musical art.

To other churches of the same denomination in San Francisco and Titusville, Pennsylvania, he has made similar donations, but to the church society at Denver this was the first large subscription, and but for his aid and example the stately and commodious edifice which they now occupy would never have been built. "We must build," he said, "a much finer church than we planned at first, because our home will be in this church, and our families will receive their religious training here. If we build a house to live in, the expense might not be so great but that we could tear it

down and build it over again; but the church is a different matter; our church with its organ must be such that, when we come to it twenty-five years hence, we shall not be ashamed of what we have done." With him religion is no matter of form, but a fixed conviction and a settled principle. Morning and night the members of his family assemble at prayers, and on week-days, as well as on the sabbath, he is always to be found at his place, conducting the chorus rehearsals or directing the musical portions of the service.

In his labors on behalf of the church, no less than in his deeds of charity, Mr Blake has enjoyed the advice and assistance of the worthy and accomplished lady who presides over his household. In September 1867, while still struggling with his business difficulties at Petroleum centre, he was married to Miss Agnes N. Maloney, and the union has been in every respect a fortunate one. Of their six children, Winfield, Allie, Belle, Annette Agnes, Evarts, and Robert Ivan, four are members of the church choir, and all have inherited the musical taste of their parents, the eldest son, who has just attained his majority, being reputed the finest basso in Denver.

In appearance Mr Blake is a man of striking presence, an inch over six feet in height, and with an average weight of two hundred pounds. His features are symmetrical and well-defined, with massive head and spacious brow, deep blue eyes, and hair and beard of a light brown hue. Possessed of rare mental and physical powers and of strong personal magnetism, he has the faculty of inspiring confidence among others, and his words never fail to carry the weight of conviction. Not least among his gifts is the power of analyzing men and motives, and that with a keenness of perception that invariably leads him to the right conclusion. In his social intercourse he is cheerful, genial, and entertaining, always ready to sympathize with others, and if need be to assist

them, not by careless and indiscriminate giving, but by friendly counsel, and by placing them in a position to help themselves. In a word, we have in this gentleman a singular combination of a shrewd and successful business man, a lover of music and the fine arts, and an earnest, practical Christian, one to whom his adopted city and state are largely indebted, not only for their prosperity, but for the culture and refinement, the intellectual, moral, and social influences, that should accompany material greatness.

Nathaniel P. Hill

CHAPTER XV.

LIFE OF NATHANIEL P. HILL.

VERSATILITY OF TALENT—ANCESTRY AND EARLY LIFE—GRADUATES AT UNIVERSITY—CHAIR OF CHEMISTRY—VISIT TO COLORADO—EXAMINATION OF ORES—STUDY OF PROCESSES OF REDUCTION—STUDIES IN EUROPE—IMPORTANT RESULTS—BOSTON AND COLORADO SMELTING COMPANY—IN THE UNITED STATES SENATE—FAMILY—PHYSIQUE—SALIENT CHARACTERISTICS.

IN connection with mining operations in Colorado may here be presented a brief memoir of the career of her most successful mining metallurgist, Nathaniel P. Hill, ex-congressman, and whilom professor of chemistry in one of the foremost of New England universities. Men are so organized and life is so short that it may be regarded as a rule that eminent success is attained in but a single pursuit. There are pursuits so nearly akin that they call into exercise substantially the same faculties. There is apparently an affinity between law and politics, and hence lawyers readily turn politicians, and they seem to become statesmen more easily than other classes. Business men, as a rule, are disinclined to study public questions beyond their material aspects. Science is still more remote from politics than business, and the scientist is unadapted to political finesse and manipulation. It is to be expected that men who make politics a study and a profession will more readily than others become successful and distinguished in public life. Occasionally there arises a man of such strong and varied powers

that he succeeds in whatever he undertakes. As will appear in the sequel, the subject of this biography has attained eminence in scholarship, in science, in business, and in the highest form of practical statesmanship.

Nathaniel P. Hill was born February 18, 1832, on a farm near the village of Montgomery, in Orange county, New York. The paternal ancestors are of English descent, and emigrated to this country at an early date. Nathaniel is a cherished family name, and was borne by the great-grandfather and father. Four generations of the Hills have successively resided in Orange county, and three of them owned and occupied the farm on which Nathaniel was born, the father being also born in the same house. This house was built by the great-grandfather for the grandfather more than a century ago, and it is still standing, and occupied by a brother of him whose character we are now making our study.

Nathaniel Hill, the great-grandfather, was born in 1705 and died in 1780, as appears from the inscription on his tombstone. In those days, when the country was new, population was sparse, and means of intercourse and communication were limited, it was seldom that men became known beyond their immediate neighborhoods. It is known, however, that the great-grandfather was a man of industry, thrift, energy, good mental powers, excellent character, and a good citizen. The grandfather, Peter Hill, was born in 1751 and died in 1795. Though cut off before he had reached the zenith of manhood development, he had gained a high place in the estimation of the people of his locality. The inscription on his tombstone, which remains unobliterated, contains the delineation of his character. It is as follows: "In memory of Peter Hill, who died October 14, 1795, in the 44th year of his age. In the various relations of life he was truly amiable, as husband, parent, and neighbor affectionate and obliging. Early in life he manifested

much zeal for the liberties of the country, and in the memorable capture of Fort Montgomery, after making a brave defence, was one of the few who escaped the ruin of that place. In his intercourse and dealing with mankind he was a person of great probity, ever ready to defend the honest poor man, but active to detect and suppress the villainous and disorderly, often the peacemaker between contending neighbors, sound in judgment, and truly exemplary in life. In his Christian profession he was steady to the last, and by his death society has suffered a great loss." No biographer can show a picture of a better character than is described in that inscription. The direful fate of the prisoners captured at Fort Montgomery is a matter of history. The Hills were patriotic stock. The grandmother, Isabella Hill, was a woman of marked powers and estimable character.

Nathaniel P. Hill, the father, was born in 1781 and died in 1842 in the house in which he was born. At his decease he was in affluent circumstances, a condition achieved through good judgment, energy, and industry. He was a man widely known and of great influence. He served in the New York legislature, in the sessions of 1816, 1819, 1820, and 1821 and was honored with the confidence and friendship of Governor De Witt Clinton. In 1836 he was a presidential elector, and voted for Martin Van Buren in the electoral college. For several years he was judge of the court of common pleas, and such reliance was placed on his judgment and justice that his court practically became a tribunal of arbitration rather than a place of controversy and litigation, all parties consenting that the judge should act in the capacity of arbitrator. He was extremely modest, and when a candidate for office, as was the custom in the olden days, he remained at his home, and attempted no schemes to secure votes. He was a man of solid powers, unstained character, and a tower of strength for the right wherever he was known.

The mother of our present Nathaniel bore the maiden name of Matilda Crawford. The Crawfords are of Scotch-Irish descent, and were among the earliest settlers in Orange county. The town of Crawford was named in honor of the family. The mother was a woman of indomitable energy, unflinching courage, and of estimable character. She survived her husband nearly forty years, and died while her son was a senator of the United States, having nearly completed her eightieth year. Both parents were physically strong, and the son appears to have inherited the better part of their combined qualities and character. His ancestors belonged to that great middle class which forced free institutions upon Great Britain, and which is the best and most patriotic element in this country.

It is almost an invariable rule that great talents and marked character are inherited from some ancestor not very remote. Of course there must be a beginning or starting point; but in these days of intelligence and enlightenment it is phenomenal if one is able to say as did Napoleon, "I am the first of my race." Environment restrains or gives impetus to development. The father may have possessed the germs of a great life, and the innate power of magnificent achievement, which are inherited and illustrated by the son because circumstances and conditions forbid the opportunity in the one case and furnish it in the other.

The father died when Nathaniel was ten years old, leaving the widowed mother with seven children, the oldest a son being fourteen, Nathaniel being the third child. The elder brother, James K. Hill, managed the estate for five years under the supervision of the mother, when he left home for the purpose of acquiring an education. He graduated at Yale college, studied law, and has successfully practised his profession in New York city since his admission to the bar, where he is highly respected as a man and lawyer.

James K. Hill has never engaged actively in politics nor sought public position. On the departure of his brother from home the management of the farm devolved upon Nathaniel, and continued till he had reached his majority. He attended school summer and winter, in a schoolhouse erected on his father's farm, until he was ten years old, and thereafter during the winter months till he was fifteen. For six years prior to becoming twenty-one he was a student at an academy in the village of Montgomery, as much as was practicable during the winters. On the farm young Hill acquired regular habits of industry, business experience, and there were developed in him strong and indomitable characteristics which have thus far in life been manifested. His surroundings promoted the growth of inherited integrity which was a marked charactistic of the family.

Being a reading, observing, and respecting young man, and having read the book of Dr Wayland on education, in which he advocated the teaching of more of the natural sciences and other practical studies and less of the dead languages and other branches less useful, young Hill concluded to go to New England and further investigate the subject. He had no acquaintances in Providence, but being impressed with the character of the institution he entered Brown university as a student. After three years' study he gained such proficiency that he was appointed an instructor in chemistry. He did not graduate, but the degree of master of arts was subsequently conferred on him. After serving for a time as instructor he was advanced to a full professorship and given the chair of chemistry. In this position Professor Hill showed unusual ability as a teacher, and achieved especial distinction in the part which he took in conceiving and constructing an improved laboratory. The advance made in the science of chemistry created a demand for increased facilities for instruction in that department. Mostly through his exertions a sub-

scription was obtained amounting to more than fourteen thousand dollars, his own contributions being five hundred dollars, for that object. He visited the best laboratories in the country, and together with his associate, Professor John Pearce, designed all the interior arrangements and the general plans of the building. The apparatus and fittings were made from plans furnished by Professor Hill. The laboratory was much superior to all others in this country; its main features were very soon adopted by Columbia, Yale, and Amherst colleges, and the Rensselaer Polytechnic Institute of Troy, New York. He was not satisfied with what had been discovered by others and became an inventor of better methods for imparting knowledge. He grew so rapidly in this branch of science that it may be a misfortune to the world that he did not make the study and teaching of science a life-work. It should be observed that Brown university is one of the oldest and most renowned educational institutions in the nation, and that Professor Hill achieved this great distinction when he was but thirty-two years of age.

In the chair of chemistry Professor Hill held a position of great future promise; but the rapidly growing west had made a favorable impression on him, and possessing an enterprising and courageous spirit, he could not resist the calls of fortune thither. Certain capitalists in the east were considering a proposition to purchase a tract of land in Colorado, known as the Gilpin grant. They employed Professor Hill to go to Colorado and examine it as to its geological formation, the character of the soil, and the prospects as to mineral deposits. In the spring of 1864 he went overland to Colorado and arrived in Denver in June. He made the investigation, and returned east to report. He made a second trip in the winter of 1864–5, and a third in the winter of 1865, and on his return to Providence resigned his professorship in the university.

During these visits he familiarized himself with the ores in Colorado and with the methods employed in their reduction. He discovered that a considerable percentage contained refractory elements which made their treatment impossible, or expensive and wasteful under the processes then known in this country, in fact mining was practically confined to ores which were free-milling or devoid of refractory substances. His scientific attainments and his strong common sense led him to believe that there must be some way discovered for extracting successfully the gold and silver from these refractory ores. The subject was too important to be left uninvestigated and at rest. His clear conceptions aroused his interest and enlisted his indomitable persistency, and, in obedience to his natural disposition, he resolved to go to the bottom of the matter through exhaustive research and thorough experiment. He procured a quantity of ores possessing refractory qualities, had them hauled in wagons to the Missouri river, and thence shipped to Swansea. He proceeded thither himself to watch and study the processes employed in their treatment. When he became satisfied that he understood the principle and the mechanical contrivances, and that he could apply the processes successfully, he returned to the United States for the purpose of embarking in the enterprise of treating this class of ores near the mines in Colorado.

In the spring of 1867 Professor Hill organized a company in Boston, under the name of the Boston and Colorado Smelting company, with a paid-up capital of $275,000. Accompanied by Hermann Beeger, an able assistant, he reached Colorado in June 1867, and began the construction of a plant at Black Hawk, Gilpin county. One smelting and one calcining furnace were erected in 1867, and the first smelting was done in January 1868. Three smelting and seven calcining furnaces were subsequently added, and the works from the beginning, and until the removal to Argo, were continuously in full operation without

the loss of a day. In 1873 branch works were built at Alma, Park county, and they also proved successful; but since the South Park railroad was completed, these works have been confined to sampling, the ores being sent to Argo for smelting.

Until 1873 the operations of the company were confined to concentrating the ores into matte containing gold, silver, and copper, the matte being sent to Swansea for separating and refining under a contract entered into before the works at Black Hawk were constructed. This contract was terminated by reason of a large reduction in the price of matte, which forced the Boston and Colorado company into the business of separating and refining, and which has added appreciably to the industries of the country. This also made more capital necessary, which was increased to a half million dollars. The refining works went into operation in October 1873. The processes are based upon the best scientific principles known to the world, and the products have uniformly been in the highest state of fineness.

Black Hawk being remote from the business centre of the state, it was determined to remove to Denver, from which railroads reached out to more extensive mining regions, and where facilities in other respects were much greater. A spot on the Colorado Central was chosen, two miles from the centre of the city, eighty acres of ground were purchased, and the construction of a new and more extensive plant was commenced in July 1878, and completed in the spring of 1879. The capital of the company was increased to one million dollars. The plant is constructed in the most scientific, complete, and substantial manner, and at Argo, where it is located, are found the largest crushing, smelting, and refining works of their class in the world; and at all times since their completion they have been and are in full and successful operation. The reduction and refining works erected under the supervision and direction of Professor Hill in Colorado,

in a period of twenty years ending December 31, 1888, have turned out gold, silver, and copper of the value of more than fifty million dollars. The ores treated are so scientifically combined and smelted that there is no expense incurred in the purchase of fluxes, the elements of the ores being sufficient, and the smelting, separating, and refining are done without appreciable waste, and at a minimum cost, which enables the company to pay the miners the highest price for their ores. Through this enterprise of Professor Hill fifty million dollars have practically been added to the metal products of the country in a fifth of a century. Without it that vast wealth might still be sleeping in the mountains. Others might possibly have done the same thing if he had not taken the initiative, but he is entitled to the credit of having conceived and executed the idea in a manner so masterly. Other works for treating the same classes of ores had been built, but had proved failures.

It has been published that Professor Hill disguised himself at Swansea, and worked as a laborer, in order to acquire the secrets of the business, *a la* Peter the Great. The story is wholly fanciful. He went to Swansea with high introductions, and practised no disguise as to his objects. He sought the best sources of information, and when he had acquired a complete knowledge of the subject, he made it of practical avail in his own country. He did this as he has done everything, by systematic methods and a thorough research. He was the originator and inspiration of the grand enterprise, and has been continuously the general manager of the company, and to him in large part belongs the credit of its eminent success.

Professor Hill has acquired a fortune, which he deserves, has given an immense impetus and value to mining, has caused great industrial development in Colorado, and has added immeasurably to the business and prosperity of Denver. For twenty years his management has been satisfactory and profitable

to those who have invested their money in the enterprise. Other works have turned out more metal per annum, but they have treated ores of different qualities, and by simpler processes. Those of the Boston and Colorado Smelting company are more scientific and complex, and there are treated ores which are valueless to other kinds of reduction-works. Professor Hill has been ably assisted, which proves the correctness of his judgment in regard to men. The financial, industrial, and mining interests of the country fully recognize and appreciate the remarkable and useful work accomplished by him, while the praise of the historian has already been sounded in his behalf; and if he had done no more, his name would be conspicuous before posterity, and his achievements would be held in high admiration. Since 1873, when the company went into the refining business, Professor Richard Pearce, an Englishman of great scientific attainments and large experience, has been actively connected with the management, and to him Professor Hill has always attributed a large measure of credit for the success of the enterprise.

Professor Hill until 1878 had very little to do with politics. He had been a consistent republican and had labored for the success of the party. In 1871 he was elected mayor of Black Hawk, and gave the town a good business administration. In 1872 he was chosen to the territorial council and participated in the general legislation. One measure which he introduced and caused to be enacted into law indicated his favorable disposition towards the popular interests. This was a bill to tax national banks. The stockholders in these institutions were to a considerable extent non-residents, and being personal property the stock could only be taxed at the domicile of the holders and thus a considerable part of the capital of these banks escaped taxation in Colorado. The bill, which became a law, provided that the capital should be taxed where these banks were located and carried

on their business. The measure encountered the opposition of the banks of course, but being just and in the interest of the people it became popular.

In 1879 Nathaniel P. Hill became a senator of the United States from the state of Colorado. The place came to him not as a politician, but as one who had contributed very largely to the growth and prosperity of the state, as one who possessed learning and culture, and the highest character for probity and respectability. His experience in public affairs was limited, and he was without taste for or skill in political manipulation. He had lived in the territory and state for fifteen years, and had been absorbed in business. He had acquired a general knowledge of the local wants, but not that thorough understanding derived from the study which duty imposes. His knowledge of national affairs was not such as is acquired from active participation, but such as might be expected of a citizen of observation and erudition, interested in the welfare of the country. A new member enters the senate under certain disadvantages He is associated with senators of ripe experience. In both branches of congress, and more especially in the senate, there is an aristocracy of service which carries with it rank in committees. It ordinarily requires a full term service to give a senator equality of status in this respect. Only a young senator of extraordinary ability and wide information can command attention and be effective in influencing important legislation. During the organizing period of the government distinction was more easily attained, and at times when grave political questions have agitated the country, eloquent advocates of sectional or partisan views have stepped speedily into prominence, though their labors have not been the most useful in practical statesmanship. Those who have attained great reputations as legislators like Mr Clay, Mr Benton, Mr Sherman and others, had the benefit of protracted experience before they gained high positions. When Professor Hill

entered the senate, and during his entire term, there were no exciting questions before the country, and legislation related to financial and material subjects, and was entirely of a practical character.

The duties of a senator in these later days are multifarious and endless in detail, and impose arduous and unremitting work. They are in the senate, at the presidential mansion, in the departments, and in committees. There are numberless social duties and obligations. The faithful senator will not neglect any of them. The senator who goes to the capital to discharge his whole duty to his constituents has little time to devote to making political arrangements and combinations, and he is unable to watch the sinuous proceedings of rivals at home or to thwart their schemes. Mr Hill sat himself down at the very outset to systematic labor, and began by giving attention to the local wants of his state. He studied them thoroughly and secured the enactment of advantageous laws more comprehensively and speedily than usually occurs. He did not fail to interest himself in general questions, and as will be seen was armed and equipped for action on all opportune occasions. There was nothing sentimental, romantic, or exciting in the local legislation which he secured, but it was all sensible, business-like and valuable.

The act to remove the White river and Uncompahgre Utes from Colorado to Utah encountered opposition, from a sentiment prevailing in the east which subordinates the interests of the whites, and which would leave large and productive regions undeveloped and unused except as hunting-grounds for the savages. The bill of Senator Hill was just to the Indians and relieved the government from any truthful charge of bad faith. The territory occupied by these bands in Colorado contains eleven million acres, and the act threw their immense tract open to settlement and development by the whites, and it soon became one of the flourishing sections of the state. In order to

make it easy for the people to acquire lands in this tract, he introduced a bill, which became a law, for the establishment of land offices at Gunnison. In the same sensible and just way he attempted to remove the irritation between the whites and the southern Utes, but though the senate accorded with his views, the house of representatives differed and his bill for that purpose did not become a law.

Senator Hill obtained a liberal appropriation to be expended in experiments to find artesian water. The government had been appropriating money to relieve the people of the lower Mississippi valley from too much water, and it seemed to him to be no less desirable legislation to expend money to supply people who had too little water. He also introduced a bill which ultimately became a law, with the efficient aid of Judge Belford in the house of representatives, under which the state could take other lands in lieu of school sections sixteen and thirty-six when found to be mineral, which was of great value to miners and to the school funds. He further introduced a bill and secured its enactment appropriating $300,000 for a public building in Denver for the United States courts and for offices for the federal officials. He actively and successfully interested himself in simplifying and improving the mining laws, which reduced expenses and facilitated the making of adverse claims. He was, moreover, the father of the measure to throw open the Hot Springs reservation to settlement, and to enable the people to obtain title to lands they had improved, also the act to extend mail facilities to mining camps, under which the postmaster-general was authorized to afford mail service to newly established camps without waiting for an act of congress; and still further, an act increasing the compensation of witnesses in United States' cases in sparsely settled districts, which was a measure of justice and advantage to a large portion of the people of Colorado.

One of the most important laws of a local nature,

the passage of which Senator Hill secured, was the act making Denver a port of delivery. Prior to 1870 all imported merchandise was entered, appraised, and duties paid at ports of entry, which were all located on the coasts or on the boundaries between the United States, British America, and Mexico. Hence the merchants at these ports had great advantages over those of interior cities—in fact, had a monopoly of the import trade. Congress in that year passed an act authorizing the transportation in bond of imported goods from certain ports of entry to certain interior cities, which were created ports of delivery, and the payment of duties at the points of ultimate destination. This act was passed as an experiment, and has from time to time been extended so as to include other interior cities. It had the effect to destroy the importation monopoly, and distribute the payment of duties throughout the country. The extension of that law to include Denver secured great facilities and advantages to her merchants, who can import under it directly from foreign countries on terms of equality with the merchants at ports of entry, and they are actively availing themselves of its provisions, and are gratified that they possess this power. The vigilance of Senator Hill seemed to enable him to provide for every rational need of the people of the state. If there was anything more to be done during his term it escaped all observation. Judging from what has since been done, it is probable that his accomplishments covered the entire ground.

The action of Senator Hill in matters of local legislation gave him status and popularity among the thinking and substantial men of his state, but did not give him national reputation; he, however, became distinguished, as will appear from his utterances and labors upon measures of general concern. As has been said, during his term national questions were financial, material, and practical. It was a halcyon period in politics. Acting on the maxim that facts

are stubborn things, Senator Hill continually loaded himself with statistics, and avoided all theories except they were founded on facts. His remarks upon the wool tariff demonstrated his familiarity with that interest, and his arguments were unanswerable. He is a protectionist to American labor and industries, and believes in giving our people an equal chance at least in our own markets. He was ever at the post of duty, and participated in the debates and legislation of the body to which he belonged. He was the consistent and persistent opponent of monopoly in all its forms, resisted every scheme to take improperly from the government, and fought for the interests of the masses with intelligent and unflinching resolution. Upon three measures he especially distinguished himself, which will be presented in the inverse order of their importance.

In the act of congress chartering the Texas Pacific Railway company there is a section authorizing the New Orleans, Baton Rouge, and Vicksburg Railroad company to connect with the Texas Pacific at its eastern terminus, and to aid its construction from New Orleans to Baton Rouge, and thence via Alexandria to make the connection, a grant of lands was made through Louisiana to the same extent as was made the Texas Pacific through the state of California. The condition of the grant was that the whole line should be completed within five years from the date of the act. The New Orleans, Baton Rouge, and Vicksburg Railroad company had a state charter authorizing it to build on the east side of the Mississippi river to Baton Rouge, and thence to the north line of the state. This company had no financial strength, and succeeded in obtaining the land grant and the right to connect with the Texas Pacific as a mere matter of speculation. It never built any road whatever. The New Orleans Pacific Railway company by purchase and construction secured a road on the west side of the river to Shreveport. It did so

without any land grant or other public aid, and its line was not completed to a connection with the Texas Pacific until more than ten years had elapsed after the passage of the act granting lands to the New Orleans, Baton Rouge, and Vicksburg company. For a nominal consideration the New Orleans Pacific company became the assignee of said land grant. The pretended transfer occurred nearly ten years after the grant was made. Senator Hill introduced a bill to forfeit this grant, and to restore the lands to the public domain. In a speech in support of his bill he showed conclusively that the lands had not been earned, and could not be lawfully patented to the purchasing company. He manifested the utmost familiarity with the facts, and construed statutes with the ability and correctness of a learned and experienced lawyer. The notable feature of the performance was the boldness with which he locked horns with the entire force of the land grant railroad companies, and combated all their influence. If the case had stood alone he would have won the fight, but his success would have endangered all the unearned land grants in the country. Notwithstanding his crushing exposé, the lands were subsequently patented to the New Orleans Pacific company without any additional legislation by congress. Senator Hill performed his duty nobly and manfully, and the failure of his bill was not through his fault.

On another subject Senator Hill encountered one of the most stupendous monopolies in the nation, and that was upon his bill to make the telegraph a part of the postal system. He was chairman of the senate committee on post-offices and post-roads. In his report and speech on that subject he completely answered all the objections urged by the friends of the Western Union Telegraph company. The principle and theory of the postal system were elucidated, and the practices and experiences of European governments explained. He argued that the public interest would be subserved

by cheap telegraphy, and that upon principle the telegraph is as properly a means of communication and correspondence under government control as the mail pouch or any other contrivance used in the postal service. He exploded the idea that there was danger from increase of patronage by showing that appointments to operate the postal telegraph could not be partisan because all the places required technical education and skill, and that it would be the best of all fields for applying the principles of civil service reform. He disclosed the fact that the Western Union property actually cost twenty million dollars, and that its issued stock was eighty million. This immense interest had sufficient power to prevent the success of this pioneer effort. Sir Rowland Hill was the father of cheap postage in England, and Senator Nathaniel P. Hill is the first able and strenuous advocate of cheap telegraphy in the United States. Revenue necessity was interposed as the objection in the one case, and monopoly was the obstacle in the other. Cheap postage in England succeeded through persistent effort, and cheap telegraphy may prevail in this country when in high places it has another masterful and self-abnegating advocate.

The crowning work of Senator Hill's career in congress was his advocacy of continued silver coinage. The question had been under consideration and discussion for many years by all the prominent commercial nations of the world, and it is vitally important to the silver-producing sections of this country. Senator Hill was always ready to vindicate the cause of bi-metallism, and frequently submitted remarks on the subject in the senate. His best efforts were in two speeches, one delivered June 20, 1882, in reply to a speech of Mr Sherman on the bill to enable national banking associations to extend their corporate existence; and another delivered December 14, 1884, on a resolution introduced by himself, which declared that "the material interests of the United States

require that its silver coinage policy shall be maintained."

These speeches evince remarkable resource and perfect familiarity with facts, and a cogency of logic absolutely unanswerable. Every objection to silver coinage was successfully answered, and little attempt was made to controvert the arguments in its favor. Mr Sherman and other friends of mono-metallism conceded their great strength, and that they were the best that had been or could be made on the double standard side of the question. The friends of silver felt that they had a champion who had triumphantly vindicated the right of their cause, and he became a recognized leader in the senate. These speeches attracted attention and elicited comment in Europe as well as in America. The comments were numerous on all sides. A few will illustrate their general character. The *Bankers' Review* said, "The speech of Mr Hill of Colorado on the silver question delivered in the United States Senate in June last has attracted much attention, and has been published in full in many journals. It is undoubtedly an able presentation of the silver side of the question, while its marked candor and fairness especially protect it against an angry or disrespectful criticism." The New York *Mining Record* among other things said, "The people of Colorado may be congratulated in having sent as their representative in the senate of the United States one who from his place in that body on the 20th of June delivered the most timely, complete, compact and triumphant demonstration of bi-metallism that has yet been achieved by any one in congress."

Senator Morgan of Alabama paid him the following tribute: "The honorable senator from Colorado the other day demonstrated to the senate in a way that no man will ever be able to answer, that the silver dollar for all purposes of domestic use is as good as the gold dollar, whether issued at 16 to 1, 15½ to 1, or 15 to 1. The logic and facts were exhausted in that

argument and they never will be answered anywhere." The New York *Stockholder* said: "The longer the British gold doctrinaires wrestle with the speech of Senator Hill the more they will realize its masterly force and unassailable logic. They have not yet answered it nor can they do so. A scholarly speech was to be expected from an ex-professor of Brown university, but Mr Hill has given the country something a good deal more and better than that. He has discussed a great question calmly, dispassionately, and with a most thorough and masterly statesmanship. His speech will be one of the landmarks of currency debates."

The magnificent literature of all his efforts is everywhere conceded, and those who follow the senator in advocacy of bi-metallism will hardly be able to occupy any ground except that broken by him. As Webster's speech in reply to Hayne forms the basis of all argument in support of the correct theory as to the boundary between state and national authority, so that speech of Senator Hill in reply to Mr Sherman will in all future time constitute the grounds from which bi-metallism in this country will be defended. Only the development of new facts or conditions hereafter can add to or detract anything from its conclusiveness.

Senator Hill was an advocate of the payment of the public debt *in toto* and as soon as practicable. In a speech in the senate and in an article in the *North American Review*, he made arguments in favor of the debt-paying policy drawn from the opinions of all the earlier presidents, the uniform practice of the government from the time of its formation, and from wise economic principles. He rapidly rose to a high plane of statesmanship, and manifested the qualities of the publicist. In his speeches and lectures he indicates a thorough knowledge of government, and of the dangers to the public interests. While he is willing to respect corporate rights and give protection to legiti-

mate interests, he is unalterably and actively opposed to monopoly and to the trusts which have jeopardized the public welfare.

With such a record of labor, successes, high motives, profound learning, and of unselfish devotion to the best interests of his state and the nation, it will be a matter of surprise that he was not reëlected to the senate as his own successor. Colorado is streaked over with railroads, and Denver is the point at which they all converge. Many of them are land grant roads, and one of them, which has large interests in Colorado, was closely allied to the Western Union Telegraph company. Senator Hill's action upon the Backbone land grant, and the persistent and able efforts he made in behalf of postal telegraphy, as well as his known views upon the subject of monopoly, naturally arrayed the railroad corporations against him, and some of them put forth their best efforts to defeat him, and were not particular as to the means employed. Colorado, too, like all new countries, had her full share of adventurous and not altogether scrupulous politicians, and they were not friendly to Senator Hill for the reason that it had been discovered that he could not be used to further their interests in any reprehensible way. These elements combined and brought about his overthrow. His friends were the business men and the intelligent and substantial citizens who take little or no part in political manipulations. Colorado is a state of intense activities, and those engaged in business pursuits unfortunately give little time or attention to public affairs, and leave politics to the management of place-seekers. All concede Senator Hill's great ability and valuable services, and none question his probity. After his defeat he pursued the even tenor of his way in business affairs, never relaxing his endeavors to promote the cause of good government and to develop a high public sentiment. Senator Hill is still a young man, possessing strong physical and mental powers; and

Colorado and the nation should not be deprived of the benefit of his talents and industry.

For several years Senator Hill has owned the Denver *Republican*, a newspaper of wide circulation and influence. He is not the editor, but as it is understood controls its general policy. It is a journal of high character, bold and unflinching in its advocacy of the principles of the republican party, and is the foe of all combinations and schemes inimical to the interests of the public. It is the most potential influence in opposition to monopoly and in behalf of the masses in the state of Colorado.

In July 1860 Professor Hill married Miss Alice Hale, whose father was a merchant in Providence. He has three children, the eldest a son, whose Christian name is Crawford, given in honor of the maiden name of his paternal grandmother. The son is finely educated, being a graduate of Brown university.

The eldest daughter, Isabel, after attending school for a time in Providence, graduated at the Misses Graham's school in New York city, and the youngest, Gertrude, is a graduate of Farmington, Connecticut. Senator Hill is an excellent husband and father, and through the aid of his estimable wife his home is a model for domestic happiness. In Washington, the senator's residence was a resort for people of culture and refined tastes. He made no display, but entertained with genial grace and hearty generosity. He has impressed his substantial character and high-mindedness upon his children, and in future life they will reap rich benefits from his teaching and example.

Mr Hill is some five feet ten inches in height, compactly and strongly formed and weighs one hundred and seventy-five pounds. His complexion is florid, hair brown and tinged with gray. His eyes are blue and have a decided and determined expression. He possesses both tremendous force and endurance, and has also a combative spirit which enables him to grapple with and surmount obstacles from which most

men would retire. He works persistently and thinks constantly. His mind is so thoroughly disciplined that he can turn from one subject to another without confusion, and he despatches business with promptness and accuracy, because he is orderly and systematic. He is a busy man and has no time to squander in pleasures or trifling pursuits, yet he is sociable and agreeable. He is unostentatious, modest, and reluctant to talk about himself, and while he is undoubtedly conscious of his ability and achievements, there is not the slightest appearance of conceit or manifestation of egotism.

Senator Hill is not a romancer, nor is he destitute of refined tastes, for he is fascinated with whatever is real in art and grand in nature. He is not inclined to overdraw or underrate, but takes the exact measure of all things. His investigations are habitually exhaustive, consequently he makes no mistakes as to the policies he advocates, and he is not liable to err in his estimate of character. He is a safe man in business and public affairs, for he is not only accurate but conscientious. The rectitude of his purposes and the clearness and comprehensiveness of his conceptions render him courageous, and a formidable antagonist in any field of controversy. His achievements have been remarkable in realms widely divergent as to the character of mutual powers required. Colorado is fortunate in having such a citizen, the American nation is honored by his achievements, and the world has been greatly benefited through his labors.

CHAPTER XVI.

MINES AND MINING—NEW MEXICO, ARIZONA, AND TEXAS.

HISTORIC MINES—OLD AND NEW PLACERS—YIELD—LATER DEVELOPMENTS—THE PUEBLOS AS MINERS—STORIES OF LOST MINES IN ARIZONA—EFFECT OF THE CIVIL WAR ON MINING—THE TOMBSTONE BONANZAS—COPPER DEPOSITS—SILVER-BEARING QUARTZ—DIAMOND FIELDS—GEOLOGICAL CHARACTERISTICS—THE GREAT BELT—COAL AND IRON BELTS IN TEXAS—COAL MEASURES—TREND OF VEINS—AREA—COAL MINING—PETROLEUM—IRON—COPPER—SILVER—LEAD—GOLD—SALT—GYPSUM AND OTHER MINERALS.

THERE is little or no evidence to show that the Spaniards engaged extensively in mining in New Mexico. Pino states in 1812 that old silver mines were found closed up with the tools inside of them; but these were probably mere prospect holes made before 1680. The Santa Rita mine, discovered by Lieutenant-colonel Carrisco, appears to have been worked from about 1804, and Pike in 1807 informs us that a copper mine west of the Rio Grande, in latitude 34°, yielded 20,000 mule-loads of metal annually, copper vessels being articles of export. Thus it seems that the few mining operations which were undertaken under Spanish rule occurred after the opening of the nineteenth century. During the Mexican possession after 1821 some little progress was made in this industry. Placers of gold were worked in two districts about thirty miles southwest of Santa Fé. What were known as the Old Placers were discovered in 1828, and yielded during 1832-5 from $60,000 to $80,000 annually, but much less after that period. In 1839 the New Placers were found,

near which the town of Tuerto sprang up, containing twenty-two stores in 1845. In that year the yield of the two districts was $250,000. The method of extracting the gold, which was pure and fine, was very primitive, prejudice against foreigners preventing the introduction of improved apparatus. Near Taos, also, and at other points gold was found and mines were worked for a short time.

For many years after the occupation of the territory by Americans little more than prospecting was accomplished, the smallness of their numbers, want of capital, cost of transportation, and lastly the hostilities of the Indians being the chief causes that impeded progress. Nevertheless, explorations revealed the mineral wealth of New Mexico. During the confederate invasion in 1861–2, operations were for the most part suspended, but after 1864 a marked progress is observable. It has been estimated that down to 1868 the annual yield of gold and silver was from $125,000 to $250,000; during the period 1869–74, $500,000 a year, and $400,000 in 1875-80. In Taos county, and the western districts of Colfax, were discovered the chief developments during this period, gold placers being profitably worked whenever a supply of water could be obtained. In these districts stamp mills and hydraulic methods were introduced after 1868. Rich deposits of silver and lead were found in the Magdalena mountains of Socorro county, and in the Mescalero reservation gold placers, while numerous quartz mines were also discovered. But the most prominent section consisted of the districts of Pinos Altos, Silver city, Burro mountains, Hillsborough, and Lone mountain, where much more silver was produced than in all the rest of New Mexico.

Since 1880 the developments have been truly wonderful, the railroad bringing a crowd of prospectors and numerous capitalists. While the number of the mines discovered was extraordinary, their richness was still more so. In Lake Valley district, Sierra

county, a deposit was discovered in 1881, yielding from $5,000 to $20,000 per ton, and Governor Safford in 1884 offered $50,000 for the ore which he could extract unaided in ten hours from a part of the mine called the Bridal chamber. The workings are thus far confined for the most part to the old mining regions, which, however, extend over a great part of the country. Every county is rich in mineral wealth, and in most of them it has been extensively developed. Grant, Sierra, and Socorro counties, however, have contributed nine-tenths of the total product, which, including base bullion, was estimated in 1885 at $3,800,000, and in 1890 at $4,000,000.

Few mines have yet reached a depth of over 500 feet; but there is nothing to indicate that deep mining, as on the Comstock and elsewhere, may not be profitably conducted in the future, for as depth is reached on the fissure-veins, their yield is not diminished either in quantity or quality. At a certain depth, however, the ores become refractory, and require expensive machinery for their reduction.

A great number of metals and minerals are found in Mew Mexico; iron ore is abundant, and copper and lead exist in immense quantities. Near Santa Fé mica and turquoise are mined, and coal deposits extend in all directions, being extensively worked at Amargo and Raton in the north, while near the capital of the territory beds of anthracite are found. Though the present progress in mining may not correspond with the extravagant expectations raised by the discoveries of 1880–2, and the fabulous wealth of many of the mines, yet there is little reason to doubt that, when certain retarding conditions are removed, such as inefficient methods, want of transportation facilities, and land-grant difficulties, New Mexico will rank among the first states and territories in the production of the precious metals, copper, iron, lead, and coal.

No proof exists that the Pueblos of Arizona in prehistoric times engaged in mining operations, and the fact that Coronado, in his famous expedition, found none of the golden treasures reported to exist in the seven cities of Cíbola confirms the supposition that the precious metals had no attraction for those ancient tribes. Nor is it likely that an agricultural people, living in exclusive communities, and never engaging in commerce, should attach any special value to gold or silver, surrounded as they were also by other tribes equally indifferent. A few personal ornaments of these metals may have been worn, but if such there were, the nuggets were probably found in the beds of streams by accident, without any systematic exploration.

The first authentic information regarding mining operations in Arizona is the discovery of the wonderful Bolas de Plata at Arizonac in 1736, which caused a great excitement for the next five years. The site was between Guevavi and Saric, and the silver deposits were of unparalleled richness, nuggets being found weighing from 200 to 400 pounds. The Jesuits are reported to have engaged extensively in mining, but there is no certainty that any operations, except on a small scale near the presidio of Tubac, were actually carried on, though probably some discoveries were made in prospecting tours. During Franciscan times the same state of things continued. After 1790, during a period of from twenty to thirty years when the Apaches were at peace, doubtless many mines were opened from time to time with profit, but the developments could not have been very extensive or rich. It is to this era that we must trace the old workings discovered in later years and the baseless stories of abandoned mines. Such as really existed were in the vicinity of Aribac, about seven leagues distant, others in the valley of Babocomori, three leagues beyond. In Santa Rita mountain, also, and its environs, there were five silver mines.

During the Mexican war of independence the mining industry declined, nor did it ever recover as long as Arizona was under Mexican rule; and when the territory passed into the possession of the United States not a single mine was being worked. After the consummation of the Gadsden purchase, the Ajo copper mines in the Sonoita region were opened in 1855, by a San Francisco company, and in 1856 Charles D. Poston and Herman Ehrenberg formed a company and began to develop silver mines near Tubac. Several other companies were formed during this and the following years, and undertook similar operations in the mountain ranges on both sides of the Santa Cruz valley. Conditions were unfavorable, fuel and water being scarce, the cost of transportation heavy, and the Indians troublesome; nevertheless many of the mines yielded a large amount of bullion. The developments gradually extended, and copper and gold were discovered, as well as silver. Prospecting operations were extended to the upper and lower Gila, and along the border of New Mexico, and an era of progress commenced, which, however, was temporarily interrupted by the outbreak of the civil war, causing the withdrawal of the troops. Thereupon the Apaches became hostile; mining property was destroyed; miners were killed, and work was for the most part suspended. On the lower Gila, however, gold-placers were profitably worked from 1858 for several years, and in 1862 the field of operations was transferred up the Colorado to the region where La Paz, Olive City, and Ehrenberg, in Yuma county, soon sprang into existence. These placers attracted a great number of California gold-seekers, who gathered much coarse gold, and then pushed forward in a northeasterly direction under the pioneers Pauline Weaver and Joseph Walker, whose names were given in 1863 to two districts in the southwestern portion of Yavapai county. Besides the placer fields rich gold and silver bearing lodes were discovered.

In 1865 the territory of Arizona was organized, and it was doubtless owing to the mining interests of Yavapai county that Prescott became the capital. The excitement continued for years, and many rich veins were discovered. Presently, however, the Apache war made prospecting extremely perilous and prevented the introduction of capital. Nevertheless, several of the richest mines continued to be worked, and some near the Colorado made no small profit by sending selected ores to San Francisco at an enormous cost. But the great mineral wealth of the country, especially in the Apache region, was well known, and the people were impatient for the subjugation of the Indians in order that development might proceed without interruption. Enthusiasm prevailed throughout the territory, and the government commissioners, J. Ross Browne and R. W. Raymond, gave special prominence in their reports covering the period 1866–75, to the mineral resources of Arizona.

At length, in 1874, the Apache war came to an end, and a revival of the mining industry took place; mines which had been practically abandoned in Pima county for thirteen years being reopened. Many new lodes were discovered in Gila and Pinal counties, and progress was marked. Nevertheless capitalists were slow in coming forward, and the cost of transportation was enormous, so that the eager expectations of the people were not so speedily realized as had been anticipated. All eyes were turned to the projected railroad for relief, and in 1878 it reached the Colorado border, while five years later two main lines extended across the country. But this facility of transportation by no means put an end to the high rates, the policy of the railroads being to charge all that the traffic would bear. The discovery of the Tombstone bonanzas in 1877, however, raised Arizona to a high degree of prosperity during the succeeding years.

The district in which the Tombstone mines are sit-

uated was a favorite haunt of the notorious Apache chief, Cochise, who from the Dragoon mountains kept a sharp lookout over the country for the arrival of prospectors or of travellers. One Shieffelin, a bold and experienced prospector, decided to explore the inviting country beyond the old presidio of San Pedro; and though warned that he would find there his tombstone instead of a fortune, set forth from Camp Huachuca at the end of 1877. In February 1878 he discovered silver deposits of extraordinary richness, and on his return in safety with his specimens, the report of his discovery spread like wildfire. In derision of the dismal forebodings of his friends, he named the district Tombstone. An army of adventurers hastened thither, and claims were taken up by hundreds, there being now over 3,000 locations in the district. The first stamps began to run in 1879, and since 1880 a large quantity of bullion has been produced, the total output up to 1886 being estimated at $30,000,000. The most famous mines are the Contention, Grand Central, and Tombstone, the ore of which is easily worked. A depth of over 750 feet has been reached, and little doubt is entertained that the lodes at greater depth will prove productive. In Cochise county are also situated the Bisbee copper mines, which in 1881 produced over $3,000,000.

Arizona, indeed, is famous for its copper mines, which probably produced 34,000,000 pounds in 1890. The principal groups are the Planet, Centennial, and Copper King, in northern Yuma; the United Verde company's mines in the Black hills of Yavapai; the Globe district lodes of Gila; and the old Ajo mines in western Pima. But the copper deposits near Clifton, Graham county, excel all others, the ore being so rich that it is rather quarried than mined.

In 1883 four prospectors, Alexander McKay, George Teitsworth, Albert Weldon, and James A.

Rourke were encamped at the foot of the rugged Quijotoa peak, in Pima county, the first of whom determined to make the ascent. After some hours of climbing he reached the summit, which he found to be a mass of silver-bearing quartz croppings. Specimens of ore were assayed at Tucson, and found to be remarkably rich, and the claims which the prospectors located passed into the hands of Flood, Mackay, and other capitalists of San Francisco. McKay's discovery was expected to lead to the development of the richest mines in Arizona, and the companies—of which there are five, namely, the Peer, Peerless, Crocker, Weldon, and Combination—commenced operations on an extensive scale. Considerable excitement was created, and all round the base of the mountain claims were taken up. Although much money has been expended and work done in developing these mines, hitherto little is known of the results, and the impression prevails that Quijotoa has proved a failure. There are some, however, who still believe that vast treasures will be uncovered when silver regains its former value.

An extraordinary furor was created in 1872 by the report of the discovery of diamond fields in Arizona by two prospectors, Arnold and Slack. The excitement was not local, but extended throughout the United States. These men had been employed by A. Harpending and G. D. Roberts of San Francisco to explore in the Rocky mountains; and returning to that city in November 1870 reported their discovery to Roberts. Harpending being in London, the matter was kept a profound secret, and the two prospectors made a second journey, extending their explorations, and making, as they claimed, other discoveries about one hundred miles south of their first one. Then W. M. Lent and General Dodge were admitted into the secret, Henry Janin was now sent as an expert to the fields, and reported them rich in diamonds. Thereupon a company was formed, with

a nominal capital of $10,000,000, the directors being Milton S. Latham, A. Gansi, Thomas H. Selby, William F. Babcock, Louis Sloss, Maurice Dore, William M. Lent, W. C. Ralston, and General McClellan, D. D. Colton being manager. A title to three thousand acres was obtained, and splendid diamonds and rubies from the mines were exhibited in New York and San Francisco. Meanwhile the papers were full of the matter; large sums were paid for interests in the scheme, and everything was ready to place the stock on the market. Fortunately, however, Clarence King, United States geologist, visited the spot in time to save the purses of the public. He discovered that the claim had been "salted" with rough diamonds from different parts of the world, principally Brazil and South Africa. The excitement in Arizona had not been so great as elsewhere; nevertheless, some dozen prospecting parties explored the ground, which was said by Arnold to lie south of the Moqui towns, though it was generally agreed that it was situated in the region of Fort Defiance. Numbers of beautiful stones were found, such as crystallized quartz, and garnets, but of little value. In fact, care had been taken to conceal the real locality of the claim, as the diamonds had cost no little money in London; and the truth is that the reputed diamond fields were hundreds of miles away from the Arizona boundary, their real location being in the southwestern portion of Colorado. Who were the victims and who the culprits in this nefarious scheme has never been clearly ascertained, but the Arizona diamond swindle has been and is yet regarded as one of the greatest frauds of the present age, and it is impossible to estimate the number of millions of which the public would have been robbed if the exposure had not occurred so opportunely.

Arizona presents peculiar characteristics as a mineral region, exhibiting strange geological combina-

tions, and an extraordinary extent of area producing the precious metals; of the total area of about 72,000,000 acres, nearly one half is mineral-bearing. The deposits are of complex formation, and of great richness, ores producing from $1,000 to $20,000 per ton being not uncommon. A metalliferous belt extends from the western border of Mojave, below the big bend of the Colorado, and trending southeastward to Gila county, thence turning southward to the Mexican boundary. Off the main belt are the Yuma county mines of gold, silver, lead, and copper, and in the extreme northeast, above Chiquito, are extensive fields of bituminous coal of good quality, near which petroleum has been found.

The great belt may be divided into four groups of mines, the first those of Mojave county, the number of which in 1882 amounted to 2,700. The second group includes the mines of southern Yavapai and northern Maricopa, where in the several districts 7,300 mines had been located down to 1876. Farther to the southeast is the third group, extending across the Rio Verde into Gila and Pinal counties, the leading districts being Pioneer and Globe. The principal mines in this region are the Silver King, Mack Morris, and Stonewall Jackson, the first of which was discovered by Stoneman's soldiers in 1871, and through their description it was rediscovered in 1875. In Pima and Cochise counties is to be found the fourth group, mainly lying in the ranges bordering on the Santa Cruz and San Pedro valleys, including the famous Tombstone mines already mentioned. The total product of Arizona in gold, silver, and base bullion is estimated at about $90,000,000. For the decade ending 1869, it is believed that the yearly average was $1,000,000, which in 1882 had increased to over $8,500,000, though in 1890, owing to various causes, it had fallen to $6,000,000.

Among the greatest, though as yet almost undevel-

oped, resources of Texas are her coal and iron, of which the two great mineral veins of Missouri extend in a southwesterly direction through Indian territory into various portions of the state. The so-called Missouri coal-measures enter it by Montague and Clay counties, and, expanding, sweep southward through a wide belt to the Rio Grande, strata appearing in Uvalde, Zavalla, Maverick, Dimmitt, and Webb counties, as well as in Tom Green, Presidio, and El Paso. Thus the coal fields of Texas extend over a vast area, estimated at over thirty thousand square miles, and comprising portions of thirty or forty counties. Yet these deposits, unsurpassed in extent and quantity by any of the coal regions of the United States, have undergone but little exploitation, and only in a few counties are mines in operation

In Webb county, about twenty-four miles above Laredo, are what are known as the school-land coal mines, and three miles farther north are the San Tomas mines. The coal taken from these mines is what is known as "cannel," and is of fine quality, igniting easily, and burning with a bright flame. Convenient transportation is supplied by the Rio Grande and Pecos railroad, the company having completed a branch from Laredo to the mines. At Eagle pass, in Maverick county, a large vein of bituminous coal of excellent quality has been opened, and is being extensively worked, while in Presidio and El Paso, in the Eagle mountains, and elsewhere, coal of a superior grade is mined.

The Rockdale beds, in Milam, yield a very valuable product of the bituminous cannel variety, and are owned by the Austin and Central Texas Coal company. Three veins were opened about 1882, the first six feet thick at a depth of forty feet, the second one foot thick thirty-one feet lower, and the third seam, which is seven and a half feet thick, at a further depth of six feet. The bed so far explored comprises an area of 250 acres without a single break, justifying

the opinion that the Rockdale mines will prove to be practically inexhaustible. Tests made at the Austin gas-works give the following results as to the gas-producing qualities of this coal: the number of feet of gas obtained from one pound of Pittsburg coal was 4 10; of that from McAllister, Indian territory, 4.50; and of Rockdale coal, 6.50. These mines are most conveniently situated, being immediately on the line of the International and Great Northern railway.

To the north, in Palo Pinto county, bituminous coal of good quality has been found, and two mines, yielding about ninety-two tons per day, have been opened. Twenty miles west of Weatherford, in Parker county, another deposit is worked, near Millsap, on the Texas and Pacific railway, and in Young county, near Fort Belknap, coal has been mined for some years for the use of blacksmiths in the surrounding districts. In Stephens county two companies have engaged in coal-mining, and demonstrated that the mineral exists in paying quantities; in Jack county three rich veins have been found, and in Wise county a bed has been opened at Bridgeport, the coal being used for household purposes and by blacksmiths.

Although from the above statements it appears that a number of mines are worked in Texas, nevertheless the importance of her coal-fields has not as yet received due attention, or thorough scientific investigation. Future exploitation will probably result in the discovery of the mineral elsewhere in quantities as great as in the counties named. The veins vary in thickness from about seven feet to eighteen inches.

In a country in which such extensive carboniferous strata exist, it is more than probable that petroleum is deposited in great quantities in subterranean cavities. Indeed, indications seem to point out that there is a stream of this mineral oil flowing from the uplands of central Texas to the gulf. In Brown county there

are two wells 90 and 120 feet deep, yielding 80 per per cent of pure oil; and in Burnett county petroleum is found at Tar springs, where it covers the surface of the water. To the southeast it appears again in Bell county, and proceeding in the same direction at Hardin, on the water of the wells at Sour lake. Near Beaumont it reappears and at Sabine pass the surface of the water is frequently coated with oil. Below that point, at Oil bay, the water is so thickly covered with petroleum that the waves are stilled in rough weather, and this has become a favorite retreat for coasting vessels during a storm. It would thus appear that there is a wide petroleum belt, extending from Brown, Lampasas, and Burnett counties on the Colorado, to the gulf shore near the mouth of the Sabine. In San Augustine there are two springs of crude petroleum, yielding a considerable quantity of oil, while in Montague and Stephens counties there are strong indications of its existence. Though all these traces of the presence of petroleum offer strong inducements to capitalists to engage in this industry, hitherto little or no boring has been done.

The iron belt enters the northeast corner of Texas in Bowie county, and crops out in Cass, Marion, Harrison, Rusk, and Cherokee, where it disappears, though again coming to the surface in Milan county, and continuing through Williamson, Bastrop, Caldwell, Burnett, Lampasas, San Saba, Llano, Mason, McCulloch and many others.

During the civil war numerous smelting-furnaces were erected in Anderson county, and the metal produced was found to be of excellent quality. But this industry is still in its infancy, although the country abounds in iron of the finest description, and in five counties at least in close proximity to coal. At Kellyville in Marion county, where the deposits are practically unlimited, extensive works are established, large quantities of pig-iron being shipped to St Louis. Ore

of a very superior quality is obtained close to Marshall in Harrison county. At that town a foundry has been erected, and there the machine shops of the Texas and Pacific railway are located. There is also a small foundry at Overton in Rusk county. With these exceptions iron mining is neglected.

Along the eastern borders of Caldwell extends a range of hills called the Iron mountains from their rich deposits, and in Llano there is a deposit of solid iron ore 30 feet high, 800 in length, and 500 in width, yielding 70 per cent of pure metal. So rich, indeed, are the veins that in northern and central Texas scraps taken from the croppings have been hammered into bolts and nails without the application of heat, and in early days waggoners on the roads leading into Jefferson beat horseshoes out of flat iron rocks without the trouble of smelting. In Mason county there is a range of mountains composed of iron ore, the very sand on the roads yielding from 40 to 45 per cent of the metal. Hematite and magnetic iron abound in Stephens county.

Of almost equal extent and coterminous with the coal belt is the copper belt. Beginning at Red river a deposit of ore of unprecedented extent exists in Archer, Wichita, Baylor, Haskell, Stonewall, and neighboring counties. In the vicinity of Kiowa peak, Stonewall county, there is a copper-bearing clay, and on the surface of the ground are hundreds of pounds of the ore that has been washed out from the matrix, yielding sixty per cent of the metal. On the lands of the Texas Copper Mining and Manufacturing company, on Little Wichita river, Archer county, four persons have been known to dig out in ten hours six thousand pounds of ore, averaging 76 per cent of copper, and in the whole of this region the supply seems inexhaustible.

Southward the ore crops out again in Hamilton, and appears in Brown, Burnett, Llano, Menard, and

contiguous counties. Specimens from Owen's mine at the head of Pecan creek, Llano county, assay $300 worth of metal to the ton of ore. This mine in 1882 was worked with improved machinery. Copper ore is widely distributed in the Panhandle, while another copper region exists in Pecos and Presidio counties, the metal being found in abundance in the Apache and Chenati mountains. Indeed the cupriferous area in Texas is apparently as large as her iron belt and the metal as abundant.

It cannot be disputed that in olden times the Spaniards and Mexicans mined extensively for silver in Texas, and with fair success. Old shafts and tunnels in the Chenati mountains, and along the Pecos river, above Horsehead crossing, are sufficient proof that mining operations were carried on for a considerable period, while farther north on the San Saba, traces of old furnaces and pieces of clay point to the same conclusion. These material evidences are, moreover, supported by traditions.

The silver-bearing veins are principally argentiferous galena, though quartz leads have also been found in the Chenati mountains. From assays made from croppings in this region, in 1879, ores were found yielding from sixteen to three hundred ounces to the ton. Eagle Spring mountains are also rich in this metal, and throughout Presidio, Pecos, and El Paso silver ore is widely distributed.

In Llano, galena crops out plentifully, and is traced into Burnett, San Saba, Mason, Gillespie, Menard, and other counties. Carbonates taken from the surface in Blanco county have assayed thirty-one ounces of silver to the ton. In the extreme north of the state, in Montague and Jack counties, indications of silver with traces of gold have also been found.

Lead exists in most of the counties where silver ore appears, and generally in combination with that metal in greater or less proportion.

It is not probable that, when her mining industries shall have been more fully developed, Texas will be a large producer of gold, although this metal exists in many parts of the country in copper and silver veins. In Llano county it has been found in the bed of Big Sandy creek, but not in paying quantities, though it is said that there is a sufficiency of it in the veins of other metals to pay for the cost of mining. Its appearance in Presidio county is more flattering than elsewhere, and the opinion prevails that valuable gold deposits exist in that region. Some capitalists of San Francisco, several years ago, caused surface croppings to be examined by experts, and obtained as a result an average of $25 of silver and $10 of gold to the ton of ore. These indications were considered so favorable that in 1882 they began the work of developing two mines about 25 miles from Presidio del Norte.

Inexhaustible supplies of salt exist throughout the largest portion of the state. In fact it is found almost in every part. From the Salt fork of the Brazos in the north, westward and southwestward to the Pecos river, and in the Panhandle springs, streams and lakes, strongly impregnated with this mineral, are found in the greatest profusion; while in the southern section along the Rio Grande there are deposits of such extent and purity, that they could supply the whole of the United States.

The clear waters of the Salt fork are so intensely briny that pure crystal salt forms like ice along its borders, and in Salt creek the water contains as much of the mineral as it can possibly dissolve. A few miles to the northwest of Double mountains the deposits in dried-up lakes are so abundant that the salt is shoveled into wagons and hauled away. The salt lakes of Presidio and El Paso have been famous from early Spanish times.

Equally so is the Sal del Rey in Hidalgo county, a body of water nearly circular in shape, and about a mile in diameter. The bottom of this lake is composed of crystallized salt of the purest quality, in layers about twelve inches thick separated by thin deposits of earth. To what depth these layers extend has not been ascertained. The salt is dug out with picks and crowbars, and the mineral is held in solution in such quantity that the excavations made are filled again in a few days. Along the shore of southeastern Texas salt is deposited in large quantities in the lagoons, which are filled with water from the gulf during the prevalence of high winds, and afterward disconnected, the evaporation which follows precipitating the salt.

In eastern Texas the most noted spring is the Grand Saline in Van Zandt county, where salt is extensively manufactured. There are also large works in Young county in northern Texas.

Gypsum is as widely disseminated as salt, and to its abundance Texas is largely indebted for the fertility of her soil. In El Paso, Nolan, and Wilbarger the supply is immense, while in the Panhandle hundreds of square miles are covered with it, especially about the streams tributary to the Canadian river. In this region it is found in all its grades, from the commonest description to the finest alabaster and purest selenite. As with other minerals, this source of wealth is entirely neglected. No plaster of Paris is manufactured in the state, nor is any of the crude material exported to the older states, to restore their impoverished soil, though gypsum is a well-known fertilizer.

There are few of the minerals utilized by man which are not found in abundance in some part or other of Texas. Kaolin, or porcelain-clay, exists in inexhaustible quantities in Robertson, Rusk, Gonzales, Limestone, San Augustine, and other counties. Fire-clay is equally plentiful; soapstone occurs in

Burnett, Llano, and elsewhere, and slate is abundant in the same regions. Stone suitable for making hydraulic cement of a very superior quality is to be had in Williamson, Bexar, Travis, and other counties, the manufactured material being extensively produced in the place last named, and at San Antonio. Limestone is found everywhere. It is the almost universal stone in the vast area of the cretaceous formation in Texas, and appears to a smaller extent in every other system. Quicklime of great strength is manufactured extensively in Travis county and many other parts of the state.

Building-stone of many kinds exists throughout Texas; granite, sandstone, and limestone predominating. The granites are dark-gray and of a bright-red color; are very fine grained, and take a brilliant polish. Burnett, Llano, and San Saba counties contain several rare and very beautiful varieties of marble, in color pure white, jet black, pink, and clouded.

Hitherto the development of mines in Texas has been hindered by the want of facilities for transportation, but in the future, when railroads shall have been extended into all parts of the country, attention will be given to this industry. Then the state, having passed through the pastoral and agricultural eras, will afford, through the unfolding of her mineral resources, still further means of employment to her rapidly increasing population.

CHAPTER XVII.

MANUFACTURES—INTRODUCTORY.

MECHANICAL EFFORTS OF THE INDIANS—ABORIGINAL DWELLINGS, ORNAMENTS, POTTERY, DRESS, AND WEAPONS—NAHUA AND MAYA ARCHITECTURE, SCULPTURE, FEATHER-WORK, AND JEWELRY—EVIL POLICY OF SPAIN—THE RUSSIANS IN ALASKA—LUMBER AND WORKINGS IN WOOD—FISHERIES—INFLUENCE OF MINES—LABOR AND WAGES.

As the joint offspring of mining and agriculture, manufactures reveal on the Pacific coast the varying phases of those industries, modified by facilities for traffic, and by climatic, geographic, and social influences. Lumbering rises as the first important industry, to supply the requirements of town-builders, miners, and farmers. Then the smithies expand into iron works to provide stronger materials and machinery. Imported breadstuffs are speedily excluded by the products of flour-mills. Meat-packing canneries, and other branches follow, as the diminished profits from primary sources turn labor in new directions.

Manufactures existed among the aborigines to a certain degree, in proportion to their settled condition, for among the roaming tribes there were fewer special craftsmen to supply implements, textiles, and the like than among those with fixed habitats. Among the former each family prepared its own household effects, its simple clothing and even its weapons, all limited to the smallest variety and quantity. The more substantial dwellings of the settled Indians alone called for a greater number of useful and ornamental adjuncts. This was particularly the case with the tribes of British Columbia, at least among the coast

fishers. Without being sufficiently cold to force them into subterranean houses, the climate nevertheless called for comfortable dwellings to resist the winter. With time at his command the occupant found pleasure in adding conveniences, and a pride in adorning the exterior with statuary, mouldings, and paintings. The same predilection manifested itself in implements and trinkets, the carvings of which are frequently intricate and skilful, with remarkable symmetry and finish, sometimes in the form of inlaying.

In Alaska a less congenial climate turned mechanical efforts in other directions, such as the manufacture of clothing for resisting water as well as cold, and of strong yet light canoes for encountering the surf. Farther down the coast larger boats were required, which demanded the joint labor of several men, with experienced superintendents. Here then operations assumed the stamp of manufacture. Fixed conditions permitted the wide use of pottery, to the encouragement of special modelling and annealing. The stringing and other preparation of shells and stones for ornament and barter also centred into manufacture, as did wicker and fibre plaiting.

Among the wandering interior tribes the greatest labor and pride were bestowed on personal appearance, in paint, embroideries, and baubles. And here was an outlet for the superior wefts of the Pueblos of New Mexico, with designs in rich colors, which even now command a high price. Several other industries flourished among this curious people, immured within their villages by the hostility of the hovering tribes of the plains.

Descending toward the cradle of American civilization, in Mexico and Central America, we behold the highest development of the arts on the continent. Here rise stupendous stone edifices, with sculpture of no mean order, cut with stone tools, which here reveal probably their highest efficiency. A portion of the work has, however, been done with implements of

hardened copper, the only metal instruments of North America. Nevertheless, obsidian had to be resorted to for razors and other sharp-edged tools. This advance in implements indicates a corresponding superiority of development in crafts and arts. The pottery of Cholula still retains somewhat of its former fame. The feather-work and jewelry were so curious in their fitting and soldering, and so beautiful in design and workmanship, as to rouse general admiration among the conquerors, as did the cotton fabrics by their fine texture and rich embroideries. The weavers claimed the patronage of a special divine inventor of this industry, and dyers and other artisans worshipped similar divinities in costly temples and with rites so elaborate as would alone indicate the vast extent and perfection of the crafts among them.

This gradually unfolding culture was nipped in the bud by European civilization. Spain regarded her colonies as markets for the productions of the peninsula, and in order to favor it, she hesitated not to forcibly blot out many industries that interfered with Iberian profits. The enslavement of the people for encomienda labors served further to cause the loss of many arts. In the north traders interposed with eastern goods at low prices to kill off incipient industries and turn occupation in other directions. This was also the case in Mexican frontier provinces, like California, where an indolent people readily abandoned the few manufactures started at the opening of the century, and devoted their time to the more remunerative occupation of cattle-raising.

Herein lay no doubt a compensation for the other injury, as on the Northwest Coast, where the rewards held forth by fur-traders also stirred the natives to greater energy, and elevated their taste and habits by accustoming them to superior and more varied comforts. Another compensation was afforded by the missionaries, who introduced various arts among the

different tribes, and built up prosperous communities, as instanced by the missions of California and New Mexico, and latterly by the Methlakatla colony on the Alaska border, with its mills, looms, tanneries, and mechanical pursuits.

Notwithstanding the restrictions of the Spanish colonial policy, numerous industries were started in Mexico and Central America, chiefly to elaborate the rich agricultural productions, and this was done largely at the urgent demands of the colonists, whom it became necessary to conciliate. More free were the efforts of the Russians, the next in order to introduce industries on the coast, under whom shipyards, windmills, and tanneries sprang up in remote Alaska. All these were but the puniest of efforts when compared with the huge undertakings a few decades later by the Yankee. His appearance was the signal for the first real enterprise. He was not alone ingenious, but the jack-of-all-trades so essential to frontier settlement. Restless and energetic, he delighted in progress, adapting himself to circumstances, and overcoming obstacles with new ideas.

Resources, ideas, and requirements are here strikingly displayed in their outline and connection. Thus, the forests of timber, so long neglected for lack of enterprise and markets, proved to the new class of immigrants the sources for a number of industrial occupations, developed by a series of inventions prompted by peculiar conditions. The unusual size of timber suggested new methods of logging and more powerful machinery, improved saws with adjustable teeth, which alone almost revolutionized the industry throughout the world. Distance of forests from mining and other markets suggested the V-flume, which brought hitherto inaccessible and useless timber at a cheap rate to market. The lack of good harbors for shipping suggested the loading flume. All these appliances developed the business to an extraordinary

degree, calling into existence large settlements, with special lines of railway.

In California the many good qualities of the redwood tend to sustain a large demand, but Washington has the greater export trade in white pine, the principal industry of the country, owing to the density and straightness of the timber, and to the numerous harbors of Puget sound. It somewhat overshadows the equally abundant forests of British Columbia, which are less accessible at present. As for the interior, production is restricted by the cost of conveyance to the local demand of mines and settlements.

In connection with the lumber industry is shipbuilding, fostered by the cheapness and quality of timber, notably at Puget sound. The same conditions combine with climate to give a preference to wooden houses, for which were required planing-mills and paint-shops. The heavy land traffic and sparse settlements stimulated the demand for wagons, in time to be largely supplanted by railways, which again required timber for construction and fuel. The rapidly expanding products of orchards, gardens, vineyards, and fisheries sustain numerous box-factories and cooperages. The excellence of the oak bark favors the establishment of tanneries, which again supply saddleries and shoe and belt factories. The inroads on the timber supply by axe and fire are calling for the application of scientific forestry to regulate consumption and promote recuperation. Yet the coast will remain tributary to eastern sources for hard and supple wood for implements.

In the agricultural line grain-growing requires a vast supply of implements and machinery, with the building of warehouses and the opening of ports. Flour mills rose to supply a growing foreign demand, those in Colorado having the advantage of a special system of grinding. The shipping gave rise to biscuit factories. The large canning business supported metal shops, sugar mills, and vinegar factories, the

last two fostered by the proximity of sugar-growing countries, the sweetness of California beets, and the large production of cider and malt. The abundance and excellent quality of our hops and the cost of transportation for bulky articles give openings for breweries. The predominance of stock-raising in Colorado and other territories favors meat-packing, to which end serves also the manufacture of ice, supplanting the natural product. In California Alaskan ice was used until the railway made accessible the Sierra lakes. The tallow of slaughtered animals is available for soap factories; the abundance of wool has encouraged the foundation of a number of mills, as cotton has in Mexico, and promises to do in Utah. The wheat crops give work to jute mills and bag factories. A climate favorable to the economic raising of silkworms holds out prospects for a great industry in this direction.

Fisheries benefited the coast from early days, indirectly by the trade of whalers, subsequently by the local catch. Whales disappearing in time, cod-banks were discovered, conferring direct benefit on the territories bordering on the sea, partly also by calling into existence additional fleets and trained sailors. To this must be added the catch especially of salmon, which forms an important pursuit. The defect in variety and quality has led to pisciculture, which has also supplied with fish the interior lakes and rivers. The inferior quality of oysters has led to importation from the eastern states by railway, partly in ice, partly for fattening in local beds. In Spanish America the limited fishery is crowned by a pearl catch, which influenced the settlement of Lower California, and added much to the prosperity of Panamá.

Nearly all these occupations have been fostered primarily by mining, which brought population, markets, and means for development. In some directions, as in Wyoming, the benefit came indirectly by sup-

plying adjoining mining territories. The direct evidence of mining support is presented in the numerous iron works occupied partly with bulky castings and orders requiring immediate attention, and largely with the construction of machinery, invented notably in California, and only here properly understood, varied as it is to suit the conditions of the various lodes and their deposits. So novel and excellent are these inventions as to bring orders from distant countries. From similar sources is drawn material for rolling-mills, lead-towers, and many other metal and chemical works, not the least being powder-mills, which are favored by the danger and cost of distant transportation.

Many of these manufactures owe their origin to the demand for repairs. The consequent experience and gradual accumulation of implements and means permitted in time the preparation of stock for trade. The demands arising from the general affluence of the population tend to sustain a large number of operatives, as for upholstery, furniture, and clothing. In this wise the chain of industrial influences and counter effects may be extended to great length.

The obstacles to establishing existing manufactures have been in many cases very serious, and they still militate against expansion, particularly in the finer grades of goods. Among them are the sparse population, the attractions of better paying and simpler occupations, notably farming and mining, deficient water-power, the want of cabinet-woods, of cheap iron, coal, and other primary requirements, inexperience and the lack of facilities for undertakings on a sufficiently large scale, and the insufficient supply of cheap and reliable labor.

High wages have been sustained by a variety of causes, such as the fascinations of the gold fields. with their prospects of a free life and fair returns for labor, gilded by occasional glittering prizes. Cheap lands

have held out in somewhat less degree similar attractions, with the charm of home-building; and the abundance of undeveloped resources presented avenues to wealth and the opportunity for independent enterprise. With the fading attractions of the gold discoveries, the cost, length, and danger of the journey to the Pacific, and the advantages of nearer countries, served to restrict the influx of workingmen, and with every slight decline in wages a number of new branches appeared, competing for labor, enlarging the field for employment, and retarding the decrease in its compensation. To this must be added the periodical indulgence in idleness by a large class, fostered by the free and nomadic mining life, with its gambling spirit and its irresponsible bachelorhood; the scanty inducements in early days for saving and investing; the liberal revenue which provided ample means for enjoyment and rest; and the compulsory interruptions caused by climate and agricultural seasons, and by new and irregular industries.

These drawbacks, especially the irregular supply of labor, affected employers seriously, and compelled them to have recourse to Chinese. To a certain extent the latter have undoubtedly been a useful and even necessary element, for without their aid must have been deferred the construction of railways, the opening of irrigation ditches, the reclamation of land, the planting of vineyards and the establishment of many manufactures, such as woolen mills, which tend to provide more employment for the superior services of white men and for capital. Many industries could not even now be sustained without Mongolians. Yet the question arises whether it might not in some directions have been better to await the cheapening of white labor, rather than to introduce a low foreign element, which beyond a certain limit is undoubtedly detrimental to Anglo-Saxon society.

Before the Chinese came Indians were regarded as degrading labor, especially by white men too lazy to

work. The gold excitement, with its immense influx of people, soon dissipated this idea, infusing a healthy democratic feeling, which manifested itself in a leveling of classes and an eager recourse to hard manual labor by men from all professions and races. Such a disposition is no longer manifested by the youth of California, which on the plea of shunning equalization with Chinese is drifting into deplorable idleness and lawlessness. The consequence is the intimidation of prospective immigrants and of capital and enterprise intent on opening new avenues for employment and wealth.

Labor unions are here also striving to sustain wages, but their efforts have been detrimental in some respects by restricting the number and privileges of apprentices, to the advantage of competing Chinese, and by strikes and agitations, which have in many cases passed to the extreme of incendiary outbreaks against the obnoxious Mongols and their assumed protectors, the capitalists. Such outrages have disgraced almost every Pacific territory, the worst occurring in Wyoming, where coal-miners drove out or massacred the associated Chinese. In Nevada charcoal-burners came in collision with the militia, and lost several lives. In 1877–8 the long-slumbering vigilance committee found it necessary to muster and put down the threatening demonstrations of unemployed and evil-minded mobs. The result of such unhealthy excitement and violence has been to check a desirable class of immigration, intimidate capital, and deter enterprise.

The unions have effected some good in protecting their members from injustice, and in fostering coöperation as the truest and most elevating means for counteracting what they regard as oppression on the part of employers. A number of coöperative industrial associations have risen in different territories, and although most of them have been gradually absorbed by a few of the richer or more enterprising

members, or collapsed under the inducements held out by business men; yet their promising success, as a rule, has had a salutary effect in the direction aimed at, and the lessons taught thereby will encourage to greater efforts.

Operations in Utah show the results attainable by a system of intelligently directed coöperation, when within reasonable limits. The earnestness and fellowship evoked by religion was kindred to the energy which prompted planting and building for a common cause. Able leaders directed efforts into proper channels, and stimulated the members by their own participation in every task, whether manual or mental. Thus Brigham Young, the prophet and president, labored as a carpenter in the construction of mills and dwellings. The tithe system rendered it easy to obtain subscriptions for other purposes, as factories, shops, and banks. The practice of coöperation began with the immigrant, who was assisted to reach the country and to establish himself as farmer or artisan, subject to easy repayments of the debt incurred. The authorities were ever ready to aid with capital, premiums, and privileges any promising project for developing resources and extending manufacture, and several large associations rose to specially promote such undertakings.

While the coast has had to battle with many obstacles in the way of industrial development, it enjoys also many favoring influences, such as distance from eastern and European sources, with the attendant high freight and risk, especially for bulky and dangerous articles, and the abundance of cheap and readily available resources from which to draw material. Moreover, there is a large local demand for products too urgently needed to await the transmission of orders abroad, or too peculiar to permit satisfactory fulfilment beyond the district requiring them. Herein lay, then a dasis for the inception of manu-

facturing enterprises, to grow with growing experience and facilities into substantial industries, sustained by the occupation of adjoining territories and the disclosure of new and larger deposits of crude material.

Fostering causes have also appeared in inventions and improved means of communication, in industrial and political disturbances, as instanced in particular by the civil war. This cut off to a great extent the eastern sources of supply by increasing cost and endangering transportation, and so presented an additional margin of profit for the encouragement of local manufactures. A number of establishments were built up by this means, which were subsequently overthrown by the restoration of old rates. Nevertheless, several of them had gained so strong a foothold as to sustain themselves. A greater shock to such local industries was imparted by the transcontinental railway, which brought eastern markets so much nearer, with the saving of time and expense, as to undermine a host of establishments in different branches of manufacture. In regions like Colorado the blow was not felt in the same degree as in California and Oregon, for circumstances had never permitted the same wide expansion of manufactures, partly from proximity to eastern centres, partly from the youthfulness of their settlements. Utah supported her mills under the exclusion enforced to some extent by the church leaders. Her central position with respect to many young mining fields to the east, north, and west was another advantage. These intermediate districts have otherwise suffered in their local manufactures from the greed of the trunk railways, which killed many of them and discouraged new projects by extortionate rates, in order to retain a profitable traffic. Throughout there prevails a favoring feature in the equable climate, which permits uninterrupted labor in almost every season, and enables a considerable saving in buildings and fuel.

The several propitious circumstances enumerated

were eagerly seized upon by the speculative spirit characteristic of new countries, and particularly of mining regions.

Manufacturing works cluster naturally near navigable waters or railway lines, to diminish the cost and inconvenience of transportation. Hence it is that mills and factories are plentiful round the bay of San Francisco, and that the metropolis of California retains for herself the larger proportion, aided by her rare entrepôt and harbor facilities, with the consequent storage of coal and other indispensable material. Similar advantages assist Puget sound in overshadowing British Columbia in the export of timber. Natural water-power exerts also its influence in attracting mills, as instanced by Oregon City, by Snake River falls in Idaho, and by many sites on the Sierra Nevada slope, as yet in their infancy. In the interior the capitals, as Cheyenne, Denver, and Carson City, retain so large a proportion of industries by virtue of their position as railway centres. Their advantage is further increased by the holding of regular exhibitions or fairs, with their beneficent results.

Whatever the deficiencies of the present, they are bound to gradually diminish before the steady influx of population, the increase of natural resources, and the acquisition of experience and capital. The superior coal and iron deposits of Colorado are the basis on which imposing structures may be expected to rise.

The most brilliant prospects belong to California, whose exceptional variety of means and ceaseless experiments are constantly resulting in fresh processes and establishments. Already the entire Pacific coast of America is partially supplied by her iron works and factories, with machinery, fabrics, refined products, and chemical preparations. Her teachings and apostles have gone forth to distant countries and continents, not alone to spread her fame, but to add to her disciples among all the nations of the earth.

O. M. Simpson

CHAPTER XVIII.

LIFE OF ASA MEAD SIMPSON.

A Factor in Ship-building and Lumber Milling—The Rise of this Industry—Moral Force in Good and Evil Fortune—Strength of Character in its Simplicity—Independence in Labor—The Homely Virtues Underlying Manhood.

Asa Mead Simpson was born in Brunswick, Maine, February 20, 1826. His ancestors on both sides of the house were of Scotch origin, on the paternal side coming from the north of Ireland, and the maternal side directly from Scotland at an earlier date, and among them were several who emigrated to New England in the eighteenth century. Four full brothers and one sister preceded him, and three half-brothers and two half-sisters came after him, in the order of birth. Branches of the family were numerous throughout the state of Maine, but his immediate relatives were settled at Brunswick, which adjoined Bath and formed with it an important ship-building community. His father, Thomas Simpson, was a master ship-builder in early life, and after acquiring a competency, he engaged in farming, on the border of the town. He was what was called a fancy farmer in those days; not a tiller of the soil altogether from necessity, as he might have continued in the ship-building line to advantage, but because of his desire for agriculture. His farm was a model one, everything on it of the best, and the land kept under a high state of cultivation. He was a man of unusual energy and perseverance—proverbially so in his neigh-

borbood. Of vigorous intellect, he was progressive in his ideas and well informed on current affairs of moment. Independent in his thinking, he was outspoken and not conciliatory in his speech. He led a correct and useful life. Though not religious in the sense of professed faith, he was moral, and a patron and friend of churches. In physique, he was a fair sample of the men who have given the state of Maine a name everywhere for size, strength, and endurance. In their development we find the benefits of wholesome living exemplified. Their vitality makes manifest the virtue of temperance, frugality, and labor.

Mrs Simpson, whose maiden name was Mary Wyer, was revered for her saintly character. She was a devout Christian, a pillar of the church, and demonstrated in her life the beauty of the faith by which she was inspired. The name she gave to her fourth son, that of an eminent congregationalist minister, shows the trend of her feeling in regard to religion. This son, Asa Mead, resembled his mother very strikingly in personal appearance, as well as in the tenderness of disposition that characterized her. How much he was influenced by her presence and care cannot be known definitely, for he was only five years old when she was taken away, in her thirty-sixth year. The susceptibility of the child's mind, however, especially in its relations with the mother, is such that controlling impressions are often made upon it in infancy. A man's character may be determined by impulse received in the nursery. And this is all the more likely when, as in the present instance, the child inherits tendencies that are manifested in the parent. The spirit of good or evil may pass from father or mother irrevocably into the lives of their sons or daughters at the tenderest age—one of the most serious of human responsibilities; yet how few parents realize the force of their example upon the budding intelligence of their offspring!

Asa remained on his father's farm until he was seventeen years old. Until the age of twelve, he attended school summer and winter, but afterward, until his tuition in books came to an end, only in the winter. His time out of school was filled with useful work adapted to his years. Every boy in that thrifty community had his task, and was expected to do his duty. The training he underwent was strict, but not severe. It was rational and wholesome, and left no gloomy impressions.

When their work was over he and his brothers were free to hunt, fish, skate, or divert themselves otherwise as they wished, within the lines of propriety. He grew up accustomed to take a cheerful view of life, and to feel confidence in himself. He acquired independence by practically learning how to take care of himself; there is no other lesson to be learned, in school or out of school, that can make a man so comfortable or so strong. At the age of seventeen he was apprenticed to ship-building. At twenty, he was well grounded in the principles of the craft, and was given the charge of a crew of men. At twenty-one, he was master of the business. During his apprenticeship, he continued his studies and devoted some special care to mathematics, graduating at a seminary in his native town, under charge of Professor Pike as his teacher, who, seeing in him an aptitude for this study and a decided talent for mechanics as well, urged him to prepare himself for civil engineering. But he had his boyish ambition. Everything else seemed to him secondary to the building of ships. That filled his mind. In all probability it was best, for, following his bent, he grew into such usefulness as is seldom realized in the profession of engineering. At twenty-four he could build houses, bridges, and do almost anything in that line that is necessary in a new country.

He was ripe for his pioneership, so far as his trade and a general readiness in the use of tools went, but

the other aspects of an active life he had to learn by experience. His curiosity was greatly excited with regard to California. His impulse was to satisfy it. The gold fields were a long way off, but the sea and the land came together in his work, and the transition was easy from ship-building to navigation. He had no apprehension about what would become of him on the other side of the continent. Work was wanted there; he could work, and did not doubt but he would prosper.

Like nearly all the rest, he would make a fortune, if the stories about the country were true, and return home in a few years. He felt like returning, however, when he first looked upon San Francisco, a town of drifting sand-dunes, temporary domiciles, and nondescript population. This was in April 1850. He came around the Horn in the ship *Birmingham*, with a company of his neighbors, from Brunswick and vicinity. Making the voyage leisurely, they stopped at the Pacific South American ports, and were much interested. He owned a thirty-second interest in the ship and her cargo, one half of which was lumber and the rest miscellaneous goods. The cargo was not at once salable. The rest of the company prevailed upon him, against his judgment, to refit the *Birmingham* for a return voyage. Sailors were hard to get, even at an ounce a day. The vessel was wrecked and condemned at Valparaiso. This was the first of his many misfortunes in the land of gold. Having disposed of the goods, but not the lumber, the next move of the Brunswick company was to the mines. Two weeks at Don Pedro's bar, on the Tuolumne river, resulted in a clean-up of some fifty or sixty ounces, which was turned over to A. M. Simpson, who had advanced the expenses of the venture. With this dust in his wallet he returned to San Francisco, and his mining was over forever. Thirty-one ounces he loaned at the prevailing rate of interest, five per cent a month; the shipping firm which borrowed it failed,

and the remainder of his dust was taken by a sneak thief from his room, which was in a building on Long wharf. About this time, being without money, but undisturbed, he fell to carpentering at Stockton, and, working from daylight until dark, built a house. Taking to that town the lumber which remained from the *Birmingham's* cargo, it became the nucleus of his great business. S. R. Jackson, an old Maine acquaintance arrived later and joined him under the firm name of Simpson and Jackson. Thus Mr Simpson became the pioneer lumberman of Stockton, planting himself there with abundant courage, but small financial resources, in the fall of 1850. The business was afterwards turned over to his brother A. W. Simpson and George Gray, an old shipmate, and still continues under the name of Simpson and Gray. There were those who, notwithstanding his limited means, had confidence in his pecuniary ability, for he was accepted as surety on a note for $5,000 in San Francisco in 1851, all of which, save about $200, he had to pay. No, he was not compelled, for he might have released himself as he saw others about him doing; but this did not occur to him. It was his duty to himself to discharge the obligation.

It was a severe lesson, but he was wont to say, even before he had recovered from the effects of the blow, that it was a good investment. He learned caution from it, and it saved him from losing many thousands afterward in the same way. His peace of mind did not depend upon the possession of money. He was not excited by prosperity, nor dejected by adversity. He lived economically. His business afforded him all the diversion he cared to indulge in. He saw others gamble, but he was not attracted by cards. He noted how they were ruined, and was warned. He did not dissipate, and he shunned the small vices because it seemed to him he would appear ridiculous blowing smoke out of his throat or grinding up tobacco with his teeth for pastime. He was frugal

from principle; it was not a deprivation to be so · he enjoyed it. Spending the least on himself, he had always greater or less means to help others. This he regarded as the greater luxury of the two. In 1852 he established a branch lumber business, with J. G. Jackson, in Sacramento, in which he retained an interest for many years. As he used to say, the lumber business never "went back" on him. He prospered always so long as he confined himself to it. The available mills were at Redwood city, Columbia river, and Russian river, but the main supply, up to 1853, came around the Horn.

In the fall of 1851 and spring of 1852, after the report of the government reconnoissance by Major Bache was published, he explored the northern coast from Trinidad bay to the Columbia river, looking for places for mill sites, and land where he could get lumber to manufacture for himself. He found the country rough. The harbors were barred, and there were no steam-tugs then in use. Many vessels were wrecked, and it was sheer luck that others escaped, as navigation was at that early day. The Umpqua river was entered and explored, and at a later period he established a mill and store, carrying on the business for ten years at that point, when he sold out.

In 1852, he completed the building of a mill, begun by others, at Astoria. Its capacity was 10,000 or 15,000 feet of lumber per day, and its output was pine planks for the streets of San Francisco. Astoria was the only tolerable place for milling that he found on the line of his inspection. Other districts were wild and the Indians hostile; but this mill furnished only a part of the lumber he needed. He ran it for two years, and abandoned it on account of bad management by his agents.

In 1856, he went to Coos bay, attracted by the reports of coal mines and forests of white cedar timber. Its existence was known, but it had not been much explored before. He put up a mill there of 30,000 feet

capacity the same year, laying out a ship yard before building the mill, with a view of establishing ship-building there at a later date. The general trend of his affairs was upward after he had got well started. In 1891 he was operating two mills at Coos bay, one each on the Columbia river, at Crescent city, at Willapa harbor, and at Gray's harbor. At Gray's harbor, as at Coos bay, he was the pioneer ship-builder. His activity in these ventures was evidence both of foresight and enterprise. The aggregate capacity of his seven mills was 450,000 feet per day, and he had, besides, other milling interests. His timbered lands were 20,000 acres, divided among the different mills at the date just given, and much of it, when cleared, was fit for farming. The timber was chiefly pine, cedar, spruce, redwood, and laurel. He had had no experience in the lumber and milling business. He had to learn it for himself, and he was often compelled to employ inexperienced help. He took it up and carried it on to success, notwithstanding many a staggering blow.

His elder brother, Louis, and his younger brother, Isaiah, who had come out with him on the *Birmingham*, were both drowned on the coast, the latter, in 1853, with all on board the *Michigone*, in a fearful storm off the Columbia river. Louis was on his way to Coos bay, in 1856, in charge of a cargo of supplies and machinery for the erection of the mill there. The captain, who wrecked four vessels for him afterward, ran the vessel on the bar, and Louis was drowned. Asa searched the beach every day for a month for the body, but the waves never gave it up. He reclaimed what he could from the wreck, sent to San Francisco for more machinery and supplies, and the mill was built. He had lost by the fire in Stockton, in 1851, six or seven thousand dollars—a fortune to him then. It seemed it was his destiny to be tried in order that his character might be proved. His failure would have been regarded as a matter of

course in business life. That he remained steadfast and triumphed over the elements was phenomenal, yet easily understood by those who knew him. Perhaps there were some who, seeing him in his prosperity, classed him among the lucky ones—possibly among those who amass a forune by accretion!

Out of the profits of the business he bought schooners as he needed them in his business, and in 1857 he secured a steam-tug. Starting his ship-yard on Coos bay, he turned out from it most of the forty vessels constructed under his and his brother Robert's supervision; the rest he built at Gray's harbor, San Francisco, Oakland, and other places. They were for use in his own business altogether at first, and mainly so later. For the first seven years he constructed only brigantines and schooners of about 200 tons; later, ships of 1,000 tons and upward. It was his ambition to make serviceable, fast-sailing vessels at the least cost, to compete with those launched from eastern ship-yards. That he did so successfully was the general opinion of men familiar with sailing vessels, as many of his new modes and innovations upon the stereotyped way of building and equipping have been adopted. The timber he used in construction, except Oregon pine for framing, was Port Orford white cedar, the best material on the Pacific coast, to say the least. It was obtained from trees averaging three and a half feet in thickness, and from 100 to 150 feet in height, and sound to the centre. The wood is tough and light, and if cut in season and properly prepared, will last fifty years. Previous to the advent of the compound engine in steel ships, and before the construction of the Northern Pacific railroad, the Simpson brothers' packet line of six vessels did important service in developing transportation on the Columbia river. In 1863 his older brother, Captain R. W. Simpson, came to this coast and joined him in building. They launched some first-class boats, among which were the *Portland, Tam*

O'Shanter, *Novelty*, *Western Shore*, and *Louis*, the last capable of carrying 1,000,000 feet of lumber, or 1,650 tons of coal. She was one of his fleet of sixteen vessels, and though built for domestic use, made occasional trips abroad. But, not confining themselves entirely to ship-building, they constructed the large floating dry-dock, capable of raising 3,000 tons, now located at the foot of Spear street. In 1891 he had a steam-tug for every mill, and a few extra ones in reserve for emergency. The risks of entrance and exit from the barred harbors were thus reduced to the minimum, and Captain Simpson's experience convinced him that if reasonable caution was observed, there were no dangers in navigation peculiar to the Pacific coast. He is an authority on this subject. His interests were greater and he had a wider experience in the business than any other. He stood in the lead in shipping and lumbering, and for several years probably employed more men than any other one person in California. He knew the business in every detail from practice, and adversity served only to perfect his knowledge. First and last, he lost thirty-four vessels, worth $500,000. Many of these went to destruction through negligence or disregard of instructions on the part of the officers in command; and the underlying cause of some of these disasters was intemperance. The *Western Shore* was a splendid ship, sharp, stanch, strongly rigged, and with a broad spread of canvas. Built at Coos bay at a cost of $70,000, she was an experiment, and great pride was felt in her performance. She sailed from San Francisco to Liverpool in 103 days, returning in 110 days. Again from Astoria to Liverpool in 100 days and back in 113 days. Her coast performance was even more creditable. While yet new, she was approaching the harbor of San Francisco, carrying 2,200 tons of coal, her freight of $6,600 all but earned and every expense paid. The night was clear and the sea a little rough. The captain had the most positive orders not

to enter at night under any circumstances. "But," says Mr Simpson, "he drank, and that tells it all. He mistook the lights of a schooner, which appeared and disappeared as she rose and fell with the waves, for the flash-light of the Farallones, and, turning stern to, he steered straight for Mount Tamalpais and crashed upon the rocks in less than twenty minutes! When the pilot appeared the next morning, she was a hopeless wreck.

"It is an exemplification of a principle inherent in so many men, ship-masters not excepted, that of risk. Couple this with drink, and the skipper would encounter the falls of Niagara with confidence. I have had six vessels run right straight ashore for want of caution and disregard of instructions, which are and always have been to keep out of danger in the night-time and all foggy weather. Yet I have never carried any marine insurance, nor insurance on my mills. There is no occasion for it. My misfortunes, occurring as they have, only confirm me in the opinion that freighting on this coast, if properly managed, with due caution, is a safe business and ought to carry its own risks. As it is, I am only slightly in arrears on this account, if any, though the thirty-four vessels which I owned solely or in part went down, and I have had very valuable mills destroyed, uncovered by insurance. In case of single risks I should not think this policy discreet, but my interests are distributed. If catastrophe overtakes me at certain points, work goes on at other points." In 1860 he bought land and mills at Port Orford, with a view of getting a supply of the white cedar timber for ship-building purposes, but he had hardly taken possession when a fire came and consumed everything but the land, killing nearly every tree.

Another striking instance of loss due to drink is the following: The ship *Rowena* was sent from Australia to Calcutta, to return with a cargo of grain. News came that the master was in the hospital with delirium

tremens at that port, and the voyage had be be abandoned. After his recovery he resumed his voyage thence, towards Akyab, where the ship was chartered to load rice for Hamburg. The captain was again in hospital with delirium at that port. Recovering, he was allowed to sail for Hamburg, and finally got again into the hospital with delirium, and died, having spent $25,000 of freight and money from Australia, taken to purchase cargo, and then left the ship in debt for nearly as much as she was worth. Here was a loss of $25,000 besides the ship, entirely through drink. "I have felt," said the captain, "at times, as though I could lecture on whiskey from the mountain-tops." And who, having suffered so from its blighting effects, could characterize the evil more vividly? The losses he sustained did not shock him visibly, but the bad faith from which they resulted roused his indignation. Still, he cherished no personal resentment. It was said of him, by one who knew him well, that he could not retain a grudge overnight.

In the midst of reverses such as would have overwhelmed many another, he presented an admirable spectacle of self-control, acquiescing in the inevitable without bitterness or lamentation. Laboring on with philosophic composure, he rebuilt ruin after ruin. He became rich, but his wealth might have been like that of Crœsus had his sympathy not hindered him from first putting those whom he must trust under rigid test. Betrayed once and again, he was still loath to discover bad faith, and realize that well-meaning men could lose fortunes by lack of caution and intemperance. He was induced more than once by the urgency of friends to go out of his regular lines of business into enterprises that he did not understand, and which his judgment did not approve—and he paid the penalty.

Among the ventures collateral with milling in which he embarked, was a box-factory. It was burned down, but he rebuilt it on North beach, at

the foot of Powell street, on a larger scale. It was not a lucrative investment, and its principal advantage was that it gave him the opportunity to employ from thirty to fifty of the boys of the city, whom his agent picked up from the streets. The work was attractive to them, and they preferred it to idleness. They earned a living at it, and were made useful by learning to labor, showing that the class sometimes called hoodlums are not so by choice always, and that all they want is the opportunity, when they will work well and faithfully. He often did business beyond his means, doubtful if it would pay, and was at times a great borrower of money, that he might give men work and test the experiment.

The lumber market had been fairly supplied up to the advent of railroads. These opened up large tracts, and prices became ruinously low, but by the law of consumption and production, equilibrium was in due time restored. There is a great future for this industry, attending the general settlement of the coast, which is rapidly going forward. As to the apprehension, often expressed, that the time is coming when there will not be a tree left for timber, his view was, that forest fires destroy more than all the mills consume; that the supply in reserve was good for three or four generations; and that by the time this is gone, forests will have been planted or some substitute found for timber.

The business names under which his principal shipping and lumber operations were carried on were the Simpson Lumber company and the Northwestern Lumber company, corporations for convenience and undisturbed continuance in case of his death. He had large coal and other interests, being almost the sole proprietor of the Renton company's coal mine, a valuable property near Seattle; the prices of coal became ruinously low, and in order not to have any wrangle with laborers, whose exactions he foresaw would be ruinous if complied with, he allowed it to fill

with water, and left it thus practically abandoned until the coal market became more settled, or for sale to some one less averse than himself to strife with working-men. His sympathies were always with those who toil for a living with their hands. He was old-fashioned in this, that he never took kindly to labor-saving machines. Offered an interest in one of these inventions, which, with his mechanical insight, he saw would be efficient, he could not be induced to take part in it, saying to the agent who presented it: "Yes, I believe it is all you say it is, and that you can make money out of it, but I hope it will not succeed, for the reason that we already have too many idle hands and hungry mouths."

Captain Simpson cherished the opinion that a nation is great and happy in the ratio the body of people are occupied in productive labor. He ascribed the marvellous vitality and recuperative energy of the French mainly to the fact that industry is almost universal and greatly varied among them. He believed in the old saying that "one half of the world lives on the other half," regarding which as inevitable, he adapted himself to this state of things in practice. He was charitable, giving as he went along, cheering all who sought his help with small sums, not turning away coldly even from the tramp whose face showed his thirst for drink, though he averred he was starving for food. Such wretches as these did not deceive him, but they could always count on assistance at his hands. He pitied their infirmity.

At his home in Oakland a subscription list was handed to him on behalf of the ladies who were struggling for funds to enlarge the home of their relief society, and who had nearly given up the enterprise in despair. They wanted him to give $250. He put that down and then doubled it. Reflecting again, he said: "There must be ten men in Oakland who will give $1,000 each. I will head the list." The required $10,000 was quickly raised, with this spirited start.

But, while his beneficence was munificent at times, his alms were numerous rather than large. His wife received one Christmas a present from a little girl in San Francisco, accompanied by a note, in which she referred to Captain Simpson's kindness to her family. When called upon for an explanation, for he had never mentioned the matter, he said that the father of the child, then dead, was an early friend, and he had aided his widow and children now and then. He kept more servants than were needed in his household, but they were faithful, and he gave them employment. He was a friend of churches, regardless of creed, because he knew that they were educators, and he gave to them all indiscriminately. Whatever was for the relief or betterment of humanity commended itself to his charity at once. His acts of cheer and help were like soft rain falling upon good but thirsty soil.

He gave nothing for show, and supported no style; all was use. He was extremely plain and simple in his habits and apparel; and he was not comfortable if he could not wait on himself. He was sensitive to all goodness, and for a man in the swirl of business, he manifested a delicacy of sentiment that is not usual. Fond of the beauties of nature, he had an instinct that led him to places, unobserved by others, where he could gather a bouquet of wild flowers among the rocks. The ocean, with which he was so familiar, never became monotonous to him; it constantly incited his mind to the contemplation of the grandeur and mystery of creation.

He appeared to understand himself, which is the basis of all knowledge of human life, and was admirably self-controlled. Taking the world as he found it, equally alive to its rational delights as well as to its hurtful distractions, he repined but little, and could enter fully into Longfellow's sentiment: "Let the dead past bury its dead." Coming in through the Golden Gate, one day, he saw the ends of a vessel's

spars projecting above the water. When he knew that it was one of his ships that had sunk, he did not wish to be spoken to, not on account of the loss of his property, but because he feared that through somebody's recklessness the lives of men had been sacrificed and families made wretched.

He sought to inculcate in his children a due appreciation of the necessity of labor, as the only reliable source of independence; teaching them that everything valuable in this world is the result of labor. To obtain an education is labor of the hardest kind, and without such labor a good education is impossible. It was his aim to bring them up in such a way that they would be self-reliant and useful. He taught them that labor is natural and becoming, and that no man is healthfully developed in mind or body, or able to perform his part in society, unless, in addition to whatever knowledge he may possess, he is also efficient in the performance of some sort of work by which to earn his own livelihood and help to maintain others who are not able to take care of themselves.

A characteristic ancedote used to be told of him in this connection. To a close friend, and doctor of divinity, he smilingly remarked:

"I guess I am the best educated man in this city." Being called upon for his explanation, he gave it, and the doctor agreed with him. It was this: "I learned farming first, then ship-building, and then I have had many lessons in the several branches of commerce and general mercantile business.. I have been a thorough student in each, and may be fairly considered a graduate from all. If everything I have were swept away, I could go to work again and earn a good living for my family. Now, doctor, if you could not preach, which you do admirably, what would become of you?"

Thus practical and in touch with the world, in a sphere of great activity and responsibility, and being

of an observant and thoughtful turn of mind, he possessed decided views on all the questions of great moment before the public. Determined to drop business whenever it became a burden, he has travelled extensively, having made ten visits to the Atlantic states and the old home in Maine, three by the way of Panama and seven by rail, as well as having twice made the tour of Europe, learning in this way as one can learn in no other. He was, besides, always a careful reader of substantial literature, and kept at hand for use at his leisure serious works of history.

On the question of foreign immigration, his views were in accord with those of most other careful and unbiased students on this grave subject. He deprecated also the interested endeavors of immigration shriekers, as he called them, sending out "California on wheels," and highly colored prospectuses, to bring insufficiently informed people into a country new and strange to them. Said he: "Many persons come here with the idea that it is a paradise; but there is no such thing on earth, and they realize that there are drawbacks on the Pacific coast, too, though it is a good country. As a people, we are apt to overdo everything. The fastness of the age is a calamity. It demoralizes business; it creates debts; it breeds defalcations; it breaks up families; it is hollow and false."

In politics the captain was always concerned in the interest of good government, but never had time for personal activity in political affairs. An earnest republican, he contributed liberally to the legitimate expenses of his party. During the war between the states, the union found in him a loyal and hearty supporter. He did not enter the ranks, but he did more through the sanitary commission and otherwise. On all the main questions at issue between republicans and democrats, he was in accord with his party, but independent and outspoken on those other points on which neither party had the moral courage to

declare itself. He was thoroughly American in sentiment, and believed that there is no genuine patriotism that is not born of the soil. Though uncompromising in his hostility to intoxicating drink, he was not in favor of prohibition, or of Sunday laws, for he regarded such enactments as an encroachment upon the natural liberty of the citizen. Both temperance and freedom he regarded as principles, and he could not reconcile himself to the establishment of either by the subversion of the other.

The relations of capital and labor he thought would continue to be a source of disturbance and eventuate in greater trouble than has yet occurred, but he relied upon the intelligence of the people to adjust whatever differences might arise. "I have always thought that the laborer never was fairly dealt with and never got his just share of things. It has been so in ages past, and there were times when the laboring man had no remuneration at all; for instance, the pyramids in Egypt, built by enforced labor. At the present day in Europe there are many places where the laborer is not fairly remunerated, and there are thousands of men delving under the ground for a few shillings a day with families to support, while the capitalist is piling up his money. It is not justice, and therefore I have generally had sympathy for the strikers, for the other side takes every advantage. Still, labor unions have run things to an absurd degree at times, and grossly mismanaged their affairs, giving great offense to their employers who were willing and pleased to do right by them if they would act reasonably."

In respect to religion, Captain Simpson was as practical, and it may not be incongruous to say as charitable, as in other respects. There was no doubt, as he himself maintained, that in the formation of his character his mother's influence was very great. This influence, however, did not take the form of religion; it stopped at morality. He could not be-

lieve what he could not comprehend. The questions involved in the contemplation of a future life appeared to him a profound mystery. While striving as hard to lead a good life as though it were only preparatory to another, he prized virtue for virtue's sake, without regard to consequences possible in the unknown and speculative hereafter. But he was of reverent disposition, recognizing an over-ruling power, and he respected the sentiments of all devout people, whom, also, he appreciated for the wholesome effect of their lives and teachings upon the character of the community; therefore he was always ready to help new churches in the country as well as city. He was fond of discussing these and kindred topics, but shunned controversy of whatever nature. His antipathy to the friction of dispute was such that he would yield the argument at once rather than be drawn into a wrangle. He was not a fault-finder; he accommodated himself to his surroundings, however inconvenient they might be. If the crowd pressed forward, he quietly took a back seat and was contented in it. If others rushed in and filled the coach at a watering-place, rather than take part in the jostle and crowd out others he would grasp his satchel, and walk eight or ten miles to the railroad station, and feel none the worse for it, when he was sixty years of age. In his travels he enjoyed everything that was enjoyable. He got pleasure even out of things that irritate others. Planning little for his own comfort, but constantly on the alert to gratify others, it was seldom that he came in contact with other than agreeable people, and seldom did he find occasion to complain. His composure seemed imperturable.

On one occasion, washed overboard in a storm, he was seen struggling in the waves to recover his hat. By the time he had recaptured it and adjusted it to his head, a returning wave brought him back towards the side of the vessel; being an expert swimmer, he was hauled on board as little disturbed as though he

had planned the entire performance. His cares, whatever they might be, never travelled with him, nor were reflected in his face. However severe a loss he might have sustained, that was business, and never a mention of it in his home or to his friends or business associates. Having shaken off the incubus from himself he would not place it upon his wife or children. How many men, keyed up all day in the office, go home at night and relieve themselves there of their nervousness and ill-humor by communicating the same to the members of the household! It might be inferred from this that Captain Simpson was secretive. On the contrary, it was observed among his associates in business that he would talk openly about his affairs, not caring who heard him, and that he suspected any enterprise that required secrecy for its promotion, and would have nothing to do with it. He was open and above-board in all his transactions. He remarked more than once that there was absolutely nothing in his private enterprises, his office books and papers, that the public were not welcome to inspect if they desired to do so. It was related of him that he had never written a letter in his life that he would be ashamed or annoyed to see published in a newspaper. His character was simplicity itself; for this very reason many failed to comprehend him.

Such is the shallowness or precipitancy with which men ordinarily judge one another, that he who hides nothing is supposed to have everything to conceal, that he is often confounded with those who are the personification of craftiness and indirection. We jump at conclusions regarding our neighbor from the most superficial and unreliable evidence. If he is frugal, we say he is close; if we do not know that he gives, we say he is uncharitable; if he works hard and incessantly, and becomes rich, we say money is his god. Captain Simpson was one of the most retiring and modest men, unobtrusive and averse to notoriety of any sort. How readily might his fru-

gality in all things regarding himself be set down against him as penuriousness, his generous gifts be uncredited because unpublished, the whole motive of his labor ascribed to greed of gain. Yet it was the least of his ambitions to get rich. He toiled because he was impelled to do so, and because from long habit it had become his second nature to work. He would have been restless if not occupied. The spirit of his energy was the love of progress and improvement. Idleness, which is synonymous with retrogression, he could not have endured, yet he was not a slave to business. He was endowed with a faculty that many ambitious men fail to utilize, or else do not possess; that is, common sense. Perhaps this was his distinguishing talent and his philosophy. His life and character, which I have studied closely from authentic data, are of peculiar and substantial interest at every point. The good to be derived from the study of his conduct is readily suggested by this outline of the salient features of his career and personality.

It should teach young men who have their own way to make, the value of industry and perseverance, temperance and economy, courage and integrity. These homely virtues are the basis of all manly worth. They are the essentials of character. Put into loyal practice, they insure whatever is consistent with rational desire. They are a guarantee of personal independence, without which life is a failure.

Perhaps he was not sufficiently discriminating in his judgment, and was too trustful of others who were not worthy of his confidence, and involved him sometimes in loss. Life is warfare. There are destructive elements in man, as in nature; shoals and false lights among tradesmen as well as at sea. Our own advantage and the general good require that legitimacy shall be vigilant in order that illegitimacy shall not prevail.

Captain Simpson, though a patron of the clubs, visited them only occasionally. His chief comfort,

business apart, was in the society of his family. He was essentially a home man. To his own household, so it is related, he was a succession of surprises. Regarding things he had not been suspected of observing or studying, his knowledge, brought out by the occasion, was as unexpected as agreeable. His care and affection, manifested at every turn for those near to him, were only the spontaneous expression of his sympathetic nature, the tenderness of which seemed too great ever to be overtaxed.

He married in 1875 at Racine, Wisconsin, Sophie Dwight Smith, daughter of Eldad Smith, formerly of Boston, and Harriet (Underwood) Smith of Vermont. Miss Smith's father, who was in comfortable circumstances, gave her the opportunity, of which she availed herself thoroughly, to acquire a good education in English, French, and music. Ambitious to be allowed the privilege of self-support, she prevailed upon her parents to consent that she should come to the Pacific coast and teach. Without an acquaintance on the steamer, and having only a letter of introduction to the captain, she made the trip by way of Panamá to San Francisco alone. Her courage and intelligence, however, commended her directly to persons of character and standing among strangers. She gave private lessons in Portland, for a year and a half, and afterward at Milbrae, California. Her labors as a teacher were attended with gratifying results. Several of the young ladies whom she taught are women of sound education, and have become the wives of men of note. Of sterling character, refined and sympathetic, a woman as lovely in person as in christian traits, fitted to supplement her husband in all good works in her sphere, it need hardly be said that her children are such as parents may justly be proud of. The eldest of them is Louis Jerome, born September 1, 1877; the others, in the order of their ages, Edgar Mead, Edith, and Henry Wyer.

CHAPTER XIX.

MANUFACTURES—CALIFORNIA.

MISSION MANUFACTURES—ARTISANS FROM THE UNITED STATES—MACHINERY REQUIRED FOR MINING AND AGRICULTURE—RESULTS OF NECESSITIES—EARLY OBSTACLES AND FAILURES—FLOUR-MILLS—CANNERIES—BREWING AND DISTILLING—FISHERIES—CALIFORNIA INVENTIONS—SHIP-BUILDING—FURNITURE—IRON FOUNDRIES—OTHER METAL WORKS—JEWELRY, BRICK, STONE, GLASS, POWDER, FIREWORKS, AND MATCHES—MINING REQUIREMENTS—TYPE, PAPER, AND PRINTING—TANNERIES AND LEATHER WORK—SOAP, OIL, AND PAINTS—WOOLEN, COTTON, AND SILK WORKS—MECHANICS' FAIRS.

WITH the entry of the friars into California came artisans to teach the neophytes different handicrafts, as carpentry and blacksmithing; to weave from the short wool of the imported sheep coarse blankets and other fabrics; to tan hides and convert them into shoes, saddles, and other articles, to prepare soap and bake coarse pottery, and to grind flour with stones turned by horse or hand power, most of it being ground by the women on the *metate*. Many of these arts were acquired by the aborigines as servants among the settlers, only a few being reserved entirely for white men as building boats and repairing arms.

The colonists were too indolent and indifferent to engage in anything beyond the indispensable occupations connected with the simplest social economy, and no sooner did trading vessels gain access to the coast than many of the crafts, like weaving, tanning, and soap-making, fell into decline, since much better goods could be obtained by bartering hides and tallow. Thus trade came to check the industrial revival inaugurated at the close of the preceding century by the

enterprise of Governor Borica, and the example set by the Russians in later years served merely to direct additional trade to Fort Ross. The windmills which were used there for grinding flour and lifting water were admired but never imitated by the Mexicans.

The first real manufacturing efforts came from the inflowing foreign immigrants, who opened tanneries, whip-saw pits and boat-building yards. In 1843 S. Smith bought the first steam machinery for a saw and grist-mill at Bodega, and other settlers built water-mills of similar character, the largest establishments of the kind being those of John A. Sutter, in course of construction on the American river when the gold fever burst upon the country. This portentous incident gave rise to a host of industries, to meet not alone the demand for lumber, flour, fish, and other necessaries, but to supply wagons and vessels for the increasing traffic, implements for mining, and other aids to progress.

The country was little prepared for such an awakening, hampered as it was by novel features and conditions and high wages. Nevertheless there remained decided advantages in the long distance from superior sources for supplies, round Cape Horn and the Isthmus, which involved loss of time and high freights, particularly on bulky and dangerous articles. The large amount of repairs sufficed to give a footing to many enterprises, and so to strengthen their means, capacity, and skill as to permit in due time the acceptance of large orders and the preparation of stock.

The self-reliant American undertook with characteristic energy and originality to adapt himself to the altered circumstances and to overcome the obstacles with new appliances. Thus, in mining, methods were evolved of such importance and scope as to revolutionize the industry, and extend operations to unparalleled magnitude. From the pan and rocker grew the tom, which again unfolded into the sluice, rein-

forced by the hydraulic pipe, whereby one man was enabled to perform the labor of hundreds and engage in tasks once deemed impossible, thus opening to enterprise new fields and hitherto neglected regions. Peculiar implements and machinery came consequently into demand, suggested by changing requirements. This served to retain for California their manufacture, and to attract foreign orders for apparatus here invented and here alone understood.

The foundry business of San Francisco consequently acquired importance, notwithstanding the high cost of labor and the necessity of importing the raw material. Deep mines demanded novel and strong machinery for sinking, and hydraulic pumps, air compressors, and hoisting gear to overcome heat, water, and distance. Different kinds of ore, crumbling, mixed, or rebellious, had to be treated separately, so that crushers and amalgamators multiplied. New explosives were introduced for blasting, and extended here to submarine operations. A high pressure accumulator facilitated the use of hydraulic power. Rolling-mills found their origin in the accumulation of old rails; the lead found in connection with precious metals gave an opening for shot-towers and lead-works. The dry climate and special wants called for ditches, aqueducts, and windmills, which gave wider opportunities for mills and workshops, and led to such inventions as the inverted syphon and peculiar frames. The difficulty of mountain transport and the irregular topography of San Francisco suggested wire ropes and cable-roads.

The V-flume did a similar service for the lumbering industry by giving easy and cheap access to distant mountain timber. The loading-shute remedied the lack of good shipping-points. The adjustable saw-tooth proved of great importance for sawmills and the triple circular saw, the logging and gang-slicing machines, the guides and levers, which were specially designed for manipulating the enormous and valuable

redwood and other trees, all tending to lift this industry to an extraordinary magnitude and excellence, and make it the fountain-head for a number of others.

In agriculture the straw-burning machine, the combined harvester, the multiple gang-plough, and a number of other improvements have tended to reduce the cost of field work fully fifty per cent, and to make California conspicuous for vast and cheap operations. Her superior wheat encouraged the grinding of flour to the value of more than $15,000,000, largely for export. The fine malt and hops, and the difficulty of introducing beer by sea in good condition, favored breweries, whose productions now exceed $7,500,000. Good and abundant fruit, early vegetables and salmon, led to the establishment of numerous canneries, which again sustain several large vinegar factories, and consume a large proportion of the vast quantities of sugar produced by local refineries, favored by free trade with and proximity to the Hawaiian islands as a source of supply for raw material. The excellence of the chestnut-oak bark has raised the production of leather to $4,500,000, and developed a foreign demand, which extends also to saddles, shoes, etc., with a total product of leather goods of more than $12,000,000. The abundance of tallow and its substitutes accounts for soap factories. A fine quality of wool and a substantial weft have sustained the woolen-mills against many adverse influences. Simplicity of fabrication and nearness of the sources for raw material have built up jute and bag factories, while paper-mills are supplied with good straw and refuse rags. The discovery of antimony brought type foundries to the front. The risk and cost of transporting crockery and glassware gave an opening for potteries and glass-works. The lead-joint for water-pipes, the pneumatic clock, and the photography of animals in motion are among California inventions. A number of other devices might also be named which have contributed

to her fame and also to the development of her natural resources.

The general wealth has maintained large orders at high rates for domestic purposes, so as to support many otherwise unprofitable industries. A number of others are due entirely to Chinese, whose cheap and in many respects undesirable labor is largely forced upon the country by the neglect, desultory habits, and extravagant demands of white workmen. The high cost of labor has been a great check, interposed alike on the production of raw material and on manufacturing processes, and has held wide the portals for goods from eastern and European factories.

Other obstacles to manufactures have been high rates of interest, the larger profits of the elementary industries, lack of water-power in eligible quarters, the cost of transportation, doubtful land titles, the limited quantity of iron and hardwood, the high price of coal, scanty population, and unsettled conditions, most of which are being overcome or modified.

The speculative spirit of Californians tempted them to many an undertaking with insufficient capital and experience, and the consequent failures spread discouragement and lowered credit and reputation. The civil war gave a decided impulse to manufacturing industries by diminishing or cutting off eastern supplies and enforcing a self-reliant attention to home products; but the opening of the transcontinental railway undermined many of them by bringing cheaper markets so much nearer to us, reducing prices to a point at which production was no longer profitable.

The increase in population and settlements, and the development of primary resources have nevertheless asserted themselves in the growth of one branch of manufacture after another. According to the census of 1860 the number of establishments was 1,450, with a capital of $11,000,000 and over 6,400 hands, using raw material to the value of $11,000,000, paying $5,500,000 in wages and producing goods worth $23,-

500,000. By 1870 they had increased to 3,980, with $40,000,000 capital, 25,400 hands, receiving $13,000,000 in wages, using $35,000,000 in material, and producing $66,000,000 in goods. In 1880 the figures had risen to 5,890 establishments, with $61,000,000 capital, 43,700 hands, $21,000,000 wages, $72,600,000 in raw material, and $116,200,000 worth of products.

For 1890, the value of all the manufactured products of California was estimated at $160,000,000, of which her metropolis was accredited with $120,000,000, or 75 per cent of the total. The steady and rapid growth in the volume of our manufactures, from $23,500,000 in 1860 to $160,000,000 in 1890, a more than seven-fold increase within 30 years, is one of the most encouraging features in the annals of the state, and with raw material becoming steadily cheaper and more abundant, there would seem to be no practical limit to future developments in this direction.

The large product of California flour is partly due to the excellent qualities of the wheat in gluten and dryness, which causes an ever increasing demand for export. Spanish-Californians were content to grind grain for their own want upon the household metate, or at best with arastras drawn by mules. Americans applied water-power in the early forties at different points, and Captain Smith introduced at Bolega the only steam mill prior to the gold era. The expansion of wheat-growing after 1852 is denoted by the increase of mills by 1854 to 54, with a capacity of 1,250,000 barrels, and by 1860 to 91. The 150 mills of 1880 had a daily capacity of 58,600 bushels, and used 12,000,000 bushels of grain; 97 were operated by steam, the largest being at Vallejo, with a capacity of 1,700 barrels a day. In 1881 the state consumed 1,100,000 barrels, and exported 785,000 barrels, chiefly to England and China. The rule is for the miller to buy grain, and take his chances for

selling. High wages and the lack of an outlet for middlings, bran, and screenings are obstacles to wider expansion. The demand of miners and crews for ship biscuits led early to the opening of cracker factories, whose production in 1881 reached a value of $1,500,000. Macaroni and starch have gained a limited foothold, and confectionery imports have almost ceased. The proximity of Spanish America favors the preparation of chocolate; the abundance of apples and malt permits the manufacture of vinegar for the numerous canneries and pickle factories; mustard is also produced, and many of the spices.

The canning of fruit and vegetables is one of the most promising of industries, under the present unfolding horticultural era, with its marked improvement in the quality as well as abundance of many varieties, and the growing appreciation in the eastern states. In 1881 more than 11,000,000 cans were prepared, and the salmon pack swells the figures considerably. The warm climate has made heavy salting necessary in meat-packing, especially pork. Of late an artificial temperature is largely depended on, even in San Francisco, where the cool atmosphere preserves meat remarkably well, so that "sweet" curing is opening a wider field in this branch.

The first beer brewing is attributed to a sailor named W. McGlone in 1837. The difficulty of introducing malt liquor in good condition gave zest to the business in the early fifties. By 1881 there were over 300 breweries in the state, with a production valued at nearly $4,500,000, and rapidly increasing with the growing demand from all parts of the coast. Nearly nine-tenths of the entire quantity was made in California, favored as this state is with superior malt and the choicest of hops.

More than one half the Pacific coast distilleries are also in California, yielding about 3,000,000 gallons of whiskeys, cordials, and bitters, so that a comparatively small proportion is now imported. Brandies

are also acquiring repute. Several soda-works exist. Ice was imported from Alaska until the railway gave access to the Sierra, where heavy storages are made, but artificial ice is largely in use.

The fish of the Pacific coast are not equal in quality to the eastern, save in a few directions. Nevertheless the demands of a growing population promise a wide expansion for fisheries. These began as a special industry shortly after the United States conquest, and received their impulse during the gold excitement. By 1880 the California fisheries employed a capital of $1,140,000, 3,100 men, 850 boats, and 50 larger vessels, with a product of 12,000 tons, valued at $1,800,000, one-third coming from San Francisco bay and its tributaries. In this branch the upper coast excels, for it absorbs most of the salmon business, valued at over $5,000,000, while the Sacramento, Eel, and Smith river canneries produced less than 300,000 cases, assisted by artificial propagation.

San Francisco bay is the centre for the fresh fish catch, herring, smelt, rock and tomcod, and sardines forming the staple. It is in the hands chiefly of Italians and Chinese, the former employing fourscore sea-going boats; the latter prefer to sweep the bay flats, and secure in particular small fish.

Cod banks were discovered in the north Pacific in 1863, and now a number of vessels visit them from this state, the catch being fairly remunerative. The chief drying grounds are in Marin county. Whaling was pursued by Americans long before their acquisition of California. In 1855 about 500 vessels were engaged therein, with their chief rendezvous at the Hawaiian islands. After 1865 San Francisco became the headquarters, and here was owned a large proportion of the forty vessels to which the fleet had declined by 1881. Early in the fifties Captain Davenport organized a company at Monterey to capture passing whales in boats. His success led to the for-

mation of other parties at different points, but the industry has declined in common with that on the high seas. In 1880 the total value of California whaling was placed at $202,000.

Oysters were first brought from Shcalwalter bay by Feltstead and Ludlum. With the opening of the transcontinental railway eastern oysters were introduced for transplanting, or rather for fattening in the shallows of San Francisco bay, as the spawn does not thrive. Four companies own 600 acres of such beds. Canned oysters are of late being surpassed by iced importations. Shrimps are abundant.

The defects of the Pacific in the variety and quality of its fish have induced the government to appoint commissioners for propagating fish, and on McCloud river has risen the largest of salmon-hatching establishments, whence eggs are sent to all parts of the globe. A dozen other species have been introduced, all thriving well, save eels. The cat-fish is the most prolific, shad and trout do well, and white-fish, bass, lobsters, and carp are promising.

The lumber industry in California has been favored by the possession of several valuable trees, notably the redwood, or *sequoia sempervirens*, and the sugar-pine, or *pinus lambertiana*, supplemented by the red and yellow fir, arbor vitæ, laurel, madroña, evergreen-oak, and nut-pine. The only serious deficiency lies in hard and elastic woods for implements. The deciduous trees are here of small commercial value. The interior valleys and the south are comparatively bare, so that the forest area is small, only about four per cent of the total acreage, most of it being on the humid northern coast and in the Sierra Nevada. Along the coast north of Santa Cruz extends the redwood belt which holds the foremost place. It is estimated at 40,000,000,000 feet, with many a close grove averaging 2,000,000 feet to the acre, or 100,000 to the tree, and is readily renewed. It is unequalled for its

smooth, straight-splitting grain, remarkably free from knots, exceedingly durable for many purposes, and easy to work; yet, notwithstanding its softness, it is not as a rule brittle, coarse, or gummy. It embraces the largest and most beautiful coniferous trees in the world, attaining a height of 300 feet and a thickness of more than thirty feet. Hardly inferior in quality is the sugar-pine, which forms a large proportion of the Sierra Nevada forests; but owing to its remoteness from markets, only certain sections have been touched. The red fir, yellow pine, and the cedar of the northwest are also in demand.

The Spanish-Californians gave little heed to timber resources and preferred adobe houses even in forest regions. It was left to Anglo-Saxon immigrants to establish whipsaw pits, the first one being attributed to John Dawson of Bodega, in 1835. Read and Graham followed, in Marin and Santa Cruz, and in 1843 S. Smith opened the first steam-mill at Bodega. The building of Sutter's mill in 1848 proved instrumental in discovering gold, and other mills multiplied along the path of the advancing miners, until they numbered 279 in 1860, producing $4,000,000 worth of lumber. By 1880 the establishments were reduced to 251, but with increased capacity, employing 3,430 hands, $6,500,000 capital, and producing 305,000,000 feet of lumber (board measure) the value of which had fallen to $4,500,000.

The scarcity of road and harbors, the cost of labor and the large size of trees, called for the application of improved methods. California contributed several inventions, such as Dolbeer's logging machine, the treble circular saw, the adjustable saw-tooth, the carriage for handling long logs, the chute for loading vessels at a distance from the shore, and the V-shaped flumes, some forty miles in length, which open otherwise inaccessible lumber regions, notably in the Sierra Nevada, and cheapen lumber by their economic transportation. These methods and features calling for

large and varied machinery and vast and expeditious operations, give to this industry extraordinary proportions. The tracts owned by some mill companies approach principalities, with towns, harbors, electric lights, and special railways and water routes. The largest fluming enterprise is that of the Sierra Flume and Lumber company, established in 1875, which bought 60,000 acres of sugar and yellow pine timber land in the Sierra region in and near Plumas, and built ten mills and a hundred and fifty miles of fluming. An investment of $2,500,000 was followed by failure, but the creditors continue the business successfully.

The yellow-pine was largely used for the manufacture of turpentine and resin during the civil war, but since 1865 the production has fallen off. Charcoal is burned chiefly by Italians, from oak and willow, and is much in demand for low-grade ores.

The various inroads upon the timber supply have denuded large districts, and sheep have kept down the renewal of forests by eating the shoots, while fire continues to devastate many sections, as it evidently did in ancient times throughout the valleys. Measures have been taken, however, to promote reproduction, and the artificial planting of trees is gaining favor, under the auspices of the authorities for embellishment and shade, no less than for fuel and industrial purposes, and even with a view to modify the dry and hot climate of the interior.

In connection with lumber manufactures there have sprung up a number of planing-mills, with special factories for several branches dependent upon architecture. The first one is ascribed to Hutton of San Francisco. In 1888 their production exceeded $5,000,000, with promise of increase under the growth of settlements and the predilection for wooden dwellings. The light, yet strong Chicago frame structure is the favorite, with elaborate facades, San Francisco being conspicuous for bay windows, which invite the

sun while affording protection against the strong summer winds.

Ship-building received an early impulse under the sudden demands of traffic along the extensive coast and river lines, and in 1880 there were sixty-two yards in operation, employing 530 men and producing twenty-one vessels valued at $771,000, with $1,000,000 more for repairing and boat-building. Since that date there has been a steady increase in this direction, forty-five vessels being built in 1888, with a gross tonnage of 10,926, and in 1890, forty-two vessels, with a gross tonnage of 48,542, including two steel-plated cruisers and a line-of-battle ship built at the Union iron-works. Of the ship-yard connected with these works, one not excelled by any in the United States, a description is given in another volume of this series.

Traffic with the mines called for elaborate stage carriages and huge freight wagons. The decline in mining and the increase of railways have greatly lessened their use, and the transcontinental road favors competition from Michigan, while the lack of elastic woods compels the importation of wheels and tongues, as well as of much raw material. Nevertheless San Francisco, with one-third of the trade, turns out a thousand wagons and buggies annually; for the general wealth, lively trade, value of time, cheap animals and feed, sparse settlements and fair roads maintain an exceptionally large demand for vehicles. In colonial times riding and packing were the usual means of conveyance, the few wagons in use consisting of rude frames, with board disks for wheels.

The growing wine and beer production fosters cooperage, and in 1880 a single company, which led this industry with its three mills, turned out 3,000 barrels a day, using several valuable patent processes. Both hoops and staves have generally to be imported, and this, together with the lack of coopers, invites a large importation. Factories exist for wooden-ware, bungs, and faucets. The export of fresh fruit and

canning are calling for more box factories, sustained also by trade in groceries, crackers, cigars, and the like. Of willow-ware the larger proportion comes from Europe, despite duty and freight. Broom factories promote the cultivation of broom-corn in several counties.

Furniture is still largely imported from the cheaper eastern sources, with their better variety of woods, but the growing appreciation for hitherto neglected native timber, and reduced wages, are effecting a change. The taste for home decorations is spreading from the cities throughout the country, stimulated by the influx of tourists and a higher class of settlers, and a number of firms provide artists' material. Billiard tables are made to the value of over $300,000, with the prospect of a growing export. Of pianos, one-third have hitherto been manufactured or put together here.

Favored by the demand for peculiar machinery, for mining and field operations, not well understood in the eastern states, and by the distance from those sources, involving freight, duty, and time, the iron industry assumed large proportions in the face of such obstacles as high wages and the importation of most of the material, including fuel, for the local coal is not suited for castings. Iron deposits have been developed, and with the margin allowed by freight the imports are gradually declining, so much so that the production of $6,000,000 from the iron-works for 1871 trebled during the following decade, stimulated by a demand from adjoining states and territories. The principal inquiry was for mining machinery, which in 1881 constituted three-fourths of the output of San Francisco's leading works. In this branch they are in fact unsurpassed, sustained by long experience and special appliances and inventions. For pumps, engines of seven hundred horse-power have been made, some costing $500,000. With the decadence of mining,

especially on the Comstock lode, came a decrease in the demand for mining machinery; but this has been largely offset by the building of steel and iron vessels, including the men-of-war constructed at the Union iron-works.

The accumulation of old rails gave rise in 1866 to a rolling-mill at the Potrero, which now employs several hundred men, and contains departments for puddling, for steel rails, bars, engine forgings, nails, washers, and chains. The census of 1880 credits it with a product of 14,000 tons, valued at $780,000. Another mill has been opened in connection with the railroad shops at Sacramento. The first railway locomotive was made at the Union works in 1865 for the San José road, preceded by a locomotive engine for Oregon from the Vulcan. Since then a number have been constructed, the shops at Sacramento producing seven in 1881.

Architectural castings amount in value to $700,000 a year. Agricultural implements are largely controlled by the advantages of eastern factories in patents, specialities, duplication of sections, and good ready material; but California is obtaining more and more of the work, and some of the inventions, which have been elsewhere adopted, have reduced the cost of thrashing one-half since 1870. Windmills are widely used, the supply being divided between the east and the west. Stoves are largely controlled by eastern patents. The demand from mines and cable-cars has given impulse to the manufacture of wire, sustained by several patent tools. Cutlery, files, guns, locks, and finer steel goods suffer under the superior advantages of established eastern factories, so that little more than repairing and special orders are attended to here.

In other metal works our coppersmiths produce about $300,000 worth of articles, equivalent to the total consumption, and San Francisco alone turns out a similar amount from her brass foundries. Lead-

works were first opened in 1865 by Thomas H. Selby, who was directed thereto by the abundance of lead and antimony on the coast. The production exceeded in 1880 5,000 tons, valued at $800,000. The plumbing business did an equal amount of work, equivalent to the imports in that line. The sale of tinware reaches about $4,000,000, mostly of local make, with the prospect of a rapid advance to supply the increasing number of the canneries. The tin comes from Australia. Galvanizing, gilding, and plating are also promising industries. The general wealth, the desire of miners for specimens, and the beautiful quartz ornaments have served to sustain a considerable jewelry manufacture, which has, moreover, made for itself a reputation for neat designs.

The general preference for wood and its cheapness have limited the use of other material for building purposes. Nevertheless business houses require more substantial edifices, partly to guard against fire, and brick is consequently in demand for the central or business section of all towns. In colonial times adobe, or sun-dried brick, was generally used, but the first brick proper was burned by G. Zins of Sutterville in 1847. In 1881 over 120,000,000 bricks were made. The Hoffman process claims advantages by baking in furnaces. Lime exists in many localities. Much cement is imported. After many failures artificial stone companies are gaining reputation for cheap and reliable material. Stone pavements began to be laid in 1856. Plaster decorations are much used, and sculptured designs occupy more than five hundred hands, whose productions reach $1,000,000.

California possesses the best bed of potter's clay on the coast; yet so far only coarse ware is produced, to the amount of $300,000. High freight and breakage encouraged the opening of bottle factories between 1855 and 1859, but not until 1862 did the Pacific glass-works succeed. It was absorbed soon after by the San Francisco works, which in 1880 employed

125 hands, and produced $140,000 worth of goods. Its growing business had started also a coöperative factory.

Explosive powder-works were early projected, yet not till 1863 was the company formed which founded the California powder-works near Santa Cruz. The firm has expanded until it now embraces 21 mills, 6 magazines, and an entire village of workers, who prepare the only army and sporting powder on the coast. Several other mills have risen to prepare the high-grade explosives, now exclusively used for blasting. The total value of the manufacture has risen to fully $2,500,000, including a considerable export. Fire-works and matches are made by about 150 men. Gas which was first burned in San Francisco in 1852, is now furnished in all towns of any pretension, and employs a capital of $15,000,000 and a force of hundreds of men.

Mining calls for a variety of acids, which are prepared by several factories, to the value of $1,500,000. A large amount of bone charcoal and kindred substances is prepared for sugar refineries and agricultural purposes. A type-foundry was started in 1853, and now most requirements in this department are supplied on this coast. The first paper-mill was completed in 1857 by Post and Taylor, in Marin, and several others have since been opened at different places, notably Stockton, favored by the existence of good straw, refuse rags, and other material. Their product amounts to about $600,000, but almost exclusively in printing and coarse paper, so that a large sum is annually sent abroad for writing-paper. The principal demand is from paper-bag and box factories, and from the numerous newspapers, which spring up in almost every village, employing more than half the printing establishments on the coast. The annual value of the newspaper and kindred business is placed at $5,000,000, the book and job printing at $3,000,000, employing 2,500 compositors. The first press

was in operation in 1834. Two-thirds of the book-binding on the coast is done at San Francisco, to the value of over $600,000.

Leather manufactures have been fostered by the abundance of hides and the superior quality of California oak bark. The padres tanned a little for local wants, and in 1843 an American, P. Sweet, entered the business at Santa Cruz. The war of 1861–5 gave impulse to the industry, and by 1881 the production exceeded 8,700 tons, valued at $3,700,000, from 77 tanneries, employing 630 men. The curried leather branch was assigned to 63 establishments, with 230 men, and an outturn of $2,000,000. The bark of the chestnut-oak along the coast contains double the usual amount of tanning matter, which imparts strength and quality, but less weight than hemlock. Its growing scarcity compels recourse to black wattle, sumach, and other substances whose inferiority may affect the reputation of the leather. Since the drought of 1862–4 the export of hides has diminished, and the growing home consumption calls for considerable imports of certain kinds. Wool-pulling is becoming a separate business. A Napa process renders sheepskins soft yet strong. Several glue factories depend upon the above.

California saddlery is in demand all over the coast, yet forty per cent of the material is imported. The firm of Main and Winchester dates since 1849. In 1881 the business at San Francisco employed about 1,000 hands, and did a trade of nearly $2,000,000. The Chinese are seeking a share. The pioneer whip factory was opened in 1863. The first organized manufacture of boots and shoes is credited in the same year to the senior partner of the firm of Porter, Slessinger, and company, who engaged convicts for making coarse grade goods. By 1880 there were 81 factories, with 2,500 hands, and products valued at $3,700,000. In 1890 San Francisco alone was accredited with

$4,500,000 worth of goods. Chinese make two-thirds of the cheaper ware, and the higher rates demanded by white workmen permit the introduction of one-third of the total stock, which is however nearly balanced by exports. Glove factories started in the sixties and increased within two decades to sixteen, with 250 hands and a production of $500,000, one-third being in demand for export, owing to the excellent tanning and sewing. Fine kid gloves are nearly all imported. The belt and hose business is sustained by the superior strength and quality of the California leather, the Roger fulling process being especially esteemed. The production reaches $350,000. Rubber hose is gaining in favor.

The abundance of tallow led early to the manufacture of soap, Carpenter preparing it for market in 1834, and Bergin and Heilmann opening factories in 1850. Of the $1,000,000 invested in the business in 1880, San Francisco alone controlled three-fourths, with a production of nearly $500,000, prepared by 400 hands. The introduction of kerosene has reduced whale-oil refining. Of linseed oil 2,500,000 gallons are consumed, pressed partly from East Indian seed. Oil is also extracted here from imported cocoanuts and other substances. In the seventies 5,000 tons of candles supplemented the local manufacture, chiefly for the mines, but since then the demand has declined.

The general demand for wooden buildings calls for the use of $2,000,000 of paints and varnish on the coast, mostly prepared at San Francisco, two factories producing the Averill and the rubber paints. The manufacture of perfumery and brushes is increasing.

The fineness of California wool and the substantial quality of her blankets, cloths, and flannels have acquired a wide fame, so that notwithstanding the higher cost of fabrication, from dearer coal, wages and other expenses, a considerable export has been established in this branch. The missions inaugurated the weaving of coarser blankets, which disappeared

with these institutions. The influx of Chinese permitted in 1859 the revival of the industry by Heyneman, Peck, and company, who opened the Pioneer mills. The civil war encouraged similar enterprises, and by 1880 nine mills were in operation at different places, with 835 hands and 19,000 spindles, producing goods to the value of $1,600,000. This total has since been doubled, with the prospects that the manufacture of finer cloth will gradually reduce the present imports of woolen fabrics amounting to $7,000,000, and retain more than the one-fourth of the wool-clip so far absorbed. Wool-scouring has of late been undertaken to save freight eastward, and special branches for knit goods have been established.

In connection with the efforts of the state to foster cotton culture, a cotton-mill was opened in 1865 by Rector and Son. It failed to pay, and was converted into a bag and jute factory, with the aid of Chinese, who constitute the greater proportion of the 800 hands. The outturn is over 5,000,000 bags. A few smaller firms are similarly engaged, and since 1882 also the convicts of San Quentin.

More persistent than with cotton have been the attempts to establish silk factories. The first was started in 1867 by Newman, during the sericultural excitement. It failed, as did several others, but the industry was revived, and in 1881 two small mills were in operation, one spinning $150,000 worth, for twist and coarser goods. A proportion of fabrics was also produced, and the prospects are promising.

Of clothing $6,000,000 worth was made up in 1890, by 4,000 persons, who mostly work at home, under contract, the Chinese predominating. Overalls are manufactured even for export. Half of the $13,000,000 worth of imported cotton fabrics may be classed as domestics, and are made into garments by the contract system. In the shirt factories, with a product of $900,000, white labor predominates. The necktie importation reaches $1,300,000, a very small propor-

tion being of local manufacture. This is also the case with hats, suspenders, trimmings, and small ware, but parasols and regalia are largely made up in San Francisco, the latter sustained by numerous fraternal societies.

Abundant wealth and the taste inherited in colder climates have fostered upholstery, at least in the cities. Most of the material is imported, but high freight insures local fabrication. Fillings are mostly prepared here, and consist of curled hair and moss for fine furniture, of soap-root, Eureka hair, and shoddy for ordinary goods. Mattress springs are made by three firms and also woven wire mattresses. Carpet-weaving has not succeeded, save rag carpets. Only one rope-walk survives. Sail-making employs a small force.

The total value of all the textile fabrics on the coast in 1882 was nearly $12,000,000, produced by 6,000 hands, earning $2,500,000 and using nearly $6,000,000 of material, while the report for 1870 gave only 1,700 operatives, and a production of $3,750,000. As $13,000,000 in cotton fabrics are still imported there are wide opportunities for factories in this branch alone. Unfortunately the labor market has been so uncertain, especially in connection with Chinese, that capital hesitates.

A fostering influence in behalf of manufacturers generally is exerted by the Mechanics' fair and the different county exhibitions. A continued advance is to be expected in a country possessed of such varied natural wealth, with an ever augmenting surplus of raw products, and with the disclosure of additional coal-beds and the rapid exploitation of iron deposits, so essential for other branches. The planting of the requisite kinds of trees promises in due time to remedy the sensible defect in hard and elastic woods. Along the Sierra slopes is water-power in abundance, which will soon become eligible. Much of the exported wool can be utilized to swell the list of woollen

fabrics, which enjoy a high reputation abroad, and so with leather and many other products. The efforts for the production of finer grades should be especially fostered, for these constitute the chief drain upon remittances from California, which makes plenty of flannels and blankets, but imports cloth; exports sole leather, but buys fine gloves and uppers for shoes; produces common crockery and bottles, but introduces table-ware and window-glass; manufactures printing-paper, but sends for writing-paper. With increasing railway communication the raw material will be cheapened, and it is believed that cotton can be brought from Texas at nearly as low a rate as to Lowell, and so open the prospect for a resumption of cotton spinning, which in turn will encourage local plantations. A growing population will provide hands at sufficiently low rates to encourage new enterprises, and the training of workers for the finer productions.

California possesses, moreover, as I have said, the advantage of a protective tariff in the shape of freight and risk on transports from the east, most goods from abroad being restricted by duty. Special urgent work prevails in a measure against both quarters. An equable climate permits almost uninterrupted work throughout the year, and obviates the necessity for the substantial and costly buildings required in the east, to the saving of rent and fuel.

San Francisco as the chief harbor on the coast and the main depôt for most of the raw and refined material, has naturally become the centre for manufactures, and the congregation here of Chinese for mutual protection has assisted to maintain it for branches not requiring proximity to raw material. The facilities of the state in general for manufactures are decidedly superior to those of many manufacturing localities, so that a vast area of the Pacific slope, already made tributary by her geographic position and trade channels, may be counted upon to sustain her industrial aspirations.

Austin Spare

CHAPTER XX.

LIFE OF AUSTIN SPERRY.

FAMILY TRAITS—FATHER AND MOTHER—FORCE OF HEREDITY AND EXAMPLE—LABOR AND CHARACTER—SMALL BEGINNINGS OF A GREAT INDUSTRY—GROWTH OF WHEAT AND MANUFACTURE OF FLOUR—USEFULNESS OF A PLAIN, HONEST, ACTIVE LIFE—A CHARACTER OF MORE THAN USUAL STRENGTH AND CAPABILITY.

CHARACTER and work—it is difficult to say which ought to be mentioned first—are the main elements of that personal force which underlies the development of community life. While, therefore, it is desirable that we should understand what the representative builders of the commonwealth on the Pacific coast have done, it is quite as desirable, also, that we should know how they labored and who they were. Work and character are mutually involved in each other, and neither can be fully comprehended apart from its intimate and fundamental relations to the other, however distinct they may appear. Something of a man's individuality is discernible in whatever he does; although if all his acts were set down and analyzed, the record would be less than his life. The sum of human experiences is only a brief chapter from the great volume of human mystery; and yet the accomplished facts of a man's life are, to the degree that they embody his spirit and energy, a manifestation of his character. Or, to state the proposition in homely form, the tree is known by its fruits. It may be that capability which has not been productive, barren talent, or that results which cannot be wholly credited to

individual endeavor, are subjects which would repay study; but if this be so, how much more valuable must be the knowledge of a life in which purpose and performance go hand in hand; which is not estimated, in the abstract, by its capabilities, but in the concrete, by its actual accomplishment of what is tangible, enduring, and beneficial. I am unaware of anything more wholesome and stimulating, for those who are wise enough to learn from the experiences of others, than a biography of a man thus practical and earnest, if he be also honest and good; for the one standard of nobility that has commended itself to all peoples in all ages is that which is founded upon character. These remarks justly apply to more than one of the worthy men to whose labor and virtues we are indebted for much in the material and moral growth of the Pacific coast; but I refer more particularly, at this time, to Austin Sperry, whose personal worth and usefulness to the state during his life were equally pronounced and recognized.

The Sperrys are a numerous family, whose ancestors were early settlers in New England, several of whom figured notably in the colonial annals of Connecticut. Benjamin Sperry was a native of New Hampshire, but removed to Cabot, Caledonia county, Vermont, on the Onion river, a region of lime-stone and rugged hills, where his son, Austin Sperry, was born, May 20, 1819. Benjamin Sperry was a man over six feet tall, of stalwart frame, inured to hard work, handy with tools to make or mend, sober, industrious, and determined—just the kind of man to cut out a farm for himself and his family from the Vermont wilderness. He acquired and cleared off about 200 acres of the best land in the locality mentioned, which was nevertheless poor, and compelled the unwilling soil to yield him a livelihood. It was a struggle with nature, in which he was successful to the extent of making what in that country, at that time, was considered a good farm, but the profits were small, and rendered possible

only by severe toil and rigid economy. He was better educated than most of his neighbors, and read critically the bible, history, and newspapers of the day. His memory was very retentive, and he acquired a remarkable mass of information from these sources. His mind was comprehensive and clear, and he was a great reasoner. His knowledge of the history of the United States and of the principles of our government was thorough and precise, while his familiarity with the scriptures was quite as great. He was not a believer in revelation, and often argued with two of his brothers-in-law, who were zealous ministers of the gospel, regarding their faith in the bible; and it is said that he was so strong in controversy that they could not maintain themselves against him. He was not more disputatious than liberal, however, for he respected the views of others, and though he could not believe what he could not comprehend, his logic did not make him uncharitable. His wife was a devout Christian, and he attended church with her quite regularly. He was a large-hearted, benevolent man, to whom religious friends would go for aid as readily, at least, as to any members of their own church. A leading spirit and looked up to by his neighbors, in a wider field his influence might have been proportionately great. He was conscious of his strength, and like most men of controlling ability, he was not always patient under restraint. Still, he was self-controlled to this extent, that if his passion got the better of him, he would go out and relieve himself by speaking his mind freely to his oxen. His physique, mentality, and moral nature he transmitted to his son, who in some respects resembled him closely.

Mary Davis was the maiden name of Benjamin Sperry's wife. They were married in Claremont, New Hampshire, and it was from that point that they went forth as home-makers into the wilds of Vermont. She was an excellent pioneer's wife—thrifty, industrious, of great common sense, and

strength of character—a fair representative of the sterling womanhood of New England eighty or a hundred years ago. She was a conscientious methodist, and framed her life upon the discipline of that faith. Eschewing all worldliness, her criterion was duty. And yet she was not fanatical. Her charity was rational, and the difference between her husband and herself, as regards religion, did not spoil her temper. She was by nature sympathetic and gentle, and her christianity was practical, inculcating sacrifice and self-government. Kind and amiable, she sought to influence others in what seemed to her right by tender means; her great desire was to do good and lead a blameless life. She was solicitous for the welfare of her husband and children, and she discharged the obligations of wife and mother with zeal and faithfulness. She was well educated, and was a school teacher until her marriage. Her family were people of character and standing. Her brothers were men of intelligence and influence, and noted for their physical strength and stature. From her side of the house, her son Austin inherited qualities of body and mind that were helpful; from herself he derived that gentle disposition and kindness of heart which were peculiar to him, and from her example he learned the priceless lesson of prudence and self-control. Benjamin and Mary Sperry had five children, four sons and one daughter, who grew to maturity. Besides Austin Sperry, those of their children who came to California were Charles Sperry, at this time a resident of Stockton; Alvaro Sperry; and Mrs Almira Sperry Sloane, who likewise lived in Stockton. Mr and Mrs Sperry were fond parents, proud of their children, and were ambitious, above all else, that their sons and daughters should grow up to be honest, useful, and independent men and women. They themselves set the example in that which is the most practical and reliable element of education—labor. He was a tireless worker,

and so was she. In the region in which they lived there were few who could afford to be idle, or to whom idleness was a temptation. Ladies and gentlemen, so called by virtue of their leisure, were unknown. And yet the Sperrys and their neighbors were not slaves to toil. They worked hard, but their labor was not drudgery. They worked, not merely because there was no other alternative, but also because they looked upon labor as a duty, and took pride in every sort of honest productive industry. They were brought up to work, and the habit of labor became second nature. Labor of some sort, whether of the head or the hands, was regarded by the community as an essential to respectability: idleness was considered as hardly less than a crime, while work was classed among the cardinal virtues. Such was their environment and the spirit engendered by it. Enlightenment, progress, power, grow out of labor, while the concomitants of idleness are retrogression, demoralization, and degradation. New England owes her greatness of to-day, not to nature, but to labor; and what the Pacific coast owes to New England for intelligence, enterprise, and character need not be told to any one who knows the rudiments of our history.

Henry Ward Beecher, who was brought up to labor, said: "Every boy or girl ought to be brought up so as to be able to earn a living. Among the kindnesses I received from my father and mother, I am as grateful to them for teaching me how to use my head and hands together as for anything else. Hundreds of men know how to generate ideas, but not how to harness them to business. To join think and thing together is a Yankee peculiarity. Practicality ought to be taught in the schools. Old New England economy obliged schoolmasters to teach boys trades. It is a pitiable thing to see respectable young men drifting about the community wanting something to do. My experience taught me to rely upon myself,

and I have never yet been put in such a position that I could not turn my hand to whatever was necessary to be done. In the confidence you feel that you can do any kind of work there is a sense of independence that does not come with a patent of nobility."

All that has been said in this general way might fairly stand as a picture of the regime under which Austin Sperry was reared. His schooling was like that of most other boys in the pioneer days of Vermont. Autumn and winter, the season when he could be spared from farm-work, which began for him as soon as he was able to do chores, he attended the common school. Thus the year was divided between work and study, and his mind grew with his body; for though the thousand and one things that boys and girls are crammed with now were not in vogue then, the elements of knowledge were thoroughly taught. For this foundation pupils were indebted to the master—the superstructure they might build for themselves in after life, if they would. Austin was an industrious, reliable boy on the farm, and took kindly to his books. He bent himself to his tasks, and wasted no time. It was characteristic of him to stick to whatever he undertook until it was done. He was ready at figures, a fair reader, became a good book-keeper, and generally thorough in those studies which are more directly useful in practical life. Until he was seventeen years old he attended the public schools, after which he took a wider course of studies at the academy, an institution peculiar to the New England states, in which boys were prepared for college. All the time he was not thus occupied, he was a student in another and not inferior school, the farm, where he learned some of the best lessons of his life. He had a gift for mechanics, and could turn his hand to whatever was to be done by a farmer in those days. He was stout and active, and fond of athletic sports, in which he excelled. Among his comrades he was a favorite, because of his good nature,

generosity, and manliness. While he was firm and decided, he was so careful and considerate of others' interests and feelings that it is said that, as a boy, which held pretty nearly true of him as a man, he was not known to have an enemy. From childhood he had fixed ideas of right and wrong, and clung to them, but he was not obtrusive, and he shunned contention. He was positive in his opinions as his father was, but like his mother he had no taste for controversy.

When his limited tuition was finished, he became a clerk in a general merchandise establishment at Danvers, Massachusetts, a manufacturing town, located in the midst of a farming country. He slept in the store, and he was wont to smile and say that it seemed as though he never would get back the sleep he lost during that clerkship; for the old farmers used to come around as early as two o'clock in the morning and call him up to wait on them. But this introduction into actual business, homely as it was, did him no harm. His three years' experience and observation among the keen-witted, enterprising people of Danvers and vicinity were useful to him in more ways than one, afterward. His next employment was with the dry-goods house of George W. Warren and company, Boston. After several years of mutually satisfactory service with them, he obtained a clerkship in the large dry-goods, shawl, and silk establishment of Jewett and Prescott, on Tremont street. By close attention to business, supplemented by a pleasing address, he became one of their most successful salesmen. It is related to his credit that his success was attained without recourse to the tricks by which some tradesmen profit.

During his clerkship, extending over a period of five years, he led a frugal life, and saved enough from his salary for the nucleus of a business of his own, while the reputation he had established for integrity and ability enabled him to obtain whatever credit he might

require. In company with a brother he went into the dry-goods trade at No. 2 Tremont row, in which he was engaged until the latter part of 1848, when, owing to some unfortunate investments made by his partner, and the desire to try his fortunes in the gold-fields, he sold out and withdrew from business. Emigration to California was with him, as with most others at that time, more of a venture than he supposed. Very little reliable information could be had in the east regarding the state of things here; the prevalent idea was, that a fortune, greater or less, according to the measure of each argonaut's ambition, could be dug out of the mines in a year or two; and perhaps forty-nine out of every fifty emigrants planned that, when he had gathered as much of the golden fleece as he required, he would resume his residence in the states. This select region of earth was not comtemplated as a possible home; the mines were the beginning and end of life in California. It was impossible then, and for years afterward, to discover that the wealth of California soil and climate was far greater than that of her precious metals. Brought now into their proper relationship, agriculture is the superior and mining an incidental industry. One notable feature of the first tide of emigration to California was, however, that it brought out men who were, as a rule, of the superior class. It argued enterprise, energy, and some degree of courage that they should undertake the trip across the plains or the voyage around Cape Horn, while the expenses of the undertaking were such that ordinarily only men of substance or standing were able to provide the means for it. Not less could be said of Austin Sperry than that he was among the select men who were drawn to the Pacific coast by the discovery of gold. Knowing but little of the actual situation, except that there was an opportunity for bettering his pecuniary condition, he was not afraid to encounter whatever obstacles there might be in the way. Standing six

feet one inch in his stockings, and weighing, without superflous flesh, a hundred and ninety pounds, in perfect health, experienced in business and inured to manual labor, he was self-reliant, and confident of his ability to adapt himself to whatever he should find it necessary to do in order to get on, though like most others he expected to dig out his fortune from the rocks. Only a few realized their anticipations in this respect; a comparatively small number of pioneers ever became rich, and scarcely one of them succeeded as he had planned to succeed.

A company of four chosen friends, of whom Austin Sperry was one, sailed from Boston, January 27, 1849, on the ship *Pharsalia*, Captain Allen, by the way of Cape Horn, for San Francisco, equipped with mining implements, and with enough provisions to last them several months. The weary voyage lasted six months, about two thirds of which time the ship was out of sight of land. The passengers had recourse to the various ordinary expedients to break the monotony—reading, music, chess, cards, etc. Mr Sperry occupied himself mainly with books of travel, and with his diary, which he kept faithfully to the end, and contributed to the diversion of his fellow-voyagers as one of a glee club formed on board the ship. He had a deep, sweet voice, and sang well, and was proficient as an amateur on the flute. If the captain had been so disposed, he might have relieved, to some extent, the tedium of the voyage for his passengers, most of whom were unused to the sea; but he preferred to be churlish. Not knowing the temper of the officer, and having no reason to expect an uncivil answer, Mr Sperry ventured to ask what the latitude was. "That is my business," snarled the skipper. His questioner felt the rebuff keenly, but turned away quietly without a word of remonstrance, after which he enjoyed the privilege of giving Captain Allen a wide berth. However, when the latter, having repented of his rudeness, called all his passengers

together at Valparaiso and apologized, there was no one more prompt than Mr Sperry to put away his grievance, for it was foreign to his nature to cherish a grudge.

When, on the last of July 1849, the Sperry company arrived in San Francisco, their entire funds did not amount to more than $500; hence they had to make some economical arrangement by which to get to the mines at once, for the cost of transportation and living was very high. In order to avoid the expense of storing their effects and going to Sacramento as their point of departure for the placers, as they had intended, they engaged a small schooner to come alongside of the *Pharsalia* and receive themselves and their outfit and take them to Stockton. They put their New England ideas of frugality into practice on the very threshold of their experience in this new country, and thereby avoided the fate of others who became fascinated with San Francisco and got stranded in the swirl. At Stockton the party divided, and on the 18th of August Austin Sperry and E. R. Stockwell proceeded to the placer diggings at Jacksonville, in Tuolumne county; the other two of the company preferred a different 'camp.' Sperry and Stockwell worked a claim for twenty-three days and a half, when, having cleaned up $500 each, the latter preferred to continue mining, but the former did not find it agreeable, and returned to Stockton with the view of undertaking some less speculative enterprise in a quieter environment. He went into the grocery business with a partner, and built up a considerable trade, but was completely burned out in the big fire of the spring of 1851. He rebuilt and resumed the same business, but he was not to continue much longer in this traffic. He was observant, and saw his opportunity in quite a different branch of commerce. There was nothing worthy of special note in his earlier career in Stockton, unless it was the cultivation of those homely virtues which were not generally appreciated, and were sometimes

scoffed at in the flush days of California, although they lie at the very root of individual success and national strength—industry, temperance, and economy. For instance, by a little thrifty planning, he and friends from New England, where the proper appreciation and the wise use of money was an evidence of character, supplied their table abundantly at a cost to each person of about $3.50 a week, a sum that many another, with no better business income than his own, would spend for meals in a single day.

During the earlier period of placer mining, Stockton was the central distributing point for the outlying camps. There was a great deal of staging and heavy freighting to and from the mines, the importance of the transportation industry being second to that of mining only. A very large number of horses and mules were employed in that work, and Mr Sperry conceived the project of a mill in which to grind feed, crack the barley, consumed by this stock. This is the idea, born in his mind, out of which grew the great Sperry flouring mills of Stockton, the second in size at this time on the Pacific coast, a manufactory of wide usefulness in our domestic commerce and of high standing in foreign trade. It is probable that he had in view, also, at the origin of the enterprise, the manufacture of graham flour. At any rate, the first products of his mill were food for man in this wholesome form, as well as improved feed for animals. It would be gratifying if we could know all the details regarding his plans, and the circumstances attending the inception of this enterprise, the development of the industrial germ, a complete record of which would be of more substantial interest than the history of many a military or political campaign. The facts concerning the origin of an important enterprise are peculiarly interesting, but this information, which is so desirable, is often incomplete or defective unless the originator of the enterprise takes special pains to make a note of facts for preservation, or unless

they can be obtained from him personally by a competent and faithful investigator. The entire history and elucidation of a life problem can seldom be obtained from any one save from him in whose brain it was generated and by whose labor it was wrought out. This is a proposition that needs only to be stated to be proved; to my mind it is conclusive as to the superlative advantage of contemporary biography, as a means of acquiring historical material which cannot be gathered from any other source, and which if not thus acquired from the lips of the living witness is apt to perish with him. I do not feel that I lack any information that is essential regarding the beginnings of the valuable undertaking to which Mr Sperry devoted thirty years of thought and labor, but I can see that this part of the subject might be presented more clearly if he had been alive when this inquiry began, to tell the story of his early struggles with his own lips. His was the first grain-mill constructed in Stockton, and, so far as I can learn, the first in San Joaquin county. Sperry's mill was certainly not the first in California, for Captain Sutter had a mill at his fort, and the Russian settlers had one at Bodega, and there were one or two others in use in California prior to the gold discovery or soon afterward. In the pastoral days preceding this event, the Spanish Californians ground wheat for their own use on the household *metate*, or at best on the *arastra*. Wheat was cultivated, from the first, at the missions, and at the beginning of the century it was a favorite product. In 1784 the cereal crops were so large that shipments of grain from Mexico were declared to be no longer needed; but in the same year the cultivation of wheat was discouraged by dryness and fickleness of the climate at San Diego and elsewhere. In 1834 the Mexicans planted wheat north of San Francisco bay; Sutter introduced it in the '40's, as did the Russians about the same time, and it was grown in Yolo and Placer counties also at an early date. Still, in the

year 1850, the entire wheat product of California was only 17,328 bushels. The smallness of this crop was due somewhat to the fact that the mining excitement was demoralizing to agriculture, but if there had been no such disturbance the product would have been comparatively insignificant. Gold was the absorbing desire, and yellow dust blinded men for the time to every other source of wealth. As centuries ago men resented the idea that the earth was round, so it would have seemed incredible to pioneers within the last fifty years, had they thought of it, that California, capable of being made the granary of the world, had possibilities in the way of agriculture that were worthy of consideration. The conditions of farming here were peculiar, however, and when the first reaction from the mining fever set in, it is not to be wondered at that the first experiments then made in wheat-growing were not generally successful; but Yankee ingenuity and persistency brought about the revelation ultimately that there is more gold deposited in the soil of California then under it. In 1852, a glimmer of this truth was afforded by the little wheat crop of 297,000 bushels, seventeen times as large, however, as the crop of 1850. In San Joaquin county alone, in 1880, it was 3,500,000 bushels, and in the state at large in the year 1889 the yield was 50,000,000 bushels; and while California will probably always retain her rank as a wheat-growing state, her future in this respect is already overshadowed by the adaptibility of her soil for the production of fruits.

The growth of wheat was limited, at first, to the local demands which had been previously supplied by importation, but under the stimulus of a foreign market, the industry assumed tremendous proportions. But another development had to take place before the product was shipped in any other than the crude form. It not only required years of labor and painstaking experiment before California flour became available as an export, but it required years, also, to

enable local manufacturers to compete successfully in the home market with eastern manufacturers. These facts all have a direct bearing and cast a light upon the history of Austin Sperry, without which his work as industrial builder could not be so well understood; for as Stockton grew in importance as the center of a great grain-raising territory, so the business grew which he founded and nurtured. His establishment expanded somewhat in proportion as wheat became abundant, while his enterprise as a manufacturer had its reflex influence in promoting the agricultural industry upon which it depended. This can be more readily appreciated when it is considered that the Sperry mill, now the Sperry mills, with a present capacity of 1,500 barrels of flour per day, began operations on a comparatively limited and meagre scale. It was a one-story frame building on Main street, between Commerce and Beaver, constructed by Austin Sperry, who had withdrawn from the grocery business, and his partner, George Lyon, in 1852. Mr Sperry's entire capital which he put into the venture was little more than a thousand dollars, while Mr Lyon contributed to the partnership an old engine. There were no steam-engines in the market at that time, and no facilities for manufacturing them. The same was true as regards boilers. Tubular boilers were not to be had, and Sperry and Lyon could get nothing better to start with than an old two-flue boiler that was exceedingly wasteful of fuel and expensive. Their engine was a second-hand one which seems to have got shipped up to Stockton by accident. Mr Sperry was a good natural mechanic, and with considerable labor set up the machinery, adjusting the parts as well as practicable. On the 14th of December 1855, the boiler exploded and demolished the building and the works; but machinery was more available then, and he managed with a struggle to replace the old mill with a better one. Resolution and tenacity of purpose were prominent traits in

his character. Taking up the milling business as a pioneer, without any experience and meeting with this disaster on the threshold, and encountering many other obstacles of a trying nature, it can be readily seen that he passed through a severe ordeal before his enterprise could be securely established. Many another lacking his patience and resource would have succumbed, but reverses and perplexities stimulated him to greater effort and intensified his determination to succeed. Of hopeful temperament, and thoughtful always of the future, he had faith in California and in the industry in which he was engaged. At a time when there were few to agree with him, he remarked to a friend: "I would not be surprised to see wheat growing all over this country." In addition to the milling work as originally undertaken, he began the manufacture of flour in the fall of 1852. His first partner continued with him about one year, when he took into partnership Samuel Baldwin, who remained with him about four years; then Mr Sperry bought out Mr Baldwin. Hence of Austin Sperry it can be said in all fairness that the founding of the great business is almost exclusively due to his own labors and character. He attended closely to every detail of the work, and as long as it was practicable kept his own books and attended personally to collections. Being reliable, fair and generous in all his dealings, he earned the confidence and good-will of the entire community, and established his enterprise upon a substantial basis.

In 1856 he induced his cousin, S. W. Sperry, who had recently arrived from the east, to join him in the business. Alexander Burkett, who was Austin Sperry's miller, entered the partnership at this date, and continued in the firm for nineteen years. The partnership of Austin and S. W. Sperry continued for twenty-five years, that is, until the death of the senior partner. In addition to the important period of pioneer struggle, the first four years, these other

twenty-five years also, were full of toil and care for the architect and builder of the Sperry flour-mills. In the year 1853, the Franklin mills were constructed on the corner of Levee and Beaver streets, by Calvin Paige and company. It was an immense building for those early days, planned with reference to the possibilities of flour manufacture, which the pioneer labors of Austin Sperry, in this line, had done much to demonstrate, and cost a large amount of money, expensive machinery being imported for its equipment from England. The walls of the mill had not been built of sufficient strength to run the engine at full speed, and in 1856 it was closed. Soon afterward, Daniel Gibbs, of San Francisco, purchased it, but it lay idle until it was sold to Sperry, Burkett and company in the spring of 1862. The purchasers spent four or five months in thoroughly repairing, in fact, in reconstructing it, and began work on this site, which is the present location of the mills of Sperry and company, in the early part of the following autumn. The great business had scarcely more than reached that point beyond which it would take care of itself, when, on the 22d of July, 1881, the founder, whose life-work was now fairly consummated, was called away. He had won a good fight, and had left his house in order. It was not destined that he should rest after his labors and enjoy the fruits of the struggle himself, but it was a source of pure satisfaction to him to realize that the victory was absolute and permanent, and that those for whom he labored, more than himself, would be sure of the benefits resulting therefrom. This was the chief gratification that he sought; besides, there is no doubt that he derived much happiness from the work upon which he concentrated his strength and mind. And it would have been singular if a man of his unselfish and kindly nature had not derived pleasure from doing good, for his whole work was useful and helpful to others, substantially a contribution to the public welfare and happiness. His manufactory, as he left it,

was in excellent condition, standing among the best of its kind in the world for the quality of its products, recognized as a leading industry of the state, an important factor in the general prosperity, and directly affording the means of a livelihood to many persons, and indirectly to many more. But regardless of the benefits that accrued and are still accruing to others from his activity in commerce and industry, he was not a man whom success could spoil or put out of sympathy with his neighbors. It was not his disposition to make a little world of himself and his belongings and turn his back upon the rest of humanity. He had pity for others who were in trouble, and he took comfort in their happiness. His treatment of others was gentleness and manliness combined, which seemed born of principle. A laborer once said: "Austin Sperry is a man who will cross the street to speak to me, as I am a little afraid of him." An old man had trusted a friend with his all and lost it. This friend afterward became abundantly able to assist him, but, instead, ignored him. Being sorely in need, he went to Sperry and asked him if he would trust a poor man for a sack of flour. "Is it for yourself?" "Yes, Mr Sperry, it is; but I don't know when I can pay you." "Never mind the pay; you take this sack, and when it is gone, come back to the mill and get all the flour you need as long as you live; I shall be glad to do you this little favor." Few knew of his deeds of charity during his life, but none who were deserving and went to him for aid were turned away. He seemed to take a humane and sensible view of the times—the manners and customs of the early days—making the best of them, and hoping and believing they would change for the better with the age of the state. If a man had gone astray, lost his fortune and health by dissipation, it was not his wont to scold and say: "Why did you do thus and so? or why were you not temperate and prudent? but poor Dick or John has got to the end of the road; we must board him, and see that he is cared for here, and if he

has friends at home, send him back to the old folks." Never supercilious or officious, but rather retiring in his manners, he was not a great talker. He understood when to be silent, and he would sometimes say to his friends: "I would be thought to know less if I talked more." Genial and hearty, he was always a welcome guest.

He took an active interest in whatever concerned the community in which he lived, and manifested a generous public spirit. In the discharge of his duty as a citizen, he had the courage to do right, according to his convictions of duty, under all circumstances. He exemplified this trait during the stormy and exciting times of the vigilance committees in 1851 and 1856. Mr Sperry was a leading member of the Stockton branch of the committee, and at all times discharged his duty fearlessly, sometimes in the face of great danger and difficulty. He was solicited to be a candidate for various political offices, but politics was not to his taste; besides, as he said, he could not discharge the duties of a servant of the people faithfully, situated as he was, without serious injury to his business, which required his daily attention. He did serve, however, for years as a member of the city council of Stockton, and as a director of the Stockton insane asylum. But he was decided in his political opinions. It was at his mill that the nucleus of the republican party of San Joaquin county was organized. He was the choice of his party in that county for governor of the state during the campaign that Leland Stanford received the nomination and was elected. Said a leading San Francisco journal: "He was not an ambitious and office-seeking politician, but an earnest, stanch, and resolute republican, who followed a high principle in the performance of the duties of citizenship, and who in the earliest days of our party organization was a trusted leader and counsellor." When the war between the states seemed inevitable, his decision of character was shown in his loyalty to the union.

The larger part of the community in which he lived were people from the slave-holding states, and when it was suggested to him that his business would suffer—that he must think of the loss in every way, financially and socially, that he would sustain by antagonizing the powerful southern element among whom were many of his best patrons—he said he could see but one course for him to pursue. If the practice of what he believed to be right interfered with his success in trade, he did not want that kind of success. In spite of the bitter feeling that prevailed, his opponents respected him.

In regard to the hereafter he was an optimist. He cherished the expectation that the transition from our present existence into a future life is but the beginning of a state of progression and development. It was repellant to his kind and tender nature to believe that a just God ordered his chosen people to go forth and slay hundreds and thousands of inoffensive women and children. His religion, if he can be said to have had a religion in the restricted sense of the word, was practical, liberal, and cheerful, not unlike that of Peter Cooper. An episcopal bishop called upon Cooper to see if he would not join some "evangelical church," so that when he died nobody could say that Cooper Union was established by an atheist or an infidel. "I am not an atheist or an infidel," said the philanthropist; "I am a believer and a unitarian; I know no object of worship except the one living and true God, and I know of no better creed than the opinions of good men." "I perceive that you are a scholar," said the bishop. "No," answered Mr Cooper, "I have never been to school more than three or four months in all my life. I am not a scholar; but if I had my way, the worst of the human race, the most depraved wretches, would wake up in another life, not in torment, but in the midst of loving friends and beautiful things." Mr Sperry often expressed his faith in good works

—the conviction that our manner of living, the good we do, brings its reward here; and that we do not long escape punishment for wrong-doing in this life. At one time after a discussion on some points of doctrine, he said: "Well, I believe more and more in the doctrine my mother used to teach me, that you always feel better for being a good boy." The following words from the memorial of the San Francisco produce exchange, of which the deceased was a member, reflects something of his Christian charity: "Where is there one of us, when the shadows of adversity gathered around him, who does not remember his warm shake of his hand, and the words of uplifting and cheer that fell from his lips."

Austin Sperry's home life was serene and comfortable. At the threshold of his dwelling he dismissed the cares of business with a smile, and the mill and office were forgotten until another day's work began. Naturally dignified, yet full of good-fellowship, he had always a pleasant word of greeting and often a good-humored jest for grown people, while he would frolic with his children as if a boy again. He was married, November 6, 1862, at Stockton, to Miss Mary E. Simpson, notes of whose family history will be found in this volume in the chapter containing the life of her brother, Asa Mead Simpson. It was in every respect a fortunate and happy union, blessed with children, as follows, who, inheriting worthy traits and reared with devoted care and practical judgment, give promise of the respectability and usefulness that is rightly expected of them: Mary A., Beda S., Horace Benjamin, and Austin.

Mrs Austin Sperry, who is possessed of unusual energy and force of character, immediately upon the death of her husband, assumed his interest and partnership in the Sperry mills, in the care of which, added to her family duties, she has shown much judgment and executive ability. The business was carried forward without incorporation, under the firm name of Sperry and

company, but was incorporated under the same name September 20, 1884. The business is in a prosperous condition, and gives promise of further growth proportioned to that of the state.

CHAPTER XXI.

LIFE OF WENDELL EASTON.

NANTUCKET FORTY YEARS AGO—THE EASTONS—BIRTH OF WENDELL EASTON—JOURNEY TO CALIFORNIA BY THE ISTHMUS—EARLY SCHOOL-DAYS IN SAN FRANCISCO—THE YOUNG REAL ESTATE CLERK—ASSISTANT SECRETARY OF CROWN POINT—NEW VENTURE IN SAN FRANCISCO—EARLY DIFFICULTIES—MARRIAGE—INCREASING SUCCESS—THE WASHINGTON COLONY AT FRESNO—PARTNERSHIP WITH ELDRIDGE IN THE AUCTION BUSINESS—REAL ESTATE SALES IN SOUTHERN CALIFORNIA—NEW PROJECTS—OPINIONS—CHARACTER.

SOME twenty miles south of Cape Cod, and thirty-five miles or more from the Connecticut mainland, is a low wind-swept island, whose almost treeless downs are broken here and there by a few hills of inconsiderable height, and from whose white sandy beach one can look eastward across a sea that extends unbroken by land until it reaches the African coast. The level stretches of sand are relieved by occasional patches of green pasture, on which graze bands of sheep. On the northern shore stands an ancient lighthouse, and a fishing village whose quiet streets and decaying wharves were once the scene of a bustling commerce. From its harbor, where now lie only two or three small fishing-boats, once sailed fleets of adventurous whalers and merchantmen, that explored all seas, known and unknown, and made the name of Nantucket famous throughout the world for daring seamanship.

The little island, which is not more than twenty miles in length, was discovered in 1602 by Captain Bartholomew Gosnold, an English sailor, who with a small bark containing thirty-two persons anchored in

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the harbor while on his way to Virginia in search of a favorable spot for a settlement. At the time of his visit the island was covered with a dense growth of oaks and other trees, and was inhabited by some 1,500 Indians. The island was subsequently granted by James I. to William, earl of Stirling, and by him it was deeded in 1641, together with Martha's Vineyard and other islands, to Thomas Mayhew, who was constituted governor, and who with his son Matthew established a mission for the Indians on the latter island. Eighteen years later the island of Nantucket, which was still inhabited only by Indians, was transferred by Mayhew to ten men, whose names were Tristram Coffin, Thomas Macy, Christopher Hussey, Richard Swain, Thomas Barnard, Peter Coffin, and Stephen Greenleaf, the consideration being "thirty pounds current pay, and also two Beaver Hatts, one for myself and one for my wife." From these original settlers have descended the principal Nantucket families of to-day, who through intermarriages among their ancestors are nearly all related to one another. From this hardy stock have sprung many whose names have since become illustrious—John G. Whittier, a descendant of the Husseys and the Greenleafs; Oliver Wendell Holmes, a descendant of the Macys; Daniel Webster, whose grandmother was a Bachelder; Admiral Sir Isaac Coffin, a Boston lad whose parents came from Nantucket; Lucretia Mott, also a descendant of Tristram Coffin; and Maria Mitchell, the eminent astronomer, who was born at Nantucket, and educated at the school established there by Admiral Coffin.

The Eastons came to the island early in the eighteenth century from the colony of Rhode Island. They were of quaker stock, and related, though somewhat distantly, to the family of Nicholas Easton, who was governor of Rhode Island in 1672, and whose son, John Easton, was governor of that colony from 1690 to 1694. Intermarrying with the Husseys and the

Macys after their removal to Nantucket, the Eastons could thus trace their relationship to all those whose names have added lustre to this quaint old settlement, as well as to John Howland, the friend of Governor Carver, and one of the ever-memorable pilgrims of the *Mayflower*, whose daughter, Desire Howland, married Captain John Gorham, and left descendants who settled at Nantucket and became allied with the Macy family through the marriage of Lois Gorham to Jonathan Macy about the year 1760. It was a granddaughter of this Jonathan Macy who, in the first decade of the present century, was married to George Easton, Wendell Easton's grandfather.

Wendell Easton was born on the island of Nantucket on May 24, 1848. When only four years old he began to attend a little school similar to the kindergarten of the present day. The Easton home was a house on the outskirts of the town, where at this time his mother was living with her three children, Wendell, his sister Elizabeth, born in 1845, and his brother George, born in 1851. His father, Oliver Wendell Easton, a man of unusual refinement of character, had been swept away to the Pacific coast in 1850, together with seven or eight hundred other islanders, by the California fever, "more virulent and destructive," to use the words of one of the inhabitants, "than the smallpox." Thenceforth the island, which since 1835 had begun to decline, owing to the rivalry of New Bedford and other cities on the mainland, and to the decadence of the whaling industry, continued still more rapidly to fall into a state of decrepitude, from which it only partially recovered when, in later years, it became one of the most favored of summer resorts. From California came letters from time to time from Mr Easton, some of which are still preserved, and which describe the events and scenes in San Francisco in the early fifties. Upon his arrival in that city he had purchased an old ship named the *Philip Hoane*, which he ran

ashore under Telegraph hill and dismantled, using the hull for storage. In those days many of the newly arrived immigrants brought household goods or other articles too large to be carried with them to the mines, and as they were usually in haste to proceed thither they were glad to pay a good price for safe storage. Ships also which had come around the Horn frequently brought salt pork as a portion of their cargoes, and, as it was sometimes partially spoiled, it often had to be repacked and stored away for future sale. This old hull became a landmark of early San Francisco, and was known for many years as the Ark. In his youth Mr Easton had learned the trade of cooperage, and thus was able to employ his skill and knowledge to considerable advantage. Two or three years after his arrival he was appointed United States inspector of provisions, a profitable post. Then he decided to have his family join him.

Accordingly, in January 1854, Mrs Easton and her children set out for California. In New York they waited a few days for the arrival of the steamer, staying at the Astor house while in that city, and then took passage on the *George Law* for Panamá. Among the passengers were General Wool and Governor Foote. After landing at Gorgona they crossed the isthmus on mules; many circumstances of the journey—the palm-trees, the adobe buildings, and the dark colored people—made a deep impression on Wendell's mind, although at that time he was but a child of five. After reëmbarking at Panama they arrived at San Francisco on the 15th of February. Here they were met by Mr Easton, who took them to the Brannan house, then a rather fashionable boarding place, on the corner of Sansome and Bush streets. Thence, after a stay of some months, they removed to a house on Mission street near Second. Below First street all was water, and each day the sand carts passed the house on their way to the cove at the end of Mission street, where they dumped their loads.

Mr Easton had by this time relinquished his interest in the Ark, and had a large provision house on the corner of Market and Fremont streets. As there were then no sidewalks between his house and place of business, and as the streets were little more than sandy roads, it was his custom for many years to ride to and fro on horseback. He was a large, muscular, active man, six feet in height, with a vigorous constitution, and delighted in exercise of all kinds. His large white horse became a familiar object, and was ridden by him in 1856, when he was a lieutenant of the vigilance committee, and had charge of a detachment near the scaffold at the execution of Casey and Cora.

He was a man not only of energy and determination, but of pronounced calmness of mind. To these traits were joined a probity and natural delicacy rare among men thrown so largely into contact with all classes of people. His nature was essentially a logical one; he weighed practical problems in accordance with the rules of cause and effect, and followed out his conclusions to their end. He had a strong taste for mathematics, and a still more marked taste for rhetorical and grammatical studies. His reading was extensive, and was chiefly in the line of science and philosophy.

In tastes and character both he and his wife were congenial, though they were supplementary rather than identical in these respects. Mrs Easton, who came of a fine old New Bedford family, her father being Henry D. Edwards, a descendant of the famous Jonathan Edwards, and a man of strong religious instincts, prominent in the presbyterian church, and the friend of such men as Lyman Beecher, was especially characterized by her good judgment, courage, and decisiveness, qualities which were no doubt still further developed by the fact that for many years the burden of governing her household and of planning for her children fell largely upon her. Shortly

after 1859, when the mines of the Comstock were beginning to attract attention, Mr Easton had withdrawn largely from the provision trade, in which he had been very successful, and had concentrated his attention and capital on mining, becoming interested at various times in the Ophir, Consolidated Virginia, and Crown Point mines. Thus he was compelled more and more to be away from home during portions of the year.

The method employed by Mr and Mrs Easton in governing their children was such as one would naturally expect from such parents. In it both firmness and sympathy were combined in equal proportions, together with an intelligent recognition of the individual traits of each child, and of the means by which they could best be led. Wendell inherited traits both from father and mother. From the latter he derived a shrewdness of judgment and a spirit of enterprise and pluck that made him a leader among his playmates; as well as a capacity for seeing the droll side of a subject, which is not without a practical value in life. From his father he inherited what was perhaps the latter's strongest trait, namely, his fortitude when in trying positions; together with the habit of logical analysis, and a spirit of persistence. Such a boy, therefore, required careful handling, and it was fortunate for him that he was brought up by parents who did not rudely attempt to override and break down qualities which, if properly directed in their youthful development, would prove of great value. Severity was seldom resorted to, for they early discovered that it was of no service, but on the contrary, intensified his opposition to their wishes. His was a disposition that could not wisely be driven; but he was always ready to give way when mildness and reason were employed. His parents watched and corrected him gently when wrong, pointing out in what the wrong-doing consisted, and showing why it would be better to do

otherwise. Thus, instead of being taught blind obedience and dependence on the judgment of others, he was taught to reason for himself, and guided to a knowledge of ethical principles which would be of service to him throughout life. His father's plan was to develop in his children habits of self-reliance, and to make them understand the importance of probity, decisiveness, and pertinacity of character, as the soundest basis for a successful career.

A pleasant spirit seems to have pervaded the household. Mr Easton believed in the advantage of always sitting down to eat in a happy frame of mind, and encouraged his children to take part in the conversation, and to talk of subjects in which they were interested. He thought this good both for digestion and mind. In consequence the habit of good humor at meal time became so firmly fixed as to follow them through life. He took pleasure also in seeing his children enjoy themselves in any innocent way. Wendell, full of plans for forming various organizations, and if possible of turning them to advantage, would frequently have the garden full of boys, to whom he was unfolding his schemes. At such times his mother, who did not like to see so many of them constantly about the house, often felt inclined to send them home; but her husband would say to her: "Let him alone, Susan; he is working out a problem." As his children grew older he said to them: "Boys, I have no objection to your going where you wish, provided you don't go to any place where you would not like me to see you." His method of dealing with them left a deep impression on their minds, and although they lived in a large city, and were never restricted in their movements, they kept out of serious harm.

Both parents were of a religious nature. Mr Easton had been brought up as a quaker, but when a young man had joined the unitarian church, of which also his wife became a member at the time of her marriage. They were both tolerant in their views, but believed

strongly in the value of religion as a guide and incentive to a moral life. Their children were sent regularly to the sunday-school connected with the Starr King church for some fifteen or more years, and as they became older were also encouraged to take an interest in the affairs of the church.

During the whole of his boyhood in San Francisco, Wendell Easton attended school with little or no intermission. Both father and mother believed in the value of education, and desired to give their children all the advantages that lay in their power. This was, indeed, the chief reason for their continuing to make their home in San Francisco, notwithstanding the fact that Mr Easton's business kept him much of the time in other places. The first school that Wendell attended was on Bush street, between Sansome and Montgomery, on the site now occupied by the Crocker building. Later the school was removed to its present location on the corner of Bush and Stockton streets. As a boy, Wendell took great interest in his studies, although like most boys he liked a good time occasionally, both in and out of school, and was not above getting into a scrape. When within the school-room he gave proper attention to his lessons, but the moment school was over he was as active in out-door sports as any one, went hunting and fishing, rode horseback, had dogs and other animals, kept a boat, and did everything that boys are wont to do. Even more than these sports he enjoyed walking, and with his friends would often take long tramps over the broad stretches of sand dunes, which at that time looked as though no one could ever live on them.

From the lower grades Wendell passed into the boy's high school, where he made good progress. His tastes lay especially in the line of mathematics and grammar, in both of which studies he attained proficiency. Figures always had an attraction for him—a taste that he inherited chiefly from his

mother, although in his own case in later life he regarded them only as a means to an end, and did not have that merely speculative interest that is characteristic of the mathematician pure and simple.

It happened, rather unfortunately for Wendell, that among his teachers at the high school was one who harbored a feeling of great enmity to him for some misunderstanding that had arisen in earlier years. This petty opposition, which was shown in various ways, was borne for a time, but at last became so obnoxious that the young man, although well on in his last year at school, within but six months of graduation, felt that, notwithstanding the fact that he possessed much patience and fortitude, he had reached the limit of endurance. He would leave school and go into business, he told his mother; he was satisfied that in any event he would not be able to graduate while that teacher remained at the school. His father had met with some reverses lately, and Wendell was eager to begin to earn money. His mother at first opposed his wishes, but seeing that he was determined, finally assented, and told him he might seek something to do.

The next morning, therefore, he rose early, made his own breakfast, and started out to seek employment. After some fruitless searching he called at the office of Hoogs and Madison, the real estate firm, now Madison and Burke. They had no use for a boy, they said; but Wendell replied that he was willing to do anything, so long as he was employed in some way. Finally they put a package of invitations into his hand, some three hundred in number, gave him a horse, and sent him off to deliver them. He rode all day, and by half-past six in the evening he had delivered them all. An hour later he reached home, and informed his mother that he had already begun work "with the biggest real estate house in town."

It was three months before he had courage to ask for any pay, and then, on inquiring, learned that he

was to receive $7.50 a month. Some four or five months later Mr Madison went away for a vacation, and as he had himself kept the firm's books while at the office, the task now fell to Mr Hoogs, young Easton, and two boys a little older than the latter. Gradually the work was placed more and more on Easton's shoulders; and although he knew only what he had learned of book-keeping at school, he soon discovered that the books were in great disorder. He determined, however, to straighten them out as best he could, and with the assistance of his school text-books, he wrote them up from the beginning, making the discovery, while doing so, that more money was being drawn from the business than was being made. He imparted this fact to Mr Madison on his return, and the latter, pleased at Wendell's diligence and evident capacity, placed him in permanent charge of the books. From this time he was kept very busy, often working until late in the evening. As his duties required his presence at the office at seven in the morning, it was his custom during many years to rise early and prepare his own breakfast, in order to save his mother any unnecessary trouble.

When Easton had been book-keeper for about a year, Mr Hoogs died, and a claim was made on the part of his relations to the money he had put in the business. The books indicated that, as he had continued to overdraw his account month by month, there was no money due him at the time of his death. His relatives would not admit the fact, however, and had the matter brought before Judge Daingerfield for examination. The attorney for the estate was Mr Estee, and his cross-questioning was very close and searching; but Easton told a straightforward story, and adhered to it in spite of much effort on the part of the lawyer to confuse him. Judge Daingerfield finally came to his rescue, saying: "The young man is evidently truthful in what he says, and has answered your questions satisfactorily. There is no

need of questioning him further." When the books were experted, Easton's figures were verified, much to the satisfaction of Mr Madison, who was pleased that he had nothing to pay.

Mr Easton remained in the employ of this firm for nine years as head clerk and book-keeper. He balanced the books every thirty days, and though he carried over six hundred ledger accounts, for five years he never failed to strike a correct trial balance. He had so much to do, indeed, that he could not afford to make mistakes, and forced himself to be absolutely correct in all his operations, thus developing a habit of correctness that became a part of his nature. During this time he was receiving a salary of $100 a month. In 1872 a friend of his, Charles E. Elliott, who was secretary of the Crown Point mining corporation, asked him if he would entertain a proposition to act as assistant secretary of the Crown Point mine, at a salary of $400 a month. This was during the excitement at the Crown Point and Belcher. Mr Easton naturally felt that he had not been treated generously by his employers, in whose services he had labored very hard for ten years, to the serious detriment of his health. He talked the subject over with his mother, and on her advice decided to accept the offer. In his new position, she said, not only would his services receive better recognition, but he would have new surroundings, would make new and valuable acquaintances, and would gain a useful discipline. Accordingly he signified to Mr Elliott his acceptance of the offer, and informed his employers that he would leave on the first of the following month. They did not appear to think him in earnest, and took no steps to supply his place. Nevertheless, as the end of the month approached, they began to take the matter more seriously, and Mr Burke, who was now a partner in the firm, came to Easton and said: "We don't want you to leave us, Easton; I have been talking the matter over with Mr Madi-

son, and we have came to the conclusion that we can pay you $125 a month." When, in former days, Mr Burke had referred to the question of salary, he had said that the firm could not afford to pay more than $100, and had remarked: "When you think you can do better, don't hesitate to make a change." Now he appeared to think otherwise. To this offer of an increase of salary Mr Easton replied that it was too late; he had accepted another position, and could not break his word. Mr Burke then said: "We don't want you to go; we would rather pay you $200 than lose you." As this had no effect, Mr Madison, for whom Mr Easton had always entertained great respect, came in, and begged him with tears in his eyes not to leave, saying that he could not get along without him; and his words were reënforced by the offer of an interest in the business. To all these solicitations Mr Easton was obdurate, and when the day came for his departure, he felt not the least regret as he walked out of the office.

In his new capacity Mr Easton occupied a position of great responsibility. He and Mr Elliott handled a large amount of bullion from Gold hill; they had to decide what was the best market for their silver—sometimes it was Hong Kong, sometimes Australia or London—and had to make out bills for transmission to every quarter of the globe. At the end of the month Mr Elliott was so pleased with the services rendered by his assistant, that he told him to make out his check for $500. His duties, although requiring great care and conscientiousness in their execution, were not onerous, and occupied him from ten in the morning until three in the afternoon—a pleasant change from a position in which for many years he had not been able to take his meal at home except on Sundays.

As Mr Easton became more expert his salary was increased, until he finally received $800 a month. He became in time the secretary of some fourteen

different mining companies, and kept twenty-eight sets of books, balancing each set every thirty days. In connection with the business many cipher despatches were received from time to time, and Mr Easton, as he had a good memory, at last became so expert in using the cipher that he was able to translate the telegrams without the aid of the cipher-book.

Mr Easton held this position for nearly three years, until the bonanza began to fail. He had anticipated such a result for some time; for he possessed a faculty of intuition, which almost always enabled him to perceive the first warnings of an approaching change—a quality that many times proved valuable in business affairs. A week spent at the mines, and a talk with the superintendents and other officials, convinced him that his surmises were correct; and he accordingly determined to resign his position, and to go back to the real estate business, for which he had always retained a feeling of attachment. It required some pluck to resign a position at $800 a month, with light duties, for a new and uncertain business in which he would have to begin at the bottom of the ladder; and the change was rendered still more distasteful by the fact that he was betrothed to a young lady whom he hoped soon to marry. But Wendell Easton never lacked nerve or aggressive enterprise. He went to Elliott and resigned his position.

He now began to look about for a good location for an office, and finally selected a room ten feet square opposite the Lick house on Montgomery street, paying for it $150 a month. He associated himself in business with another young man named Crossett, and the two engaged a boy for outside work at $10 a month, and hired a horse and buggy. It has always been a rule with Mr Easton to commence any undertaking in a cautious manner; it is his way first to think a project over carefully, and then, if he determines that it is practicable, to follow it up until it is accomplished.

There was much depression in San Francisco at this time, particularly in the real estate business; some long established firms had succumbed; others were just able to maintain themselves. But to Mr Easton difficulties act as an incentive; his best work has been done under adverse circumstances. Leaving his partner in charge of the office, he employed his time in making acquaintances and seeking business. He made several small sales, and his partner, who found that he was accomplishing nothing in the office, where people would drop in and inquire for Easton, said he would rather take the outside work himself. This was agreed to, and for a time Easton took charge of the office, and succeeded in making a few sales, while his partner scoured the city in vain. At last, becoming disgusted, the latter—not content to wait and build up a business slowly—said he was tired of the attempt, and wished to withdraw from the firm. Easton handed him his money, and a little more, and was the more ready to make a hard fight now that he was thrown entirely on his own resources. The next morning he came to his office at seven o'clock, and leaving his boy in charge, drove about until nine, when he returned, and remained in the office until noon; in the afternoon he again went out, and did not come back until five, when he made up his accounts and his memoranda for the next day, and then went home. This was his daily programme for some time. His plan was to become acquainted with prominent people, to induce them to call at his office, and to do some piece of business for them, even at a small loss, in order to have his name brought into notice. Thus, for example, Samuels, the owner of the lace house, had a building on Polk street which had been vacant for a long time. Easton went to him and asked for the agency, but was told that it would be useless to make the attempt. Nevertheless he persisted, and promised to station a man in the building who would always be on hand to answer inquiries and show the

property. This man, by the way, was the boy whom he paid $10. Samuels thought the plan a good one, and accordingly agreed to his proposal. In a short time the building was rented; and although the commission paid was but seven dollars, while the expenses amounted to forty dollars, nevertheless the theory on which Mr Easton proceeded was a correct one; such transactions secured him other business, brought him useful acquaintances, and made his name known. Before long his office became the headquarters for persons who had houses to rent or real estate to sell; while others who were looking for property went there to make inquiries. People congregated there to discuss real estate matters, and it was commonly said: "If you want to find out about real estate go to Easton's."

A short time after closing his first partnership Mr Easton formed a partnership with a man by the name of Joseph D. Forest; but the connection was not of long duration, for the latter, being a speculator in mining stocks, met with some heavy reverses, and soon afterward drew out his capital from the business.

Thenceforward Mr Easton determined to dispense with partners, and to stand alone. He rose early each day, and worked hard, though he did not carry his business cares home with him at night. For six years he fought his way single-handed through many discouragements, and at last began to see his efforts crowned with a substantial and permanent success. One great cause of this, aside from his own unconquerable pertinacity and energy, was the policy he followed with regard to advertising. At an early period he determined that for a number of years he would invest every dollar he made, above his expenses, in advertising. He made contracts with the leading papers to furnish him a certain amount of space by the year, paying cash, and obtaining advantageous terms. By the end of one year he found that he could afford to draw out from $100 to $150 a month

from his business; and as his prospects were brightening, he thought he was now in a position to marry. Accordingly, on April 5, 1877, he wedded Carrie Whitney, the third daughter of George O. Whitney, of San Francisco. She whom Mr Easton took as his wife was the same who during so many years had been patiently waiting for him, and who throughout his life proved his most valued counsellor, to whose advice and encouragement he ascribes the greater part of his success. As he himself expresses it: "I never made any money until after I was married." It has been his custom to consult with her in all affairs of importance. Mrs Easton possesses a keenness of perception in business matters approaching intuition, combined with a well-poised judgment that is not carried away by rash considerations—a combination of qualities not common in either sex.

Mrs Easton's father was a representative citizen of his time. Coming to California in 1850, by way of Cape Horn, he opened, in partnership with his father, the first furniture store in Sacramento. A little later he went to San Francisco, and his store on California street, between Montgomery and Sansome streets, was the first establishment of its kind in the city, as well as for many years the largest on the coast. Afterward his business was consolidated with that of N. P. Cole, under the name of the California Furniture company, of which he was a leading stockholder. Mr Whitney was a native of Gardner, Massachusetts, and was in the furniture business both in the east and in New Orleans before going to California. He was a large, fine-looking man, genial in disposition, and with a wide circle of friends. In business his judgment was sound, and his standing in the community solid. He took an active part in the vigilance committee, and at the time of his death was lieutenant in the 2d artillery national guard, and was an Odd Fellow of high standing. His wife,

whose maiden name was Abby T. Fitch, was born in Hatfield, Massachusetts, her great-grandfather being John Fitch, a precursor of Fulton in experiments relating to steam navigation. She was always spoken of by her friends as possessing a sweet and gentle disposition. Mrs Whitney died in 1873, five weeks after the death of her husband.

Mrs Easton, who was one of five children, was brought up in San Francisco, where she attended the public schools, afterward spending two years at Mills' seminary. Although brought up with some degree of strictness, she was allowed to take part freely in social pleasures. Since her marriage Mrs Easton has occupied a prominent place in San Francisco society.

One of the most important of Mr Easton's early transactions was the sale of the tract of 7,000 acres known as the Washington Irrigated colony, lying eight miles south of Fresno. It was not a very encouraging property to handle. In 1877 he had subdivided the tract into 385 farms, of twenty acres each, and had expended $100,000 in irrigation works and ditches, and in advertising. A man was hired at a large salary to go to Germany and Sweden to endeavor to attract colonists; another man was sent to Australia, and still another to Oregon and Washington. As yet nothing had been accomplished, and the outlook was gloomy. Notwithstanding this fact, Mr Easton, now that he had taken the matter in hand, was determined to make a success of it, and casting about in his mind for some means of bringing the land to the attention of the public, finally hit upon the plan of getting up a series of public meetings, in which addresses should be delivered on the subject of California lands. In connection with these meetings he determined to organize excursions at low rates for the accommodation of persons desiring to examine the property. He therefore engaged Charter Oak hall, on Market street—capable of holding two thousand people—and had notices printed in the leading papers.

The announcements were something after this sort: "Homes for All; Public Meeting and Addresses on Fresno County; the most fertile lands in the state; Mr Wendell Easton and other well-known citizens will address the meeting at Charter Oak hall," etc.

When, on the appointed evening, Mr Easton arrived at the hall, he found the place packed with people; and in order to make his way to the platform he was obliged to have the police clear a passage for him through the crowd. Upon the platform were a few chairs occupied by well-known citizens, by invitation, a table, and a fine display of Fresno county products. Mr Easton was somewhat appalled at first by the situation, for he was not accustomed to public speaking; but he determined to go on with what he had undertaken; and therefore, after the meeting had been opened, and he had been introduced as the speaker of the evening, he overcame his timidity, and laying aside his notes, commenced to discuss the topic that had been announced. He was full of his subject, and had it well in hand; he talked for an hour and a quarter, told his audience of the fertility and peculiar advantages of Fresno county, and after finishing his remarks invited the audience to ask him any questions they desired. He thought himself informed on any matter that could come up; but it happened that he was very nearly cornered by one man in the audience, who called out: "How deep do they plough down there in Fresno?" Mr Easton had not the least idea how deep they did plough, but his ready wit came to his assistance, and he answered: "It depends a good deal on the character of the soil." This was an answer that could not be impeached, and appeared to be satisfactory to his interrogator.

The daily press reported at some length the proceedings of the meeting, and announced an excursion to Fresno. Mr Easton therefore expected that a large number of people would avail themselves of the opportunity, and accordingly he chartered a special

train of ten cars, and engaged every hotel in Fresno, and every vehicle to convey his excursionists to the colony. The next morning he went down to the station and asked the ticket-seller how many tickets had been sold. "Three," replied the man. Mr Easton waited a short time, and then inquired again; the answer this time was, "Four." However, he was not to be discouraged; he had the special train side-tracked at Oakland, and telegraphed to Fresno that the excursion would be postponed for a week; and then, with his little band of excursionists, who now amounted to five in number, he took the regular train to Fresno. Upon his arrival he did everything in his power for the comfort of his tourists, drove them out to the colony, answered all their questions—some of them rather embarrassing—as to where the colony was, and where were the houses, and before his return sold three of them twenty acres each at thirty-five dollars per acre. When he returned his wife inquired if his excursion had been a success, and said that she had expected a telegram from him. Mr Easton replied that he had been so fully occupied in caring for the excursionists that he had not found time to telegraph, but that he had been very successful, since he had sold three fifths of the party land.

With charac eristic pertinacity Mr Easton determined to make a second attempt. The railroad company agreed to withdraw the forfeit in consideration of his chartering another train. Another public meeting was called, and the people were informed that the public eye was now fixed on Fresno county, and that another opportunity was to be offered them for purchasing land. Some $5,000 was spent in advertising, and round-trip tickets were offered for sale at nine dollars, although for each excursionist Mr Easton was himself to pay $16.25. On the morning of the excursion he again inquired how may tickets had been sold. The reply was, "Two hundred." A

little later he was informed that three hundred and fifty had been disposed of. In all some five hundred people took advantage of the low rates offered, and all the hotels and many private houses in Fresno were occupied by the excursionists. As a result, within one year he sold 385 farms, netting a handsome profit by the transaction.

This was the beginning of Fresno's prosperity, which has continued ever since. One secret of Easton's success was the manner in which he treated his excursionists. It has always been his aim to take every means possible for the comfort of the people who accompanied him on such trips, to have every detail of the railway journey perfectly planned, and to arrange for a proper viewing of the proposition, when the advantages of the location are pointed out, and all questions answered with regard to the lands. By this means he gained a reputation for his firm of such a nature, that when they announce an excursion they are certain to have it well attended.

In 1880 Mr Easton found that his business was in as prosperous a condition as that of any real estate firm in the city. For some time he had been laying aside a little surplus, and had a snug sum of cash on hand. One day about this time Mr Burke, his former employer, came to him and said: "Easton, I have been thinking this matter over; Madison is dead, and I think it would be a good idea to put our two concerns together." To this Mr Easton replied: "I could consider no proposition unless you desire to dispose of your business; I will pay a fair price for it." The offer, however, was not accepted.

In the autumn of the following year occurred the death of Mr Easton's father. He was a man widely known and respected among Californians, and had many strong friends. Robust of frame, active, tenacious in purpose, and yet singularly refined and pure in character and life, possessing indeed the best traits of the quaker character, he was a striking figure

among the early argonauts, and was widely mourned at his death.

In 1881, as Mr Easton's business was now as fully developed as was possible in its present field, and as it was always his opinion that a business cannot remain at a stand-still, but must either advance or fall behind, he began to consider how he might develop it in some new direction. At length the idea of selling real estate by auction occurred to him, and on considering the subject carefully he came to the conclusion that the time was ripe for such a project. He therefore began to look about for an auctioneer who would meet his requirements. Every one on the coast knew of Jo Eldridge as an auctioneer; and, as Mr Easton expressed it, the best was what he wanted. Eldridge had lately, on the death of his wife, retired from business with a moderate fortune; but being of a restless temperament, he was beginning to fret under his self-imposed idleness, and was desirous of getting into active work again. Before Easton had time to pursue his inquiries further, a one-legged man came stamping into the office, and slapping his hand on the counter, asked for Mr Easton. When that gentleman stepped up, he said: "My name is Jo Eldridge, and I would like to see Mr Easton." Being informed that he was addressing Mr Easton, and invited into the private office, he said: "I understand that you are going to start an auction business, and I would like to know whether you have obtained an auctioneer yet?" Easton said: "Mr Eldridge, you are my auctioneer, and I will pay you $500 a month to cry my sales." "Well," said Eldridge, "you have lots of sand; you are taking big risks." Easton replied that his business was firmly established, and that he saw his way clear to fulfil any contract that he might make. "But," said Eldridge, "I would rather go into partnership with you; I don't want any salary. This business just suits me; if you will talk partnership I will talk with you." Mr Eas-

ton answered that he had had enough of partnerships, and was determined not to make the experiment again. Eldridge was persistent; he had been out of business for a year, he said, and had been a miserable man; he wanted to get into the harness again. After a month's consideration, Easton finally agreed that he should come in as a special partner for the auction business, and the papers were accordingly signed.

At the office Eldridge was in his element; he would hail people as they passed by, and bring them in to talk, and was thus of great service to the business. As the day for the first sale approached, both men were somewhat anxious. A piece of property on Sutter street, near Leavenworth, had been advertised for sale, and a catalogue had been prepared. On the appointed day the sale took place. Eldridge, who was in an enthusiastic mood, mounted the block with Easton, and the sale was a great success: the property, consisting of several pieces, was all sold at a price that greatly pleased their principals. Eldridge was highly elated.

The new venture continued to progress successfully in the main, although there were times during the first six months when they encountered discouragements that required the exercise of patience. Eldridge was a man of moods; he was either in exuberant spirits, or in the depths of despondency; and some of these early experiences nearly exhausted his stock of fortitude. On one occasion, for example, a catalogue of property was offered at a sale, and not an inch was sold. Eldridge went to his partner and said: "It's no use; we've lost our grip." Easton said nothing, but made out the catalogue of sales for the following week. When the day came, Eldridge again mounted the block; and again not an inch of property was sold. He was terribly depressed, and said: "What's the use of trying any longer? we've lost the way of doing it, and I'm no good any more." Easton replied: "Our luck

will come back presently; let us try it again"; and going to his desk made out another catalogue. Once more Eldridge got up to sell, and once more he failed utterly. He now lost all heart, and said: "Easton, we can't do it to save our lives; the whole thing has gone up; we can't do it any more, and what's the use of trying?" But Easton persisted that if they waited a little longer their good fortune would return; the property had been held too high; buyers were out of town, and business was dull for the moment. Again he wrote a catalogue for the following week. When the time arrived they again ascended the block, and all but two pieces were sold. At the termination of the sale Easton made no remark, but went over to his desk to prepare the next catalogue of property. As he sat down, Eldridge, who had followed him, leaned over his shoulder and said: "Easton, you are a good one! Here you make out three catalogues, and each sale is a dead failure; and then you write out a fourth one, and make six or seven thousand dollars right off the reel, and you never so much as say that you are glad, or even crack a joke, while I feel like getting on a good time." Of Mr Easton his partner often said: "He is the most peculiar man in the world. He can stand more disappointment and more good fortune than any person I ever met. If he fails he says, 'I had the fun of trying'; and if he wins he says, 'That is what I tried for.'"

For six months they worked on together, and at the date set for the termination of the partnership, Easton went to his partner, and said, "Eldridge, there is your statement for the six months; you will find $6,000 to your credit over and above all expenses." Eldridge jumped to his feet, and grasping Easton's hand, said: "Do you mean to say that we have made $12,000 between us above all expenses?" Easton replied: "That's what I mean." "Easton," returned the other, "you are a brick!" and a full partnership was made then and there.

From this time onward the two continued together until the partnership was dissolved by death. Never were two men better adapted to each other; their relations were of the most cordial nature; there was perfect confidence on both sides, and no misunderstandings ever took place. They were made for each other, understood and liked each other thoroughly. Mr Eldridge was wont to sit in the outer office, where he would talk with those who came in to see him; but when any one inquired about accounts or land business he would say, "You will find the boss inside." This was his usual way of referring to Mr Easton.

In 1884 the firm began to experiment in country lands. Easton's opinion was that prices of city property had reached their limit for the present, and that until the country should be further developed, city real estate would not materially advance. He believed the time ripe for a profitable business in country lands, and, on discussing the subject with some others, found that their opinion coincided with his. The result was ultimately the organization of the Pacific Coast Land bureau, with Wendell Easton as president, George W. Frink vice-president, Francis B. Wilde secretary, and the Anglo-California bank as treasurer.

The first property they undertook to sell was a tract in San Luis Obispo county. A public meeting, in which Easton and others were to speak on the subject of southern California lands, was announced. On the preceding day, as Easton chanced to pass by the hall, he looked in and saw the janitor carrying out some of the chairs. On inquiring the reason for this, he was told that a one-legged man, who appeared to have authority in the matter, had said to him that there were too many chairs, and had directed him to take some of them away. "Never mind the one-legged man," said Easton, "you put the chairs all back again; we shall want every one

we can get." That night when they went to the hall together they found it packed with people, who filled even the approaches to the auditorium. Eldridge, who was to act as chairman said: "You have got us into an awful scrape, Easton. Look at that crowd; we can't get in; you have raised the very deuce. I tell you I am not going to face that crowd." "That is just what we want," answered Easton; "we did n't advertise for nothing; the more the better." After they had reached the platform through a side passage they managed to screw Eldridge's courage up sufficiently to persuade him to perform his part as chairman. He opened the meeting, but did not say much, and at once introduced Mr Frink, who had been announced to speak. Frink had never before faced such a gathering, and was naturally somewhat nervous. He talked from his notes for a short time, and then told the audience that he was unaccustomed to public speaking, but that he would indorse what the next speaker would say, whom he now took pleasure in introducing to them, Mr Wendell Phillips. Of course this caused a roar of laughter; but when the noise had subsided, Easton, with a smile on his face, although angered at the audience, started at once *in medias res*, and talked with effect for three quarters of an hour.

In the course of his auction business Mr Easton not infrequently met with amusing incidents, and although keenly alive to the work in hand, no one appreciated a joke more readily than he. On one occasion he was addressing a large gathering at Menlo Park, and after finishing his speech invited the audience, as was his custom, to ask him any questions they desired. A man rose at the back of the audience, and asked if he might be permitted to make an inquiry. Mr Easton said: "Certainly; we are here to give you any information you desire." "Well," said the man, "I would like to ask you, Mr Easton, whether you lost your hair here?" For a

moment Easton was dumbfounded; but as he looked at the sea of faces in front of him, he noticed an expression sweep across them that seemed to say, as plainly as though expressed in words, "What a shame!" Recovering himself somewhat, therefore, with a twinkle in his eye he said: "My friend, it is hardly fair to deal in personalities in a place like this; however, since you ask me, the real fact about my hair is—but I would n't like it to go further than this audience—the real fact is, that I was born that way!" A shout went up, and during the remainder of the meeting he had the crowd at his command.

In 1886 Mr Eldridge died quite suddenly, of aneurism of the heart. His loss was deeply felt by Mr Easton. The balance due his estate from the business, amounting to a considerable sum, was adjusted within thirty days; and his relatives, as a token of their appreciation of Mr Easton's generosity in dealing with them, presented him with the rare carnelian ring worn by Mr Eldridge for forty years, engraved with the curious device, "Cause caused it," presumably a commentary on feminine logic. This ring Mr Easton always wears.

In 1887, as the advance in southern California lands continued, Mr Easton decided to extend the active work of the firm to that part of the state, and accordingly established an important department of the business in the city of Los Angeles, with Frink as resident partner; and another department in San Diego in charge of Wilde. Before many months the business of the firm in both these cities had assumed large proportions.

Among the most important results was the transformation of the historical homestead of the Wolfskill family in Los Angeles from a typical southern California country home, surrounded by an orange grove, into the present site of the new Arcade depot, and the adjoining streets and avenues. Mr Easton saw the advantages of the location, and suggested a sale

of the property; but the family were unwilling to dispose of the home which they had occupied for many years; and it was only after persistent urging that they consented on condition that the depot of the Southern Pacific railroad should be located on the property; if this could not be secured the contract was to be void. After the agreement was signed Easton returned to San Francisco, and made an appointment with Mr A. N. Towne, general manager of the Southern Pacific, in order to present the case to him. One hour was granted for the presentation of the matter, and within that time Mr Towne was so far convinced that he consented to recommend the proposition to the consideration of his company. A second sitting was accordingly granted, and the result was that the company agreed to Easton's proposition, and the papers were executed. Thirteen acres were set aside for the use of the railroad, and the remaining one hundred acres were subdivided into blocks and lots, comprising in all 1,100 subdivisions. These were offered for private subscription. During the entire night previous to the opening of the books the office of Easton, Eldridge & company was besieged by crowds of people. The next day the sales were begun and continued for twenty-four hours, with the result that $1,200,000 worth of property was disposed of.

Another important enterprise was the sale of the property of the Pomona Land and Water company, situated in the town of Pomona, about twenty miles from Los Angeles. At the time when the firm took the matter in hand the water company was doing no business, and was heavily in debt. A demand was created for the property, and within eight months the indebtedness was paid off and a surplus remained in hand.

The firm extended their work southward to San Diego, where the most important public offering made by them was the sale of the Coronado tract. Arrangements were made for excursions from San Francisco

at the rate of $15 for the round trip, and from Los Angeles for $5; expecting to have 1,000 people from the former place, and some 800 from the latter. On the day before the sale Mr Easton arrived on the ground with thirteen assistants.

A large tent had been erected on the peninsula, and on the morning of the sale the trains continued to arrive with their loads of passengers. When at ten o'clock Easton and his clerks reached the tent they found 6,500 people gathered there. The sides of the tent were closed, and the perspiring crowd within were gasping for air. Easton had the canvas raised, and ascending the platform, made ready to commence the sale. The day was a beautiful one; a gentle breeze was stirring, and the bay was as calm as a mirror. Far away to the east could be seen the peaks of the Cuyamaca and the surrounding mountains, while now and then a pelican was to be seen sailing in stately flight above the ocean. Mr Easton arose and said: "Ladies and gentlemen, we are here to-day to sell you a part of the original garden of Eden. This place needs no eulogy from me; you see it for yourself. I simply give you an opportunity to secure homes on this spot." Then, without further preamble, he began the sale. "Here is a piece of property," he said, "worth $4,000. You smile," said Easton; "the fact is, this lot will reach $4,500 soon, and I do not think I am overstating it." It was started at $1,000. Some one bid $1,200, then some one $1,300, then $1,400, $1,500, and the lot was finally sold for $1,600. The next lot brought $800, and the sales became rapid and exciting. A year later, an offer of $10,000 was refused for the first lot sold.

When it became so dark that the people could not see one another's faces, and the real estate men could no longer see to write, they brought the sale to a close. All but a few lots had been sold, at an average price of $400, making an aggregate of some $200,000.

Among the most important transactions of the firm was the development of El Cajon, fifteen miles east of San Diego. The original rancho El Cajon was a Spanish grant of 48,000 acres, of which a little over 20,000 acres still constituted one holding. This was surveyed into smaller farms, which were offered for sale. During the course of the same year the firm purchased the remainder of the property; the San Diego Flume company was encouraged to construct a line of water-way for irrigation, and a gift was made of the right of way for the flume for twenty miles. The valley has since become one of the most important irrigation districts in the state. Shut in by the mountains, it appears like a vision of the Happy Valley of Rasselas, after the ride over the mesa from San Diego. On all sides are little farms set out in vines or citrus fruits, each with its neat little house embowered in creeping plants, and surrounded by growths of eucalyptus or tropical trees. There are schools and churches, hotels and stores, in the village near the centre of the valley, and everywhere are evidences of prosperity and thrift. Among the products of the valley the raisins are especially famous, being quoted at the highest price in the market. During the two years succeeding 1889, the firm apportioned their property, including the interest in El Cajon, which up to that time had been held as a whole. Of course some courage was required in partitioning such an important property; and the fact that it was done is an evidence of the good feeling which existed between Mr Easton and his associates. He used to say, "We must have harmony behind the counter at any cost, for without it we can do no business."

During the last few years the firm has concentrated its business toward San Francisco, which offers, in Mr Easton's opinion, the best inducements both to the broker and the buyer. He has himself invested quite largely in city real estate, and of late years has

also become interested in several important projects not connected with his real estate business. In January 1891 he organized the Pacific Coast Savings society, with an authorized capital of $50,000,000, on the general plan of a mutual savings bank, including the features of a building and loan association. Of this society Mr Easton is president; and his acquaintance with real estate values in this city and throughout the state, together with his knowledge of finance, is of great service to him in managing this banking business.

In the spring of 1891 he became interested in an electric street railway to be laid from the Baldwin hotel to the park—by way of Eddy, Hyde, O'Farrell, Scott, and Fell streets—and thence to the ocean. In this enterprise he is associated with four of the leading banks of San Francisco; and as the capital has all been subscribed and paid up, the road is expected to be in operation in 1892.

It is Mr Easton's purpose gradually to withdraw from the personal superintendence of the details of business, and to occupy himself in projects of a financial nature, for which he has great taste. He does not think a man is happy who retires completely from active exertion, and therefore intends to remain in touch with business affairs, employing his time and energies in the direction in which he thinks most can be accomplished, not only for himself, but for the cause of municipal development.

In politics Mr Easton is a strong republican, and on intimate terms with the chief state officials and the leaders of the republican party. He is president of the Union League club, and a heavy contributor to the campaign fund. During the visit of President Harrison to San Francisco Mr Easton was one of the executive committee of reception, and chairman of the finance committee. As he also resided at the Palace hotel at the time, and had rooms near those of the president, his relations with the latter were

naturally pleasant and cordial; and the hospitality of the Union Leage club—in the form of an elaborate entertainment—were extended in his name to the president, and accepted. He does not regard himself as in active political life, and though he has received many offers of various kinds, he prefers to devote himself to business. He is a prominent member of the Masonic fraternity, and a member of the Cosmos club.

Mr Easton's mother was still living in 1891—a well-preserved matron of seventy-five, still full of energy, quick of mind, and clear in judgment as in her earlier days when she managed a family of three active boys, and planned for their education and advancement in life. Of her younger sons, one, George Easton, is a prominent insurance man, a leading member of the board of underwriters, and a major on the staff of General J. H. Dickinson, of the second brigade, national guard of California. David N. Easton, the youngest of the family, born September 29, 1858, was for twelve years connected in business with his eldest brother; but in 1890 he went to the state of Washington to reside. Elizabeth B. Easton, Mr Easton's only sister, resides with her mother in San Francisco, and devotes herself largely to literary studies and church work. She is president of the Channing club of the Starr King church—an organization composed of one hundred and twenty ladies, and devoted to charitable work. Miss Easton, besides possessing a thorough knowledge of French, is one of the most accomplished Shakespearean scholars on the coast, and has devoted much attention to the higher branches of English.

Mr Easton has lived continuously in San Francisco for forty years, and has seen the city in every stage of its development. His business has necessarily given him an intimate acquaintance with every phase of life in California, and there are probably few men whose comments on this subject would be of greater

value. "I am a thorough Californian; my home is in San Francisco, and has always been there; but California is one state, and the growth of one section of the state is certain to be beneficial to the whole. I believe that every improvement made on this coast, from Port Townsend to San Diego, will help San Francisco. San Francisco will devolop as the whole coast develops; this is the natural metropolis of the Pacific slope; we possess the best port, and everything converges toward this point. Eventually all the railways will concentrate here. It is only a question of time when we shall have a million of people in this city.

"I am a firm believer in all kinds of improvements; I believe that the truly progressive individual advances with the times, grows with the times, and keeps up with his neighbors. The same principles should apply to a state so important as California, and to a city like San Francisco. I think the present depression is the result of the want of a liberal policy on our own part. The direct cause is insufficient and costly transportation facilities. While I am personally friendly to the railroad people, and give them full credit for all the good they have accomplished in building the railroad, and for assuming the risks they did, at the same time I do not doubt that the advancement of the country is being retarded for want of cheap transportation. A possible solution of the difficulty would be found in case the railroads were to pass into the hands of the government. In such an event, the present combination would be broken, and new lines would come into the state. I do not, however, believe in government ownership of railroads, for I think the government too unwieldy to handle such interests successfully.

"Another possible solution lies in the Nicaragua canal. On its completion the railroad will not be able to compete with it in cheap transportation. The building of this canal is of inestimable importance to the whole continent; it will bring the Atlantic and Pa-

cific coasts closer to each other, and increase commerce. Every portion of the coast north and south will be benefited, especially San Francisco, which will obtain the largest share of the business. It is a necessity. It may be delayed by opposition from the railroads, but it is only a question of time when it will be constructed. In my opinion, the government should lend its assistance to the project, and I believe that eventually it will do so. If the government were merely to guarantee the interest on the bonds, the money would be raised at once. There is no doubt in my mind that the canal would be a paying enterprise; it could not be otherwise. I have shown my faith in it by subscribing to the fund. I look upon the construction of this canal as one of the greatest blessings that could happen to this continent.

"With regard to the city of San Francisco, while I am on general principles in favor of all judicious improvements, I think that under our present local government it would be unsafe to incur any indebtedness for such a purpose. If the city should issue bonds for improvements, and the money could be placed in the hands of a committee of representative citizens, men of affairs, of undoubted probity, we could feel assured that it would be expended honestly and judiciously; but we cannot afford to take chances with our present government; it is best to wait until we get a new charter.

"There is no doubt, however, that a large sum of money could be advantageously employed, provided we had any guarantee that it would be properly expended. For instance, with regard to our sewer system, nothing but our trade-winds has saved us on several occasions from a fearful epidemic. There is really no system of sewerage in this city. Sewers have been built by piecemeal; on one street we have a stone-pipe sewer, and on the next a brick sewer; then, half the streets have never been laid properly; the grade in many instances is entirely wrong, so

that the sewage will not run off. There are numerous places where a moderately heavy rain causes the sewers to burst. Some day the matter will have to be taken in hand for the sake of the public health, and the sooner the better.

"With regard to street-paving, I think that in the heart of the city, where there is heavy traffic, we require a very strong and serviceable pavement, which will endure for years. For this purpose basalt blocks are probably the most suitable and economical material. On all other streets I would use bituminous rock, as it is certainly the most agreeable form of paving, and is also economical. The whole coast is full of it, and there is material close at hand that can be supplied at very cheap rates.

"I think the coming motive power is electricity. As applied to city transit it possesses some important advantages over the cable system. In the first place, the track costs only one third as much as in the case of the latter, and the running expenses are about forty per cent as great as those of the cable road. The electric car renders better service also; it can be started or stopped more rapidly, and can also make up for lost time. The cable car travels at a certain speed, determined by the cable, and if time is lost it cannot be recovered. With the electric car, on the contrary, it is only a matter of pressing the button in order to increase or diminish the speed at will. To be sure, the city ordinance restricts the speed in the city to eight miles an hour; but when the town limits are passed the car can easily make up for any time lost. Any grade can be overcome, provided a sufficient motive power be used; an electric line could be operated over the steepest grades of Powell street, although it would require a motor of considerable strength to do so.

"I think, however, that while we are not making such rapid progress as we ought, still we are advancing with a substantial and steady growth. If the

savings banks are any criterion, there can be no doubt of this fact; for the banks hold at the present time more than $100,000,000 in small deposits. Before San Francisco can make any very marked progress, it will be necessary for the country on which it depends to develop further. I should not like to see the methods in vogue in Chicago adopted here. Chicago is an active, energetic city, in its prime, with the whole valley of the Mississippi tributary, and can afford to push development with a rapidity that would not be safe here.

"Even in the case of Chicago, I believe that the safe limits of development will be overreached, and that in time the city will meet with a reaction. There is something forced and unhealthy in the scramble for wealth there; people having no time to think of anything, hardly time to live. We had an experience of this kind in southern California, and are now suffering from the reaction. Such methods are a boomerang; the only wise and substantial progress is that of a gradual steady growth, based on real values, and rather in the rear than in advance of them. As I said before, the true basis for advance in San Francisco will be the growth of the country, and at present that is retarded by lack of cheap transportation. With proper facilities large numbers of people would come to the state, more land would be sold, and the large tracts would be cut up into small holdings. We have abundant room for 10,000,000 people in the state, and the tide cannot be kept back much longer. Even now the country is being gradually settled. It is not so much the wealthy element that we need as the small farmers. They are the real wealth of a community. I attribute the prosperity of France to this cause. No doubt men of wealth are of service in developing a country, and in reclaiming tracts of desert lands; but they are useful mainly as an advance guard, and in time their large holdings retard the growth of a country. Here in

this state we have a fertile soil, with advantages of climate equal to any portion of the globe; every condition is favorable to the small farmer. On ten or fifteen acres a man can support a family. I believe that very soon we shall have another advance in the country; not an advance based, like the previous one, on fictitious values, but on the actual resources of the land, and more a steady current of development than an impetuous overflow. I want to see no other kind. In time it is my belief that lands will attain a permanent value equal to that which they held some years ago; but this valuation will not be based, as then, upon an exaggerated and unwarranted estimate, but upon the clearly understood capabilities of the soil, and on the conditions of success existing throughout the state."

It is perhaps scarcely necessary, after what has been said in the foregoing pages, to state in detail what are the most prominent traits of Wendell Easton's character. They are quite apparent in his life and his words, and probably it would be as well to let these speak for themselves. Nevertheless, a few words, as a summing up of the more salient features of his individuality, may serve as a commentary on what has already been written.

He is not merely a business man; he believes in the principle that one should keep one's self from falling into a rut, or from becoming a mere machine. He does not believe it a duty to become a galley-slave to wealth, or to sacrifice mind and health to the acquisition of a fortune. He keeps himself cheerful and well poised, devotes himself closely to business during business hours, and then dismisses all thought of affairs from his mind. He says: "While I like work, and feel natural when actively employed, still I am a good rester. I believe a man who rests well does better work." After five o'clock on ordinary days, and after two o'clock on Saturdays, he leaves business cares behind, and re-

tires to his family, to the club, or to the country. He is a man with a hobby, and he believes it is well to have one. His hobby is his horses. He keeps a number of them, drives tandem, four in hand, or a span, and is never so contented as when he is out for a spin behind his pets. For many years he has devoted two hours every day to general reading; he reads the more serious kind of works, and finds it a recreation and a source of mental breath. He likes to get away from his business at times, to visit the great metropolis of America, to come into contact with the largest minds of the largest city in the land, become inoculated with their ideas, and thus to take a broader view of things, and be lifted out of the narrow grooves into which one so easily falls. And the same consideration that he bestows upon his own health he bestows on that of his employés. He holds them strictly to their duties, but he does not require more of them than they can safely perform; when he finds his business requires night work he increases his force; his hours of business are also theirs, and when a man is sick he is sent off for a week to recuperate. Consequently his men, when the occasion comes, are in a condition to do their best work, and would willingly sacrifice themselves to any extent in his service.

For music Mr Easton has always felt a great interest, and even in early childhood he evinced a marked musical talent. As a young man he frequently sang in public, and was one of the principal founders of the Loring club, to which, as well as to the Handel, Haydn, and other musical societies, he is still a subscriber. He also takes an interest in art, although he does not profess to be a connoisseur.

With respect to religion, he is liberal in his opinions, while at the same time he deems religious delief of value as a basis of character and moral life. A person who proclaims that he has no belief lowers himself in Mr Easton's estimation; for he delieves that some form of religious belief is desir-

able for every one, and has an important influence in determining human action. He has no patience, however, with a fanatic; he would have each man hold whatever faith commends itself to his judgment —looking upon the various forms of religious belief as adapted to different classes of minds, each fulfilling a useful place. He regards the teachings of Ingersoll as dangerous in their effect, since they unsettle men's beliefs, and do not provide a sufficient substitute in place of them; still, he recognizes the fact that the great infidel, through his integrity of character, has led a life that compares favorably with that of most other men. Mr Easton is himself a unitarian, and has for twenty years or more been one of the most prominent supporters of the Starr King church, taking an important part in directing its financial affairs.

Any one who has met Mr Easton can hardly fail to note the fact that he possesses the essential qualities of the orator. His presence and conversation have a magnetism which is the orator's most valued trait; and he also possesses a fund of ready humor, an easy command of words, and a general power of availing himself extemporaneously of any point of advantage that may be presented to him.

The important part that Mr Easton has played in the development of the commonwealth I have already indicated. A man possessed of a large element of reserved force, of caution, composure, and unbending resolution, he also possesses in an eminent degree the qualities of enterprise, decisiveness, ready adaptability to circumstances, and unsullied probity of life, which have placed him in the foremost rank of San Francisco's most successful and large-minded business men.

CHAPTER XXII.

LIVES OF JOHN S. MORGAN AND JOHN BARTON.

ANCESTRY AND BOYHOOD OF JOHN S. MORGAN—THE FAMILY HOMESTEAD—ARRIVAL IN CALIFORNIA—AT SHOALWATER BAY—FOUNDING OF THE OYSTER BUSINESS—THE MORGAN OYSTER COMPANY—NATIVE AND TRANSPLANTED OYSTERS—WIFE AND CHILDREN—APPEARANCE AND CHARACTER—PARENTAGE AND YOUTH OF JOHN BARTON—MANUFACTURE OF SALT—THE UNION PACIFIC SALT COMPANY—OTHER ENTERPRISES—MARRIAGE—FAMILY—SUMMARY OF CAREER.

BEFORE proceeding further with the history of Pacific coast manufactures, I will present the career of two of our California pioneers, who in their own line have also been the pioneers of the industries which owe to them their development. One is John Stillwell Morgan, by whom was introduced the cultivation and transplanting of oysters; the other John Barton, by whom was introduced the manufacture of salt, and by whom is still manufactured nearly one-half of the total product of the coast. While it may appear somewhat out of place to treat of oysters as a branch of manufacture, still, as the canning of oysters, of salmon, sardines, etc., comes properly within that department, I have thought it best to make brief mention of our fisheries in this connection. By Mr Morgan and Mr Barton enterprises were developed far in advance of the time, and such as would otherwise have never attained to the prominence which is theirs to-day. Both have been large employers of labor; both have saved to this commonwealth many millions that would else have been sent abroad for articles of luxury and necessity, and the benefits which they have wrought extend not to any single class, but have been felt throughout the entire community.

John D. Morgan

John Stillwell Morgan, eldest son in a family of ten children, of whom two sons and four daughters survive, was born April 3, 1828, at Westfield, Richmond county, New York. On his father's side he is of Welch and German descent, and on his mother's of French and German. His great great grandfather emigrated from Wales to this country at an early period of its history. His grandfather, Jesse Morgan, battled for freedom in the revolution of 1776, and his father, Jesse Morgan, served in the war of 1812, for which service a land warrant was granted his family subsequent to his death.

His ancestors were highly esteemed for their industry, frugality and sterling integrity. They were noted for their great activity and powers of endurance on the paternal side and for their strength and large size on the maternal. The scenes of his childhood must be dear to his memory, the immense fireplace, the hand spinning-wheel and hand loom, by which his mother and sisters made the cloth for clothing the family; the tanner who tanned the cowskins on shares; the shoemaker who was wont to come to the house, sit in the corner of the big fireplace, and make the winter shoes for the family; the going to mill on horseback and having the corn ground for a toll, as was then the custom; and the whole family going to church, the children to church and Sabbath-school every Sunday, without fail, in the old farm wagon. Those can be but esteemed among the happiest of his days, and to the lessons then learned in necessitous industry, uncompromising right in all things, mild but firm discipline, is to be attrib uted his marked success in life. A man was then estimated for his intrinsic worth and not for his property. Slander was unknown to him, at least he heard none. His idolized mother died in 1838 and his revered father in 1845. He attended school regularly until he was eight years old, and thereafter irregularly, owing to the tax upon his energies in support of the

family, until fifteen, when he ceased attendance. He speaks of himself with extreme modesty, saying that he was not an apt scholar, that he learned the multiplication table with no little difficulty, that his mind did not appear to wake up until he was fourteen years old, when he mastered arithmetic with no considerable effort. This furnishes but one of many instances of powerful intellects remaining dormant until matured by years. His exuberant spirits, heart, and ambition to do something to meet the requirements of the family, evidently did much to hold in check an earlier development of his mental faculties.

The homestead, embracing sixty acres, having been sold and his brothers and sisters provided for thereby, he left home to carve single handed his fortune in the world. He first undertook to learn stair-casing and ship-building, but gave it up on a month's trial and shipped as a cook on a coaster. On his second voyage he was promoted by the captain from the rank of cook to that of able-bodied seaman for furling a sail, a task which a comrade was unable to do. In the fall of 1846 he engaged in the oyster business and in the following spring was made captain of the schooner *Telegraph*, by its owner Joseph Seguine. This vessel plying in the oyster business between Virginia and New York and Philadelphia, Captain Morgan ran on shares, with satisfactory profits. The value of the profits, though seeming to him large at the time, was diminutive in comparison with that of the knowledge which he acquired of the various branches of the oyster business; for this knowledge has been indispensable to the success which has crowned his efforts.

Mr Morgan sailed for California in the bark *Magdella*, leaving New York April 29th, and arriving in San Francisco December 9, 1849. Mr Morgan in the winter of '49 and '50 prospected thoroughly San Francisco bay for oysters, without success; then went to the mines at Goodyear bar. Being unsuccessful

and falling sick, he returned to San Francisco and followed the freighting business between this place and Stockton, until the fall of 1851. It being a matter of common report that there were oysters in Shoalwater bay, within the limits of what was then Oregon, he, with five other men, bought the schooner *Robert Bruce*, and went in her to that bay, arriving there December 11, 1851. She was burned four days after her arrival, having been fired, as supposed, by the cook. Mr Morgan and the crew narrowly escaped with their lives. This was a terrible blow, but the nature of the man knew no such word as fail. After pursuing the business of catching, bedding, and selling oysters at Shoalwater bay a year and upward, he chartered a vessel and brought in her to San Francisco a cargo of oysters, which he sold well. He continued the business with success until 1860, when he entered into copartnership with Messrs John and Thomas Crellin, brothers, who were then engaged in the oyster business and as merchants at Oysterville, Shoalwater bay. This copartnership consisted of two companies for oystering and merchandising, under the firm name of Crellin & Co., Oysterville, Shoalwater bay, and Morgan & Co., San Francisco. These companies continued until August 1886, when Mr Morgan and the Messrs Crellin incorporated under the name of Morgan Oyster company, and re-incorporated for fifty years, January 1, 1887, under the name of The Morgan Oyster company, taking in with them Messrs W C. Doane and I. Y. Doane, Henry S. Gile, and R. H. Esby. This company does a large and successful business.

The incentive of Mr Morgan to come to California was that which brought most men here; this was a new country, and held out the inducement of wealth to all who would go to work in earnest. The one predominating hope was the discovery of gold. Mr Morgan came as a prospector to find gold, if possible, and if not, to do that which seemed best, whatever it

might be. His previous life work had been in the oyster business, and should opportunity occur to him in this line, he would feel at home in it. He brought with him the implements of his trade, such as were in use in those early days on the eastern coast. It excites a smile now to know that in addition to oyster tongs, he brought also twelve pair of tongs for tonging gold. With those it was proposed by Mr Seguine, and, as Mr Morgan confessed, by himself also, to dredge the beds of California streams, which were supposed to be rich in gold scales mingled with alluvial deposits. These tongs, with close shutting teeth, would be a most suggestive curio at this time, but unfortunately for their fate as a historical relic, they were burned in the great fire of 1850 in San Francisco. Yet dredging implements are actually in use to-day to retrieve gold that is a natural deposit in the beds of rivers, or washed there by hydraulic mining.

When once Mr Morgan had made up his mind to devote himself to the oyster business, he did so with a singleness of purpose and an earnestness which have characterized his entire life He and his associates made a most complete and thorough prospect of the Pacific coast from Puget sound to the gulf of California, in the hope of finding native oysters that might be used as seedlings, and transplanted in the bay of San Francisco, within a few hours' reach of this city, which is the principal market. They went out personally, and also sent prospecting parties from time to time to every point where it was supposed such oysters as they could render available might be had. A great deal of time and money was devoted to exploring the ins and outs of the coast along the line indicated, but it was finally demonstrated by prospecting, and experiment upon the oysters discovered, that there were absolutely none of these which could be made available to any valuable extent.

The Shoalwater bay oysters, which are of an inferior kind, being small and having a coppery flavor, were

superior to any other native oysters, though oysters similar to them in size and taste were found in smaller quantities at Natard bay, Oregon, and in Yaquina bay. In the course of their observation they found that the gulf of California, along its entire length, abounded in oysters of first-rate quality and size, and comparing very favorably with the best oysters of the Atlantic coast. These oysters, Professor Agassiz says, are similar to those of the Atlantic coast, but perish in colder waters, consequently it is not practicable to transplant them in the bay of San Francisco. In this connection it is necessary to explode a popular error with regard to what are called generally "California" oysters. Perhaps there is not one person in a hundred in this state who realizes that there is actually no such thing as a California oyster. The oyster which goes under that name is procured altogether in Shoalwater bay, Washington territory. The only California product of the kind that bears any resemblance to an oyster is a little soft-shelled parasite, more like a barnacle than anything else, a handful of which can be squeezed up into a pulp with slight pressure. They are not fit for consumption.

It has already become a reminiscence of interest, showing the progress of the city of San Francisco, and it will be of still greater interest with the lapse of time, that a very large space within the city limits in the southeastern section was once used as storage ground or bedding places for oysters by Mr Morgan and his partners. In their early oyster planting they began in Mission creek, near what is now Thirteenth street, the creek having been subsequently filled in a mile or more from that point to the present water edge. The ground between Third and Fourth and King and Berry streets, where they had oysters bedded, is now occupied by extensive gas-works. The same may be said of the ground at the Potrero, on which the Arctic Oil works stand; also of the site of

the offices of the Southern Pacific railroad company, at the corner of Fourth and Townsend streets.

The oyster business done by Mr Morgan and his companies was confined, from the year 1860 to 1869, to the culture and sale of native oysters from Shoalwater bay; that is to say, until the overland railroad was finished to San Francisco. From this period dates their importation and transplanting of eastern oysters, in which they have been almost exclusively occupied ever since. The Shoalwater bay oysters that they have dealt in since have been limited in quantity to meet the demands of a small part of the community, mostly old Californians and Frenchmen, who relish the high flavor of the native bivalve; but it is perceptible that, owing to the unquestioned superiority in size and taste of eastern transplants, the quantity of the other oysters for the market is becoming less and less from year to year.

From the facts stated, it will be seen that the development of the commerce in oysters, which are neither exclusively a luxury nor exclusively a necessity, yet largely in the nature of both, has been a process of evolution or growth. It has involved prodigious labor, a world of trials and experiments, many ups and downs, sometimes disaster, but in the end proving a most creditable and magnificent success, at once an honor and profit to its promoters, and of the greatest aid and benefit to the community of the Pacific.

Mr Morgan and those who have participated with him in the building up of this industry have labored well for their own proper aggrandizement, and have been, in their department, decided factors in the advancement of the general prosperity. They have displayed unflagging industry, enterprise, and intelligence, out of which has come a fortune to themselves and substantial good to the country at large. They began at the foundation, and have builded step by step. A large part of what they have accomplished is due

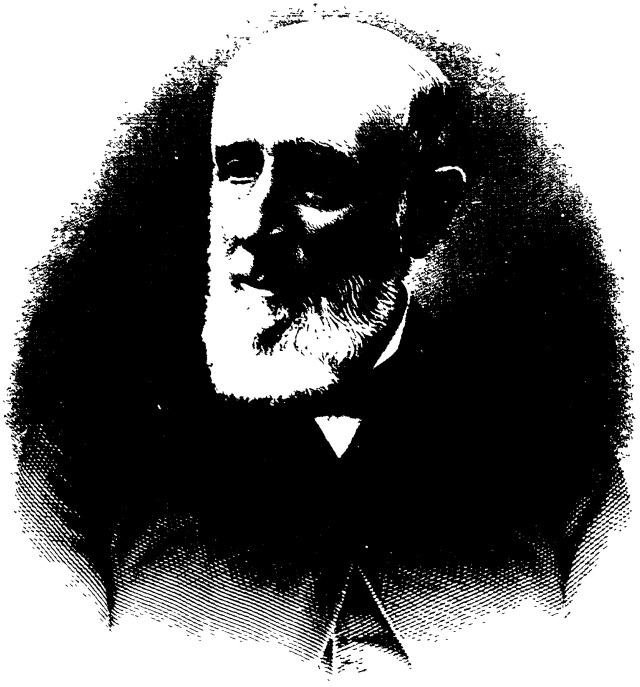
to constant and careful experiments in every branch of the business, and to close, practical study of the results. The conditions are all so different on this coast from those of the Atlantic that they could start out with only a meagre knowledge of what is required here. To this knowledge they have continuously added, and are still adding, in order to advance their enterprise to the highest degree of perfection possible.

April 3, 1860, Mr Morgan married Miss Sophia E. Crellin of the Isle of Man. Eight children have been born to them, of whom five sons and one daughter survive; viz., Geo. J., Frederick C., Oscar C., John S., Jr, Walter H., and Ella F. Morgan. Their parents may well be proud of them, and they of their parents. George and Oscar are merchants; the former at Auburn, in Placer county, and the latter of the firm of Bogen & Co., Mountain view, Santa Clara county. Frederick is cashier for the Morgan Oyster company. He is thoroughly conversant with every branch of the business, and evinces the requisite disposition and capability to supplement the great work of his father. He is a magnificent specimen of physical manhood, standing six feet one half inch in his stocking feet, as straight as an arrow, symmetrically built, and possessing the grace as well as the strength of an athlete. He is intelligent; is a bright business man; his habits are good - all in all, a son upon whose shoulders the father's mantle, it seems, may safely fall. John is a student of medicine. Walter and Ella are in their academic course of studies. None can boast of a happier home than theirs. The government has been mild and firm. By precept and example have morality and industry been kept constantly before them by the father, and the Christian virtues by the mother. Well have they conned their lessons, and give promise of fully practising them in their lives.

Mrs Morgan, sister to Messrs John and Thomas Crellin, partners of Mr Morgan, at the time of her

marriage resided with her father at Shoalwater bay. She is a very fine specimen of her sex, honored and loved by all who know her for her intelligence, refinement, affability, kindness, and benevolence. She comes of a noble people, famed for their liberty-loving spirit, excellent schools, "brave men and fair women." She is a worthy helpmate of her distinguished husband, and presides with a rare matronly grace over their home, noted for its substantial comforts and elegant luxuries.

Analytically considered, Mr Morgan is strong, active, well proportioned, stands erect, and weighs one hundred and ninety pounds. His height is five feet ten inches; shoulders broad; chest full; neck muscular; head proportionately large, with high forehead; hair prematurely white; eyes blue, and bespeak thought and steadfastness of purpose; temperament nervous sanguine; features regular; expression inviting; his bearing dignified and prepossessing. His faculties of perception and apprehension are quick, and that of reason sound and accurate. A marked feature of his mind is that of judgment or common sense. He judges of the qualities and value of things, acts, and thoughts with rare ability, and seldom does it happen that his judgment is found to be at fault. There is nothing whatever of the hair-splitting character in the exercise of his judgment and reason. Ignoring the formulas of schools, his mind moves in a direct line from the initial to the object sought. With respect to imagination, his achievements bespeak for it boldness, breadth of scope, and feasibility of its conceptions. Morally, his life furnishes a model well worthy of the closest imitation. He is proverbially known as a "square man" in all his dealings. Having determined on an object or line of policy, his purposes are inflexible. To this will force is attributable in no small degree his marked success. Mr Morgan is eminently a man of passions and emotions. His bosom fires with indignation at wrong and oppres-



John Barton

sion, and his feelings enlist unbidden for the relief of the unfortunate. Socially, he is genial, companionable, neighborly, and deferential to the opinions of others to the extent of extreme modesty. He cheerfully accords to others equal rights to those he claims for himself. "So use your own as not to injure another" is his rule of action. Politically, he is a republican; holding that, without exception, experience, the best criterion, has demonstrated the protective policy beneficial to the American industries and free trade injurious to them. The individuality of Mr Morgan is referable to no one function or class of functions, but to all his powers, blended and working together in harmony. If any one of his endowments is deserving of special mention, it seems due to will force. This alone was powerless, but appears, however, to have acted as the pioneer or marshal of all his other forces in his struggles up the rugged ascent to the enviable position which he now occupies. History records the names of none more entitled to honor than those who create, nurture, and perfect a noble and useful industry. To this record are Mr Morgan and his efficient associates of "The Morgan Oyster company" fully entitled.

Progress is something more than the development of physical science, something more than mere advance in material affairs. Besides, an industrial life, more than any other social influence, tends to the moral and intellectual as well as the physical well-being. Therefore too high an importance cannot be placed upon those industries which minister to the daily requirements of the community, and to that extent render the commonwealth self-supporting.

Among the manufacturers of the Pacific coast John Barton occupies a distinct place, by reason of having established and built up the first and largest salt-works in this region.

He was born in Leicester, Worcester county,

Massachusetts, September 13, 1813, of English ancestors, who were immigrants to New England at an early day. On his mother's side he is closely related to General John Ward of revolutionary fame. Elijah Barton, his father, was a manufacturer of wool cards; a man of inventive genius and rare mechanical ingenuity; a great reader, of keen intellect, and a leader in his neighborhood. His mother was a typical New England housewife; bright, thrifty, and laborious. Both were rigid in morals, and strictly God-fearing people. Their four surviving children—John, William H., Benjamin F., and Horace W.—occupy respectable and influential positions on the coast.

John's early life, on the farm, in the school, and in the country store, was his education; the best of it he got by friction among sharp-witted, iron-framed, sterling people. He came to California in 1849, after a varied and fairly successful career in business in the east. After trying gold-mining for a month or two he opened an auction and commission business in Sacramento. In 1868 he began in a quiet way the manufacture of salt, building a small mill where was made the first salt produced on the Pacific coast; the little hitherto found there being in the shape of natural surface deposits.

He had no practical knowledge or acquaintance with the business. He was fully aware that at the outset he would encounter many disadvantages, and that his operations would not be sufficiently remunerative. But he was a man of foresight and enterprise, and he was convinced that, with the settlement of the state and the development of its industries, a large and thriving trade could in time be established. On the bay of San Francisco were several advantages for such an undertaking, a soil and climate well adapted to the purpose, with the cool summer winds affording the requisite temperature, and assisting to carry off the evaporation. On account of the location, the

saline strength of the water is not perceptibly diminished by the output of the Sacramento and San Joaquin rivers.

In March 1868, when his operations were already on an extensive scale, Mr Barton's business was merged in the Union Pacific Salt company, of which he was elected and is still the president. On his recommendation the site selected for the works was a tract of about 1,000 acres, known as Rock island, at the mouth of Eden creek, some twelve miles southeast of the town of Alameda. This area Mr Barton has increased by the purchase of adjoining tracts, until it now includes 1,500 acres, all of it capable of being reclaimed for use as farming land, though of more value for the manufacture of salt.

Production was commenced in 1870, the intervening time being required for preliminary work. Under the able management of Mr Barton, the company's operations rapidly increased, so that within the next ten years 70,000 tons of salt were manufactured, and before the end of the following decade the output had been doubled, amounting for 1888 to 14,000 tons, distributed over all portions of the coast, and forming nearly one-half of its total product. The quantity of salt consumed in this state is on a large and constantly increasing scale, the proportion required for table use being one of the smallest items. Not only is it in demand for daily purposes and for the curing of meats, but for many branches of manufacturing, as in acid, soap, and glass works, in potteries and in the reduction of ores. Mr Barton has put the state under obligations not only through largely meeting the demand by home manufacture, but also by furnishing at maximum purity an article of prime necessity at reasonable rates, the price now charged, about $12 a ton, being less than half its former cost. Since his works went into operation a saving has been effected to the coast of several millions of dollars, the benefit of which has been felt by the entire community.

The highest grades produced at the company's works are considered by experts as equal to the best French salt, manufactured under the most favorable circumstances on the shores of the Mediterranean. Analysis made by Professor Gutzkow of the United States mint, and by Professor Price of San Francisco, in 1879, gave 99.4 per cent of chloride of sodium, thus stamping it as the choicest and purest commercial article in the market. The second quality, which is the one generally in use, shows a fineness of 98 per cent, or above that of the best salt, the cleanest brine is pumped by windmills into elevated wooden pans, and there the mineral is allowed to crystallize in as pure a state as it can be obtained.

In former years magnesia was largely manufactured for the use of powder works, but of late cheaper materials have been substituted, and at present it is only used for the most powerful explosives. When crystallized, it is converted into epsom salts, the demand for which is slight. The gypsum is used only as a fertilizer, and is shipped for this purpose mainly to the plantations of the Sandwich islands.

While securing for himself a substantial fortune, Mr Barton has rendered a service to the community by the introduction of a new industry affording employment to numbers of workmen, by retaining on this coast a large portion of the $400,000 or $500,000 expended yearly on its supply of salt, and by furnishing one of the first necessaries of life at moderate rates, and of a quality that has nowhere been surpassed.

Incidentally Mr Barton has been identified with the history of the state in various other enterprises. He secured the original franchise for the Sutter street railroad in San Francisco, was one of the founders of the Fireman's Fund insurance company, of which he has been ever since a director, and a member of the finance committee. Since the day when its doors were opened he has been interested in the

Sather bank of San Francisco, where he was the first depositor. He is also a director in the Commercial insurance company, and until recently held the same position in the Union insurance company.

In politics he has been a staunch and consistent republican. Locally he was one of the active members of the people's party, which wrought such wholesome reforms in the city of San Francisco, and gave the community clean government during ten years. He has always been a liberal supporter and zealous friend of all moral and religious institutions. To educational affairs he has given much of his time, and for six years was president of the Alameda city board of education.

In October 1858 Mr Barton married a distant cousin, Miss Isabella Barton, of Buffalo, New York. They have two children, one daughter, Grace Thompson Barton, and a son, William Ferris Barton, a recent graduate of the California university law school. This young man manifests sterling business qualities, and is likely to prove a worthy successor to his father.

Mr Barton is a man of slender build and medium height, with well-knit frame. His features express strong intelligence and great firmness of purpose; in fact, his lofty and capacious forehead, keen eyes of bluish-gray, are exponents of his intellectual character and capabilities. In his seventy-sixth year he is still at the helm, with unimpaired intellect. His life has been always simple and pure. His career is a striking illustration of what can be done in California by well-directed, straightforward, and persistent enterprise. To such men is due the rank to which this state has already attained among the manufacturing communities of the United States. He has been a decided factor already in creating the volume of her $160,000,000 per annum of manufactures, and the force which he has engendered will be more or less felt in all future operations in this department.

CHAPTER XXIII.

LIFE OF BENJAMIN F. PORTER.

OUR SUCCESSFUL MEN—GENEALOGY—JOHN PORTER—WILLIAM PORTER—BENJAMIN AND MICAIAH PORTER—PARENTAGE—EDUCATION—ARRIVAL IN CALIFORNIA—WOOD-CHOPPING—THE SOQUEL TANNERY—INCEPTION OF BOOT AND SHOE MANUFACTURES—PORTER, SLESSINGER, AND COMPANY—THE SAN FERNANDO TRACT—OTHER ESTATES AND ENTERPRISES—SUPERVISOR FOR SANTA CRUZ COUNTY—POLITICAL VIEWS—WIFE AND CHILDREN—CHARACTERISTICS.

IN studying the career of our most successful men—and in no section of the union are there, in proportion, so many whose success is due to individual effort—it will be found that most of them, landing on these shores friendless and almost penniless, took hold at once of whatsoever they could find to do, gained often by years of toil and self-denial their foothold on the ladder of fortune, and seizing the opportunity which comes always to those who work and wait, found at length the sphere in life for which nature intended them. Among manufacturers and agriculturists is Benjamin Franklin Porter, formerly of the well-known San Francisco firm of G. K. & B. F. Porter, and Porter's Tannery at Soquel, afterwards of Porter, Slessenger, and company. But not alone for his success, nor as an example to others, should the story of his life be preserved, but as one who descended from the oldest of New England stock, and in early youth taking leave of his home in Vermont, to cast in his lot in the farthest west, has contributed in no small measure to the marvellous prosperity whereby

B. F. Porter

the state of his adoption has become, as it is to-day, the cynosure of all the nations.

The following genealogy of Mr Porter's family is taken from a work published at Bangor, Maine, in 1878, by his kinsman, Joseph W. Porter, a member of the New England historic-genealogical and kindred societies.

John Porter, the patriarch of the family, born in Dorsetshire, England, in 1596, came to Massachusetts probably in the third or fourth decade of the seventeenth century, though in what vessel or at what exact date no record remains. It may, however, be stated, on the authority of Solomon Lincoln, author of the *History of Hingham*, that in 1635 he was a settler of that town. Later we hear of him as holding positions of trust and responsibility, and that at the time of his decease, in September 1676, he was a man of means, appears from his will, of which the following is a copy of the opening lines.

"In the name of God Amen. I John Porter of Salim Senr. in the Coun. of Essex in New England Yeomn Do declare and make my last will and testament in manner and forme following. Impr. my immortall soul I do desire humbly and believingly to comitt unto ye everlasting mercyes of God, Father, Sonne and Holy Ghost, my body I commit to ye earth to be decently buried at the discretion of my x'ian friends. And my outward estate I do dispose thereof in manner following. Impr. I do constitute and ordeine my loveing wife Mary Porter, sole executrix of this my will, unto whome I do give the one halfe of all my goods, debts, chattills and chattell etc. and also during her life I do give her one third pt of the yearly vallew of all my houses and lands or the thirds thereof as the law directeth."

Unto John and Mary Porter eight children were born, the third of whom, named Joseph, was married at Salem, in 1664, to the daughter of Major William and Ann Hathorn. In the marriage contract we read

that his father agreed to present to him on the day of his marriage "that farm known as the Downing farm, with one half an acre of land in the town. And also £50, to be paid in horses, neate cattle, hides, cider, some corn, and some money, within one year after marriage."

William Porter, or as he was usually styled Deacon William, the fourth son of Joseph Porter, was married in 1706, at Topsfield, Massachusetts, to Phebe Dorman, and on his decease in 1732 bequeathed his lands in Salem and Topsfield in equal shares to his wife and his four sons, Benjamin, Seth, Jonathan, and Jabez. Soon after his death the family removed to Braintree, and in the records of that town is noted the demise of his widow, on the 21st of June, 1736, at the age of fifty-five.

Benjamin, the eldest son of William Porter, and the great-grandfather of the gentleman whose biography is here presented to the reader, was born at Topsfield on the 4th of February, 1712, removing with the family to Braintree, where he was a selectman and clerk of the precinct, and spending the later years of his life at Wendell, Massachusetts, where, leaving a family of eleven children, he passed away at the ripe old age of fourscore and one. His first wife, the daughter of Moses and Dorothy Curtis, died some five years after marriage, and his second, née Mercy Dorman, to whom he was wedded November 20, 1744, survived her ninety-first birthday.

Micaiah, the third son of Benjamin and Mercy Porter, and the grandfather of Benjamin Franklin and George Keating Porter, was born at Salem on the 26th of April, 1745. After studying theology with Doctor Levi Hunt, of Preston, Connecticut, he was ordained a congregational minister, and served as a chaplain in the war of 1812. A few years before that date he purchased a homestead at Plainfield, New Hampshire, where for more than the lifetime of a generation he lived to preach the gospel and to edu-

cate his four sons and two daughters. The former were all trained as physicians, the youngest only remaining at home, whence at the age of fourscore he passed to his rest, leaving two sons who still reside on the Plainfield estate. Elizabeth Phœbe, the wife of Micaiah, to whom he was married the day after his ordination, was the daughter of Captain Isaac Gallup, a decendant of the officer of that name who lost his life in the Narragansett war.

Thus in direct line is traced through five generations, beginning with the close of the sixteenth century, the ancestry of Benjamin Franklin Porter. In other branches of the family are also many whose names are honorably recorded in New England annals, as officials in high station, as physicians, soldiers, and divines. Of some of them, brief mention is made in connection with the life of his cousin, George Keating Porter, whose biography will be found in another chapter of this volume.

His father, Benjamin Porter, the third of Micaiah's sons, was born at Volinton, or as it is now written Voluntown, Connecticut, near Rhode Island line, on the 11th of May, 1788, and was of English descent. A graduate of Dartmouth college, at the age of twenty-seven, after a thorough medical training, he began to practise his profession at Northfield, Vermont, where he was one of the earliest settlers. Erelong was manifested the value of that training, and of the zeal and ability which he brought to bear on his calling, for his practice quickly extended to all the surrounding neighborhood, within a radius of ten to fifteen miles. In his attendance on the sick he was most faithful and untiring, often when himself a patient rising from his bed to set forth on a journey by night. For the time and place he was accounted wealthy, and in all the country round there were none more respected as a man of sterling character, and a natural leader of men. Like several of his ancestors, he lived to a patriarchal age, his death occurring at fourscore in February of the centennial year.

On the 9th of June, 1822, the doctor was married to Sophia K. Fullerton, whose birthday was the 9th of June, 1801, and whose demise occurred in 1863. She was a lady of medium stature, of slender frame, and somewhat delicate health, devoted to her husband and her children, and like him gentle but firm in their treatment. Their names in the order of their birth were Elizabeth, Edward and Edwin, who were twins, and Benjamin Franklin. All are yet living, Elizabeth and Edwin being still residents of Northfield, where the latter is a physician in excellent practice, while Edward is residing on one of his ranches in Monterey county, California.

In a two-story brick house in the village of Northfield, Benjamin F. Porter was born on the 20th of April, 1833.

At four or five years of age Benjamin attended the district school, built on a portion of his father's land, the lot being donated for that purpose. Here he remained until he was sixteen, completing his education at the Kimball Union academy at Plainfield. His favorite studies, and those in which he most excelled, were mathematics and history, though in other branches he was an apt and diligent pupil. At home he was trained in the precepts of morality and religion, with family prayers each morning, and on Sundays attendance at sabbath-school and congregational church, built also on his father's farm. Thus he grew up without any trace of vicious tendencies, with habits of industry and economy, inured to labor, accustomed to self-denial, and taught from his earliest youth to face the responsibilities of life. From such ancestry and parentage, from such training and instruction, was developed in later years a man of evenly balanced character and of perfect self-control, one able to withstand the demoralizing influences of pioneer days in California, one who abhorred the sensual and depraved, and for whom vice in any shape had no attractions.

At the age of ten or eleven he began to work on his father's farm, for the school term lasted only half the year, and at times he remained at home, relieving his brothers of their task, that they also might acquire an education. At fourteen he was placed in sole charge of the farm. In this position he remained, except for his terms at the academy, until his twentieth year. It was then his ambition to be a land-owner and a cultivator of the soil, but not in Vermont, for there the farms were too small, and the soil too reluctant in yielding its fruits. He would go west and to California, where was a broader field for his unsated energy and ambition.

At first his parents objected, the doctor offering him one of the best farms in the country to divert him from his purpose; but in vain. At length their consent was given, and on March 17th of 1853 Benjamin set forth from home. A few days later, in company with his friend Andrew Denny, he sailed from New York, on board the steamer *Prometheus*, reaching California by the Niagara route, via Greytown, Virgin Bay, and San Juan del Sur.

On his twentieth birthday he landed in San Francisco. A day or two later he met with his brother, Edward, who with his cousins, George K. and John T. Porter, were among the argonauts of 1849. He at once set forth in search of work. Taking the steamer to Alviso, in company with his brother, and thence walking to Stephens creek, where the latter had a ranch, some few miles beyond, at a place now known as Saratoga, he found his first employment in the golden state.

It was not a task in keeping with the stories he had read of the new El Dorado. There was in it much more of hard work than of fortune, the work of chopping redwood trees, and that at $2.50 a day. But at this he toiled manfully for months, meanwhile saving his money until he had sufficient to accept a contract for the making of pickets and

shakes, and then to haul lumber over the Santa Cruz mountains.

In the spring of 1854 we find him at Soquel, which he describes as "one of the brighest little places he had ever seen." After engaging in various occupations, among others at cradling and binding, at thrashing, at cutting logs, at the Soquel saw-mill, at the Soquel tannery, at the mines of Stanislaus county, as a fence-builder, as a haymaker, and labor of any kind rather than idleness, in January 1858 he purchased a one-third share in the tannery of his cousin George K. Porter and L. W. Moore, the latter disposing of his interest during the same year for $3,000, though he himself had paid for his partnership only $2,500.

In addition to his interest in the tannery, he had already a considerable sum at command, in part accumulated by the loaning of money, and though on personal security, with such judgment that he never lost a dollar. Meanwhile he had maintained a regular correspondence with the members of his family, who, though proud of his success, were constantly urging his return; but to this he would not consent.

While the business of the tannery was prosperous, the market for leather was slow, and partly with a view to obtain better prices for their stock, in 1863 the two cousins—George K. Porter being then state senator—made a contract for the labor of one hundred convicts, to be employed at San Quentin on the manufacture of boots and shoes. Such was the beginning of this branch of industry on the Pacific coast, at first restricted to the coarser grades, but now including nearly all descriptions, from laborers' brogans to ladies' kid of many buttons. In the face of many drawbacks and disadvantages, such has been the progress in this department that at least 70 per cent in quantity and 60 per cent in value of all the goods used on this coast are now of home production, while the export trade is almost equal in volume to

that of our imports, San Francisco being credited with about three fourths of the total manufacture.

In 1873 was established the manufacturing and commercial firm of Porter, Blumm & Slessinger, from which, some two or three years later, Mr Blumm withdrew, followed in 1879 by Mr B. F. Porter, whose interest was transferred to his cousin. The present firm of Porter, Slessinger, and companyis now one of the largest and has been perhaps the most steadily prosperous of all our San Francisco manufacturers.

Retiring from business with a handsome fortune, Mr Porter was now at liberty to devote himself to farming, which has been from boyhood, his favorite pursuit. In 1874 he had purchased in Los Angeles county, in partnership with his cousin and the late Senator Maclay the San Fernando ranch of more than 56,000 acres, before that date owning large tracts of farm and timber lands in various portions of the state. In the autumn of 1879 he put in his first crop of wheat, gradually increasing his operations until in 1886 he had over 7,000 acres under cultivation, by his own direction, and several thousand more rented to tenants. His profits may be estimated from the fact that the crop for that year cost him 47½ cents a cental, and sold for $1.16 a cental. In the following year he was less fortunate, the drought being so severe that the ground was not sufficiently moistened to sprout the seed until late in the season. Meanwhile about 19,000 acres of the ranch had been disposed of, the remainder being divided between Mr Porter and his cousin. During the spring of 1887 the former disposed of his share at the rate of $25 an acre, or more than tenfold its cost.

In the southern part of Monterey county, between 1881 and 1886, he acquired the title to more than 15,000 acres, now worth about $300,000, some of it being planted in wheat, and the remainder used as a stock-farm. In Contra Costa county he purchased

some 700 acres at $70 an acre; in Mendocino county he is the owner of several hundred acres of the choicest timber land; in Lassen county, as early as 1888, he acquired about 5,000 acres, much of which he planted in alfalfa with excellent results, the crop for 1889 being in some portions as much as eight tons to the acre. In Lassen county he is also interested in a scheme to tap the waters of Eagle lake, more than seventy square miles in area, and by means of a tunnel and flume convey them to the neighborhood of his ranch and to the Honey Lake valley beyond, where are some thousands of acres of sage-brush lands, needing only irrigation to produce the finest of crops.

In other enterprises Mr Porter is also interested, and especially in such as tend to develop the resources of the state, which he esteems no less as a pleasure than a public duty. He was one of the promoters of the railroad from Santa Cruz to Pajaro, subscribing liberally for its stock, and otherwise aiding in its construction. In four banks he is a stockholder, and in two, the Santa Cruz County bank and the Bank of Savings and Loan, he is a member of the finance committee. Of the former, the capital is $200,000 and the surplus over $50,000, while the latter has $100,000 of capital, and $37,000 of surplus. Both pay dividends of ten per cent a year, and in addition the savings bank returned in 1889 seventy-five per cent of its paid-up capital. In the Los Angeles Loan and Trust company and in the People's bank in San Francisco he is also a stockholder, and until recent years was connected with the California Lumber company.

Though, like all sensible men, he does not underestimate the value of money, he has never been injured by its possession. By those who have known him almost from the day when he landed on these shores, it is said that in Benjamin F. Porter, the manufacturer and banker, there is no more of ostentation or pretentiousness than in Ben, the wood-chopper and

shingle-maker among the redwood forests of Santa Cruz.

In politics, Mr Porter was by training a whig, his first vote being cast for President Fillmore. At one time he was willing to adopt the doctrines of Stephen A. Douglass; but in the presidential campaign of 1860 he gave his ballot for Lincoln, and ever since that date has been a republican, though voting against his party on the fourteenth amendment. Except that for a single term, between 1861 and 1863, he was forced against his will to accept the position of supervisor for Santa Cruz county, he has steadfastly refused to hold office. During that term, however, much was accomplished, the entire business affairs of the county being revised, an assessment rule established, property reappraised, scrip advanced, through a judicious and economical administration, from forty per cent discount to par, and the damage to roads and bridges, occasioned by the disastrous floods of 1861–2, for the most part repaired.

While avoiding, as far as possible, all connection with politics, during his residence in Santa Cruz Mr Porter was compelled, however unwillingly, to take a leading part in the issues of the day. To a man of his influence, this was indeed inevitable, and especially was it the case during the years of the war, when it appeared to him a duty so to do. More than once, expecting a raid on the ballot-box, he went armed to the polls, the only occasion on which he was known to carry weapons.

In his political views, it may first of all be said that he is strongly in favor of a tariff, believing that such protection is needed for the fostering of home industries, on account of our facilities for manufacture and our abundant supply of raw material. In opposition to the free-trade theory, Mr Porter claims that on the price of wheat a high tariff has a good effect, as tending to increase the home consumption, through

the growth of industries, and therefore of population.

To Chinese and to some other classes of immigration he is decidedly opposed, and especially to the former, as of a race distinct in habits, tastes, religion, and one that can never become responsible citizens. He would so amend the naturalization laws as to exclude all who have not lived for twenty-one years in the country; all who cannot read and write, and all who are not acquainted with the constitution and laws of the land, should not be allowed to vote, especially with the free-school system we have.

Mr Porter is in favor of compulsory education, though in a modified form, believing that in many instances where the services of children are required at home for a portion of the year, as for the care of live-stock and for light farm labor, they are already receiving a more practical education than the public schools afford. And yet of these schools he is a firm supporter.

To churches, no less than to schools, he is a liberal contributor, and especially to the one at Soquel, where for many years was his home, and where was laid the foundation of his ample fortune. A member of the Masonic order since 1858, in religion he inclines to the Unitarian faith, though tolerant of all denominations, and subscribing freely to all, without distinction as to sect or creed.

On the 3d of December, 1867, Mr Porter was married to Miss Kate Francis Hubbard, with the history of whose family for several generations he was already acquainted, her father, George Hubbard, and mother, now residing with her husband at his former home in Soquel, being reared and educated in the town of Plainfield, within a mile of his grandfather's homestead. In June of that year he invited his father to visit the Plainfield church, where for so many years Micaiah Porter had preached the gospel, and where now he lay at rest. At West Lebanon,

the nearest railroad point, they waited the cool of the evening to complete their journey, for the thermometer stood at a hundred in the shade, and while thus waiting Mr Porter was introduced to the lady of his choice. But not until some three months later was the engagement made, Mr Porter with his father meanwhile making a tour of western Canada, and visiting many points of interest to both. The union was in all respects a happy one, for there could be no more devoted wife and mother, none more fitted to preside over his household, or to advise him in his business affairs.

Of their three children, the only son, born at the same birth with the elder daughter, died when three days old, through the criminal carelessness of his nurse. Mary Sophia, now a young lady of twenty-one, and Sadie, some two years her junior, were educated at a private school in Los Angeles and at the Van Ness seminary in San Francisco, receiving also private lessons in various branches from professors of acknowledged merit.

With a liberal income yearly, he still attends personally to all his affairs, for, as he remarks, "it would take him longer to teach another what he wished to be done than it would to do it himself." Of thoroughly domestic tastes, one to whom home and home life are a thousand times more precious than all else that he calls his own, he is a man of plain and simple habits.

In build and features Mr Porter strongly resembles his father, except that he is slightly the taller, wanting only two inches of six feet in height, with a girth of forty-four inches round the chest, and a large and well-proportioned frame. In complexion florid, his features are regular and clearly defined, with dark gray eyes and brown hair, only within the last year or two threaded with streaks of gray. In manner and disposition he is frank, unassuming, and companionable, keeping nothing under cover, accessible to all men, and treating all men as his equals. In address,

as in business, he is deliberate and methodical, thinking always before he speaks, with a strong vein of humor running through his conversation, and with the ability to grasp, without apparent effort, the most difficult and complex propositions. Like most successful men, he has a becoming pride in his work and in his possessions, in the latter, not for their own sake, but for the good that they may do to the members of his family and to the great family of man. Now, at the age of fifty-seven, he may still hope for a long season of activity and usefulness, and few there are in southern California, few elsewhere in the state, whose life-work has already left on the community so marked an impress for good.

Geo. C. Porter

CHAPTER XXIV.

LIFE OF GEORGE K. PORTER.

OUR LEATHER INTERESTS—NATIVITY AND LINEAGE—HIS FATHER AND MOTHER—HIS BIRTHPLACE AND TRAINING—EARLY CAREER IN CALIFORNIA—THE BOOT AND SHOE INDUSTRY—SAN FRANCISCO FACTORY—OPERATIONS IN REAL ESTATE—SENATOR FOR SANTA CRUZ AND MONTEREY COUNTIES—THE SLAVERY QUESTION—THE EDUCATIONAL QUESTION—MRS PORTER—HABITS, MANNER, AND APPEARANCE—SUMMARY OF CAREER.

UNTIL after the gold discovery, the only cargoes available for vessels loading on these shores consisted of the hides and tallow obtained from the thousands of wild cattle that overran the hills and valleys of the coast range. For hides one dollar apiece was paid, and that only in goods received in exchange at from five to ten times their original cost. For many years later, shipments continued on a steadily increasing scale, the export for 1865 reaching the maximum figure of 340,000 hides. Within recent years, however, the growth of our leather interests has not only absorbed the home supply, but has forced our manufacturers into foreign markets, as to Texas, to Mexico, to Central and South America. Thus, instead of shipping our hides abroad, to be returned in the shape of fabrics, with all the added charges of freight, manufacture, and commissions, we now convert them into leather and leathern goods, into boots and shoes, harness and saddlery, hose and belting, valued with other products at little short of $20,000,000 a year, and not only meeting the demands of the Pacific

coast, but with an export trade to neighboring countries, and even to the Atlantic states.

Foremost among those by whom these results have been accomplished is Mr George Keating Porter, of the well-known manufacturing and commercial firm of Porter, Slessinger and company. Not only as one of our pioneers, not only as, in his own department, the pioneer manufacturer of the Pacific coast, but for his merits as a citizen, a statesman, an ex-senator, and as one of the foremost business men in a community noted for its business ability, is the story of his life deserving of a place among the founders of our western commonwealth.

A native of Duxbury, Massachusetts, his natal day being the 9th of February, 1833, Mr Porter's lineage is traced to one of the oldest of New England families. Its progenitor, John Porter, who was born in Dorsetshire, England, near the close of the sixteenth century, settled in Hingham, Massachusetts, about the year 1635. He was a man of means and of no small influence in the colony, holding among other positions that of deputy to the general court in 1668. On the 6th of September, 1676, occurred his decease at the village of Salem, and at fourscore years of age. Among his descendants, apart from the direct line of Mr Porter's ancestry, are many who were noted in the annals of New England, such men as his grandson, also named John, representative to the general court and moderator of town meetings; as Tyler Porter, of the fourth generation in direct descent, a physician, and a distinguished patriot of the revolutionary war; as Major Porter, who served throughout that war; as the Reverend Nehemiah Porter, a graduate of Harvard, and for nearly half a century minister of the Congregational church at Ashfield, Massachusetts; as Asahel Porter, who lost his life at Lexington; as General Moses Porter, one of the heroes of Bunker hill, who fought under Washington throughout the war, was a central figure in the war

of 1812, and passed his lifetime in the service of his country. But of the lineage of the long-descended family, and more especially of George Keating's branch of the family, a record has been given in the preceding chapter in connection with his cousin's biography.

His father, John Porter, a native of Voluntown, Connecticut, a graduate of Darmouth college, a physician in excellent practice, and one of the most prominent men in the state, was a man of goodly presence, nearly six feet in stature, and of perfect physical development, strong in body and mind, possessed of excellent judgment, and of that rarest of all the senses, sound, practical, common sense. He was of a social and genial temperament, in manners affable, with hosts of friends and without a single enemy. In all the country round there were none whose loss was more deeply and widely regretted, when, at a ripe old age, he was gathered to his rest, his funeral being more largely attended than any in this portion of the state, except for that of the great New England statesman and patriot, Daniel Webster.

His wife, née Ann Thomas, was a native of Marshfield, Massachusetts, her birthplace being on a farm which formed a portion of an English grant to her forefathers, and her burial place beside her husband's, in Duxbury, Massachusetts. She was a woman of strong physical and mental powers, a lady of culture and literary tastes, in religion a Unitarian, and strict, but without severity, in the training of her children. Their names were John T. Porter, now a resident of Watsonville, California; George Keating, the subject of our sketch; Jane, the only daughter, now the widow of Doctor Kirk H. Bancroft, of Lowell; Frank F.; the twin brothers, William Ray and Charles Henry; and the youngest, Theodore C., now residing in Honolulu.

In a two-story brick house surrounded with handsome grounds, George first saw the light of day. The

family was well-to-do, but not wealthy as wealth is now computed, though the Porters were always men of means, and whatsoever their calling, were always the owners of land. From five until nine, George was sent to the district school, at the latter age being put to work on his uncle's farm, while still attending school during its terms. Some three years later he returned to his home, and at thirteen he entered the Partridge academy, at Duxbury, and here completed his education, which was without special feature, except that it developed, or rather revealed, a remarkable power of memory. It was his parents' wish that he should proceed to Harvard; but the boy's first inclination was for the life of a sailor, though from this he was dissuaded by his father. A clerk he would not be, nor yet a professional man. A business career was his choice, and, as we shall see, a choice well justified by his business aptitude and by his success. One day, when riding with his sire, he remarked to him that there were but three professions: the church, for which he deemed himself unfitted; the law, whose ranks were already overcrowded; and that of a physician, which would make of him a slave to the public, and to which, for that reason among others, his father was strongly opposed.

And now let us pass on to the time of Mr Porter's departure for California, which occurred on the 1st of February, 1849. Through his parentage, his training, and environment he had inherited and developed a powerful physique, a sturdy constitution, vigor of body and mind, toughness of sinew, the capacity for severe and protracted labor, and a fund of self-reliance and self-control, more precious than silver or gold.

On the 24th of October, 1849, he landed in San Francisco, from the Boston packet *Acadian*, after touching at Rio Janeiro and Callao, and being for seventy days in the straits of Magellan. His first occupation was that of a paper-hanger, at which he earned $10 a day, though about the hanging and

matching of paper he at first knew no more than about the driving of a locomotive. He was then engaged at $100 a month, by the owner of the Florence house, for which he dug out the cellar or kitchen, and was afterward employed as buyer. A few months later we find him at the mines at San Antonio, on the middle fork of the Calaveras river. Two years he passed in farming on Stevens creek, and in 1853 began lumbering among the redwoods.

And now Mr Porter had learned the art of making money, and the more difficult art of saving it. In 1854, with the means then at his disposal, he purchased an interest in a tannery at Santa Cruz, and four years later formed a partnership with his cousin, B. F. Porter. Soon he foresaw that with the rapid increase in the supply of leather, the demand would erelong fall short of the product, unless that product could be manufactured. Hence as a beginning, in the fall of 1863, he made a contract with the directors of the state prison for the labor of a hundred convicts, to be employed on the making of boots and shoes. Slowly, but steadily, from this small beginning the boot and shoe industry has increased, until in 1889 it represented a total for the Pacific coast of not less than $7,500,000, of which two-thirds may be credited to San Francisco. Such are a few of the benefits for which the state is indebted to the enterprise of Mr Porter and his colleagues.

In 1873, in conjunction with his cousin, he became a member of the firm of Porter, Blumm and Slessinger, now Porter, Slessinger and company, whose factory is in the Niantic building, on the corner of Sansome and Clay streets, San Francisco, with their store and office on Battery street. After opening his city establishment, Mr Porter disposed of the tannery at Santa Cruz, and on the destruction of the state prison by fire, in February 1876, whereby they lost a large quantity of stock, his firm abandoned this branch of the business, B. F. Porter transferring his interest to his cousin George, in 1879.

Meanwhile, in 1874 or 1875, the two cousins purchased a part of the San Fernando ranch, of some 56,000 acres, in Los Angeles county, its cost, with clearing and improvements, being about $140,000. Here they began farming and stock-raising on a large scale, the property being subdivided in 1882–3, when also a portion of it was sold. In 1887, Mr George K. Porter disposed of nearly 17,000 acres to the Porter Land and Water company, together with three-fourths of his live-stock, for $520,000; but the purchasers paying for only one-fourth, he still retains the remainder of his interest. In several other counties of California he is the owner of large and valuable tracts, and among his other interests are those in the California Lumber company, of which he is president.

In 1859 he was elected state senator for the counties of Santa Cruz and Monterey, the first republican chosen in those strongholds of democracy. Faithfully and acceptably did he serve his constituents, not only as chairman of several important committees, but by the introduction of timely and much-needed measures. Among them was a bill he introduced, whose passage he secured, offering premiums to farmers and manufacturers for the production and manufacture of many different articles, in order to promote industries needed for the future welfare of the state. One less successful was an amendment to the constitution, limiting the franchise to those who could read and write, and who paid a tax.

To slavery, in all its phases, Mr Porter is and has ever been a most bitter and determined opponent, for to that accursed institution may be attributed most of the evils that have befallen the commonwealth. "Neither a nation nor an individual," as he remarks, "can commit a moral wrong and escape the consequences. From the year 1620, when a Dutch vessel landed the first gang of slaves on the coast of Virginia, until the chains were stricken from their descendants by the proclamation of Abraham Lincoln,

they and those who came after them were treated as human chattels and brutes. Their labor was severe and incessant, their food and clothing of the coarsest and scantiest; they were scourged and flogged; their blood was shed; their families were torn asunder; and nameless indignities heaped upon them. From the sweat of their brow, from their unrequited toil, their owners, those who bought and sold them, and those who in the carrying trade took part in this infamous traffic, continued to wring their unhallowed gains until, in 1860, they found themselves confronted by the hand of God. And before this evil was remedied, no statesmen could be found, no wisdom deep enough, to devise the means for preserving the existence of the union. Contest and conflict wrought confusion in our national councils.

As Mr Porter remarks: "Nature's inexorable law required payment in like and kind, and before the contest ended, if it has ended, dollar for dollar, perspiration and blood, parting of families, sorrows—in fine, as the nation had participated in the wrong done to a despised race. It was exacted of them in like and kind, in ratio that the different states and people thereof had participated in the wrong."

"When I was a boy," says Mr Porter, "my father made a remark that I shall never forget, on the iniquity of enslaving a man because he was black, and that is the foundation of my bitter opposition to slavery. My inner consciousness of this evil, my abhorrence of it, my frequent contact with those who were in favor of it, have led me to study the matter for myself; and not only for my own observations, but from the teachings of history, I have always found it detrimental to the nations in which it existed."

Mr Porter is a firm supporter of tariff protection, believing that such a policy is needed for the preservation of our home industries, and for building up in these United States a nation such as the world has never yet contained. But before this can be accom-

plished there must be many alterations in our laws, and first of all in our immigration laws. In statesmanship and finance he thinks that we may learn a valuable lesson even from the despised Asiatic, inasmuch as he gets all he can, and keeps all he gets. He would have us utilize our silver, circulating it among ourselves, or among such nations as adhere to a bimetallic currency, and not permitting foreign nations to fix the standard of value. If in the course of trade the silver of other nations were accepted at a fair valuation, the effect would be that erelong it would rise to par. As to the question of labor and capital, he is of opinion that it can only be determined by the unalterable law of supply and demand; that to adjust it otherwise is not, and never was or will be, within the scope or power of legislation.

Mr Porter has always taken the deepest interest in educational matters, and especially in the education of the poor. When himself a poor man, engaged in felling timber among the redwood forests, he supplied, free of cost, for one of our public school-buildings, all its siding and covering boards, split by his own hands and hauled by his own team. He is strongly opposed to the forcing system, to the straining of the intellectual powers at the expense of the physical well-being. He would have our boys trained in the mechanical arts, in the technical arts, making of them skilled workmen as well as skilled mathematicians or grammarians. Not that he is indifferent to the higher branches of education in their proper sense; but he would not have the pupil expend his time in committing to memory a mass of useless rules and definitions, which on leaving school he will surely make haste to forget.

In religion Mr Porter, while not a church-member, is a firm believer in a Supreme Being, but, as he himself remarks, he cannot accept in blind faith that which is repugnant to the reason with which his Creator has endowed him. To him who is content to follow the golden rule, without attempting to peer

into the secrets denied to human ken, salvation is nearer at hand than to those who, dogmatizing on points of faith and doctrine, put into mouth of the eternal such sentiments as never entered into the heart of the devil. "The kingdom of heaven is within you," said Christ; and if to this be added the maxim laid down by the ancient philosophers, and by the greatest of all philosophers, "Do unto others as ye would that they should do unto you," we have here, as the divine teacher himself declared, all that is contained in the law and the prophets. As to the veiled hereafter and the immortality of the soul, these are also questions of which we know as little. If it be true that the soul is an entity, although of this we may have no further evidence than of the existence of other things which are not material, and which yet we know to exist, then by nature's own laws is given to us the groundwork hope in a future life. In this sense we may believe that the soul is immortal, if not in identity, at least in essence. And now in conclusion a few words as to his domestic life, his wife, his children, and his home, his manners and habits, his appearance and character.

On the 11th of November, 1882, he was married to Miss Kate Ann Caystile, a native of California, but of English lineage, the daughter of Thomas Caystile and Esther Lea, her father, Thomas Caystile, now an octogenarian, being descended from one of the oldest families in the Isle of Man, her mother also being a native of England. Their first meeting was somewhat tinged with romance, and was purely accidental, the occasion being as follows: Attending a political gathering after a hard day's work on his ranch, Mr Porter was addressing the audience, when the cry of Fire! was raised. At first he gave no heed, but soon he beheld in front of him a building in flames, and hastening to the rescue, found that four young children were burned to death. Their parents were absent at the meeting. The sudden loss of their children rendered their parents frantic with grief.

Mr Porter and Miss Caystile, who was teaching school at the time and was attending the meeting, spent the night and most of two subsequent nights, in efforts to comfort and console the bereaved parents; he observed that she was thinking solely of the sufferers, and not at all of herself. The young woman is now Mrs Porter, one most devoted to her husband, her children, and her household, possessed of all womanly graces, and with a just contempt for the inane frivolities of society.

In the company of these children, George Keating and Estelle, in the company of his wife, of his books, and at times of a chosen circle of friends, Mr Porter enjoys the scanty leisure that remains to him from his twelve or fifteen hours of daily toil. Though probably he will never retire altogether from business, he intends erelong so to arrange his affairs that in his declining years they will require less of his personal attention. His life has indeed been a busy one, an up-hill struggle with difficulties, such as none can understand save those who have encountered them, and none could have encountered but one gifted with his marvellous physique, his tireless energy, and his phenomenal capacity for work.

To many of my readers Mr Porter's appearance is already familiar, his expressive and intellectual features, his kindly, light blue eyes, his dark brown hair, his robust and sturdy frame, with its five feet ten inches of stature. In gait and carriage erect and dignified, in manner pleasing and affable, in conversation forcible, speaking always to the point in simple, apt, and well-chosen phrase, the reputation which he now enjoys is due no less to his personal character, his personal magnetism, his qualities of mind and heart, than to the uniform success that has attended his business career.

A self-made man, Mr Porter is also a self-educated man, acquiring the more valuable part of his education from his own reading, and that after his daily

task was accomplished, devoting, as he says, to study much of the time that others gave to sleep. Starting in life without other advantages than the strength of mind and muscle and principle, the endurance and will-power acquired by inheritance and training, he landed on these shores in early youth, without a friend, and almost without a dollar. For years he struggled to little purpose, his efforts baffled and his toil but ill requited. At length came success, slowly indeed but surely, success not only for himself, but for the industry of which he was the founder, one that now furnishes employment to thousands of operatives, and retains on this coast many millions a year of capital. In the truest sense of the word may he be termed a builder of the commonwealth, for to such men is due the rank accorded to California as the first among the sisterhood of states in relative wealth, and in all the elements of greatness and prosperity.

CHAPTER XXV.

MANUFACTURES—MEXICO AND CENTRAL AMERICA.

THE PRIMARY TEST OF CIVILIZATION—INDIAN WORK—CLOTHING, COOKING UTENSILS, ORNAMENTS, AND WEAPONS—IMPROVEMENT IN COTTON FABRICS—THE SILK INDUSTRY—NAHUA METAL AND OBSIDIAN WORKS—POTTERY, BASKETS, AND CLOTHS—TANNING AND LEATHER WORK—DYEING—PRECIOUS STONES AND SILVER WORK—MANUFACTURES OF THE MAYAS—COMING OF THE SPANIARDS—INTRODUCTION OF EUROPEAN INDUSTRIES—MODIFICATIONS AND DEVELOPMENTS.

THE development of a nation's agricultural products will necessarily, under favorable circumstances, give an impulse to its manufacturing industry, though it may be only for the purpose of increasing national consumption. Nations acquire prominence, wealth, and power by the advancement of their combined industries, and this fact is made manifest in the relative positions held by them in modern times. Still manufactures are not merely an industry of the present. They have flourished since the earliest times recorded in history, though the great advance of mechanics science in the present century has developed them to a wonderful degree. But whatever is made by hand or by machinery, however simple, comes under the denomination of manufacture. Even the humblest among uncivilized peoples have felt the need of implements for defence, and for the protection of the person from the inclemency of the weather. Weapons for war and hunting, and traps to catch animals for food, were followed by other inventions, such as utensils for cooking and various purposes; next came the improvements in covering for the person, and finally for ornamentation. Necessity and the

desire of possessing conveniences as well as vanity set ingenuity to work, with results developed in time and as circumstances required.

The manufactures of the wild tribes of Mexico were of the most primitive character. The Lower Californians, as well as the people inhabiting Sonora, Sinaloa, Chihuahua, Durango, Nuevo Leon, and the northern portions of Zacatecas, San Luis Potosí, and Tamaulipas, had shown themselves possessed of but little ingenuity, their products being limited to a few implements, wicker-baskets, weapons of war and hunting, and articles to cover or ornament their bodies. Reeds, fibres, rushes, skins, feathers, wood, mother-of-pearl, etc., were the materials mostly used. Some of the tribes made petticoats of soft chamois, or of cotton, or of the agave fibre, while the Ceri women fashioned them from the skins of the albatross or pelican with the feathers inside. Most of the tribes manufactured ornaments of mother-of-pearl, white snails' shells, fruit-stones, copper and silver hoops, circlets of deer's hoofs, necklaces of red beans, or strings of paroquets and small birds.

Northern and southern Mexicans made their weapons in most respects in the same fashion. They had bows, arrows, macanas, and lances, the last of great length and very strong. In Tabasco they made highly polished turtle-shell shields. The hard wooden sword of the Maya was a heavy and formidable weapon, and had its edge grooved to insert the sharp flint with which it was supplied. The Mayas also had for defensive armor garments of thickly quilted cotton called *ercaupiles*. The flint knife of former days has been replaced by the serviceable machete which is a cutlass and a chopping-knife in one. The natives of Tabasco and Yucatan also manufactured pots of earthenware and gourds. Iron was unknown to the Mayas, but they had crucibles for melting copper, and copper hatchets, and spear and arrow points as well as ornaments, made of the same metal.

The inhabitants of Tabasco and the coast of Yucatan possess canoes made from the single trunk of a mahogany tree, which they navigate with small lateen sails and paddles. The Zoques make excellent hammocks from the ixtle and pita thread.

The Nahuas, a civilized people dwelling in the valley of Anáhuac, had attained a high degree of perfection in manufactures. They displayed great skill in ornamental work of gold, silver, fine stones, pearls, and feathers. Several minerals, such as quicksilver, sulphur, alum, and ochre were to some extent used in the preparation of colors and for other purposes. Iron, though abundant in Mexico, was not used. Much skill was manifested in melting and casting, also in carving, and in the use of the hammer. How the harder metals were melted has not come down to us, other than the appliance of a rude blow-pipe and furnace in detaching gold from other substances mixed with it in the natural state. Copper, the only metal used for cutting, was hardened with tin, until it sufficed to cut hard substances almost as well as steel. The pure and softer copper was wrought into kettles and other vessels. Copper tools, mostly in the form of axes and chisels, though not so common as those of stone, were employed where a sharp and enduring edge was needed.

In speaking of the agricultural implements used by the Aztecs, mention was made of their sticks tipped with copper. No metal was used to any extent in weapons; none was found in swords or arrow-heads, but it was employed with obsidian in spear heads and clubs. The old chroniclers speak of the existence of copper and tin plates, but they certainly were not common. Copper and tin instruments were wrought with stone hammers, not cast. According to Clavigero copper and tin vessels were gilded with a preparation of certain herbs, but the Spaniards never discovered the process.

Stone being the material of which most Nahua implements were made, the harder kinds—flint, porphyry, basalt, and especially obsidian, or native ixtle—were used. Nearly all the sharp-edged tools, such as knives, razors, lancets, spear and arrow-heads, were made of flakes from an obsidian block. The knives were double-edged, and the best of them slightly curved at the point. The manner of obtaining the flakes was by the maker holding the block of ixtle between his bare feet, and then pressing with his chest and hands on a long wooden instrument which was applied near the edge of the block. He thus split knives with great rapidity, and when fitted on to a wooden handle they were ready for use. The edge became easily blunt, however, and it was then no longer serviceable. According to Father Las Casas from ten to fifteen obsidian razors were required to shave one man's beard. The knives used in the sacrifice of human victims, and lancets for drawing blood, were made from the same material. Obsidian knives for bleeding are still used in Mexico. Masks, rings, and cups were at times made of obsidian and other kinds of stone. Axes were of flint, jade, or basalt, and attached to a handle. Mirrors were made of the obsidian rock-crystal, or marcasite, often double-faced. They were brightly polished, and, encased in rich frames, reflected the human face as clearly as the best made in Europe.

The quarrying of stone was done with wooden and stone implements. Stone implements seem to have been employed for sculpturing idols and statues, and for architectural work.

The best of pottery was made at Cholula. Nearly all the dishes used in the country were of clay. The Spaniards spoke enthusiastically of native skill in the manufacture of pottery, but beyond the fact that they were glazed, and often decorated, little information has been furnished on this subject. Under Spanish rule a wider field was opened to the natives in this

branch. The natives learned also to make glass, and in the course of time this industry was greatly developed, chiefly at Puebla, where in 1793 there were forty-six factories for glass and pottery, though the number was much reduced early in the present century. Besides the pottery, and vessels of wood and metal, baskets were made, and drinking cups or bowls of various shapes and sizes were formed from the hollow shells of gourds. Sea-shells were also used as dishes.

The finer kinds of cloth were manufactured from cotton or rabbit-hair, from a mixture of the two, or from cotton mixed with feathers. Rabbit-hair fabrics were equal in texture and finish to silk, and cotton-cloths were also fine and white. The latter, for articles of dress by the priests and nobles and the rich were both woven and dyed in variegated colors. Cloths, in the manufacture of which feathers were employed, served for carpets, tapestry, and bed-coverings. The fibres of maguey and palm-leaves were woven into coarse cloths known as nequen. The same materials were used in the making of cords, ropes, and mats. A coarse kind of matting was made from reeds. Spinning and weaving were the work of women, and indeed formed their principal occupation. The spindle used by the Aztecs was like a top, set whirling in a hollow dish, the fibre being applied to its pointed upper extremity until its impetus was exhausted. Paper was chiefly made from maguey fibre, and occasionally other fibres mixed with it. Humboldt mentions certain oval bags, produced by a species of caterpillar in Michoacan, which are white, and may be separated into thin layers. The ancient Aztecs used them in the manufacture of a superior class of paper.

Skins of animals were tanned with or without the hair. Cortés reported having seen the skins of some of his horses perfectly tanned. The authorities, while praising the work, do not explain the process employed.

Such skins were used for apparel, ornament, defence, and also as parchment for hieroglyphics.

In preparing dyes and paints mineral and animal as well as vegetable colors were employed, the last named being extracted from wood, barks, leaves, flowers, and fruits. In the art of dyeing the Aztecs were probably superior to the Europeans. Chief among the dyes was cochineal; the flower of the *matlalxihuatl* supplied blue shades; indigo was also used; the *achiotl* boiled in water yielded a red extract, the French *roucou;* ochre, or *tecozahuitl*, furnished a yellow dye, as did also *xochipalli*, the latter being changed to orange by the use of nitre; other shades were produced with alum. Calcined *chimaltizatl* and *tizatlalli* stones produced a substance resembling Spanish white; black was obtained from an ill-smelling mineral known as *tlaliac*, and from the soot of the *ocotl*. In mixing paints chian-oil, and sometimes the glutinous juice of the *tzauhtli*, were brought into requisition. All the dye-woods of the tierra caliente that are now exported were used by native dyers. It is probable that the Spaniards were unable to detect some of the secrets of native dyeing.

The Nahuas were fully as skilful in working fine stones as in working gold and silver. All the fine stones found in the country were used as ornaments. The jewels were cut with copper tools, with the aid of a silicious sand. Single stones were given various forms and set in gold. Pearls, mother-of-pearl, and bright-colored shells were used with the stones in forming ornaments for the neck, wrists, ears, etc., as well as for decorating idols, or the persons of the nobility. Garments and armor were often tastefully adorned with gems. The Spaniards took particular notice of a species of mosaic on the wooden masks of the idols.

The inhabitants of Central America excelled in the manufacture of pottery, producing without the aid of

tools specimens as remarkable for fanciful forms as for elegance and coloring. They were also skilful in the art of weaving, and from the aloe and pita, or silk-grass, they obtained a very fine thread. The aboriginal spinning-machine is still in use. It consists, according to Squier, of a thin spindle of wood, fifteen or sixteen inches in length, which is passed through a wheel of hard, heavy wood six inches in diameter, and resembles a gigantic top. Their mode of weaving was the same as that of the Mexicans, and their fabrics were not only durable, but tastefully designed and colored. Bright-colored feathers were much prized, and employed in the making of garments by pasting the plumage in various figures on the cotton fabrics, as in Mexico. The Cakchiquels made cloth also from bark and maguey fibre. The dyes used were indigo for blue, cochineal for red, and indigo mixed with lemon for black. The Nicaraguans obtained a highly prized purple by pressing the valve of a shellfish, and dipped each thread in the coloring matter. The dye-woods of the country were also used

For ropes and nets reeds and bark were used. Mats and hammocks were often interwoven with gray colors and rich designs. A native will work for months upon a high-priced hat made from the fibre of the half-formed *carludovica palmata* leaf.

The Mosquitos use fibres of mahoe and ule bark, pisang leaves, and silk-grass for making ropes, nets, mats, and coarse fabrics. Most of them grow a little cotton, which the women spin on a rude wheel, and weave on a frame loom into strong and neat cloths. Pottery is an ancient art among them. Their red cooking-pots are very light but strong; the water-jars, only slightly burnt to permit percolation, show good taste in design. Their dory, or ordinary sea-boat, is a hollowed tree, often twenty-five to fifty feet long, five to six wide, and four to five deep, round-bottomed, buoyant, and safe, the best being made by the up-river tribes, especially the Towkas.

The Isthmians—natives occupying the territory which lies between the San Juan river and the southern shore of Lake Nicaragua on the north, and the gulf of Urabá or Darien and the river Atrato on the south—make hammocks of finely woven cloth, and more frequently of plaited grass of various colors, curiously ornamented; they also prepare gourds, calabashes, and cocoa-shells for water-bowls and drinking-cups. They manufacture earthen jars, flint knives, stone hatchets, and boxes made of palm-leaves, and covered with deer or other skins, strong cords from the bark of the mahoe tree, and excellent baskets and matting from the pita. The Dorachos were famous for their pottery, water-bottles, and other household utensils, elegantly shaped and prettily painted. Cotton cloths were and still are woven by women. The process, according to Wafer, was this: The women made a roller of wood, about three feet long, turning round between two posts. About this they placed strings of cotton, three or four yards long at most. They wove pieces of cotton only of the size to serve a particular purpose, and never to be cut. The threads coming from the roller were the warp. For the woof they twisted cotton yarn about a piece of macaw-wood, notched at each end. Taking up every other thread of the warp with the fingers of one hand, they put the woof through with the other, and received it on the opposite side. To make the threads of the woof lie close in the cloth, they struck them at every turn with a long and thin piece of macaw-wood like a ruler, placed between the threads of the warp for that purpose. The Isthmians built canoes of various sizes, all admirably adapted for navigating their rivers and gulfs.

I have deemed it necessary thus to speak of the manufactures of Mexico and Central America prior to the coming of the Spaniards because many of them remain to this day, and it is only by this means that

we can understand the origin of their present industries. I will now set forth the state of their manufactures in later times, when relieved from the restraints of the Spanish colonial system. It is well known that the Spanish government in its treatment of the colonies pursued a narrow and selfish policy, considering the colonies as mere markets for the products of the mother country, all competition on their part being discouraged. The consequence of such a system was the annihilation of several aboriginal industries, and the decadence of others. Spain's foreign wars, however, and later the struggle for independence, taught the Mexican people to rely on their own resources, and the government under the republican régime has endeavored to encourage manufactures with protective tariffs, energetic laws, and schools of industry. To Lúcas Alaman must be given much credit for his efforts in this direction, although they were to a great extent frustrated by lack of coöperation and of resources. It was under his auspices that the banco de Avío was founded, to give impulse to the several industries, especially manufactures. The plan failed, but its effects are still apparent. The benefits derived from fairs and public exhibitions are noticeable in the eagerness to obtain a greater freedom of action since 1849, and to take part in foreign enterprises. The government has also enacted a number of wise patent laws.

The manufacture of cotton goods has attained a considerable development. In 1810 the products of several large establishments existing in the interior provinces were valued at $9,000,000. There were likewise many itinerant weavers, and most of the cotton goods used in Indian towns were woven by the women. Owing to a protective tariff, under which high duties were levied on foreign fabrics, and at the same time the importation of coarse spun thread was stringently forbidden, the number of factories became materially increased, so that in 1843 there were no

less than sixty-two establishments with 106,700 spindles and 2,600 looms, capable of producing 8,500 pieces of cotton cloth of 32 varas each, raw cotton being quite scarce at that time. But the repeated changes in the government and in the policy pursued, no less than the rascalities of corrupt rulers, operated to the detriment of this branch of industry.

The absence of competent artisans also prevented the adoption of protective measures. In later years, however, a marked encouragement has been visible. Very good woollen and cotton cloths are woven in Durango, Guanajuato, Jalisco, Nuevo Leon, Mexico, Michoacan, Querétaro, Puebla, Vera Cruz, and elsewhere. In 1879 there were upwards of 70 cotton factories with a working capital of $54,000,000, turning out goods to the value of $18,000,000, of which $2,000,000 were for rebozos, $3,000,000 for spun thread and the remainder for cloth. In viceregal times Michoacan and Querétaro were prominent for their woollen fabrics. In 1879 with a capital of $6,800,000, ten factories supplied the market with 6,000,000 aras of kerseymeres, zarapes, carpetings, etc. These branches of industry are progressing; but it must be confessed that few goods made in the country, whether of cotton, wool, or silk, can as yet compete, either in texture or price, with those imported from abroad. The rebozos of silk and those of mixed materials are worthy of mention.

The harness and saddles made in Mexico are unequalled in other Spanish-American countries. Sugar is manufactured largely and of good quality, the state of Morelos alone frequently furnishing 50,000,000 pounds a year. Glassware, porcelain, and earthenware are prominent among the manufactures of Mexico, for their superior quality as well as for their extent. Hats, chocolate, laces, flowers, liquors, gunpowder, etc., are also among the country's productions. The maguey fibre has been from time immemorial utilized for writing. Good paper is manufactured

from it, and with the protection afforded the business it has attained large proportions. As far back as 1860 eight factories produced 1,650,000 reams of paper, valued at $6,370,000. The products of the iron foundries exceeded that sum by 25 per cent. There are likewise flour-mills turning out an excellent article. Hat factories exist in large numbers. The value of 2,659,000 hats made in 1860 exceeded $5,000,000. Wax tapers and soap represented $4,340,000 and $2,692,000 respectively.

Silver and gold smiths excel in filigree ornaments. The Indians of Mexico, Guanajuato, and Guadalajára are skilful in manufacturing clay and rag figures. Beer and pale ale of excellent quality are made in the breweries of the capital. The sweetmeats of Guadalajára are much sought after both in and out of Mexico.

Fishing is not one of the industries to which the Mexican people have devoted much attention. Whale fishery has been attempted in the Pacific ocean. The pearl oyster is found in the gulf of California, and to less extent in Manzanillo and Tehauntepec, and also in Petatlan, where turtles and tortoises abound, and, together with the coral and sponge business, afford means of livelihood to a considerable number of persons. Pearl-fishing is pursued every year at certain seasons, especially on the coast of Lower California. It has come down to us that King Philip II of Spain received from that coast a magnificent pearl weighing 250 carats, and valued at $150,000. The Jesuit fathers, when they had the control of Lower California, endeavored to check this industry with the object of saving the Indians from the cruelties that were inflicted on them; but their efforts were unavailing. The business continued to be pursued, and grew to large proportions, though with the Yaqui divers brought over from Sonora. The stories told of the enormous quantities of pearls obtained in the 18th century verge almost on the fabulous. A man named

Antonio Osio discovered the deposits near Mulegé, and settled there. In 1743 he took out 127 pounds of pearls, and in the next year 300 pounds. A magnificent necklace, formed of alternate round and heart-shaped pearls, was sent as a present to the queen of Spain by the discoverer of these virgin deposits, whose great wealth was, however, the cause of his death. Not knowing any other way of concealing his gems, he placed them under ground, and kept the spot secret even from his own family. Some men attempted to draw the secret from him by means of threats of assassination, and not succeeding in their purpose foully murdered him. This fabulous wealth is supposed to lie still under ground. Toward the end of the eighteenth century the business fell into decadence, owing probably to discouragement on the part of the Franciscan friars, who were the successors of the Jesuits. In 1857, under a law of the Mexican congress, it was placed under strict regulations.

According to official returns for 1855 and 1856 the results were as follows: In 1855, 25 expeditions, employing 69 launches, boats, and canoes, with 368 divers, obtained the gross sum of $41,475 for pearls and shells. The cost of craft was $4,900; support of the divers, at $12½ each during 3½ months, $6,210; advances to the divers at the rate of $16 each, $5,888. Total expense, $16,998. Net profit, $24,477. The year 1856 gave less favorable results, the gross receipts having been $33,437, and the expense $13,883; net yield, $19,554. As a rule one-half of the advances made to the divers was recovered; thus, the actual profits of 1855 and 1856 were respectively $27,421 and $21,904. According to Lassepas, a competent authority, there were taken out of the waters of Lower California, from 1850 to 1857 inclusive, 1,911,300 quintals of shells, which yielded 2,770 pounds of pearls, valued at $5,540,000. The export of shells from 1854 to 1857 was 58,948 quintals, valued at $120,402.

Pearl-fishing was for some years a profitable business in Panamá. Diving for pearls was done by negro slaves, who were required to collect a certain quantity, and any surplus they might sell, but only to their masters, at a price fixed by them. These beds have yielded large quantities of valuable gems. Seville in 1587 imported 600 pounds weight. From that year came a marked falling off both in quantity and quality. Serious restrictions were adopted, which availed nothing. The beds became exhausted, and remained so for several decades, when a revival of the fishery took place. For several years after about seven hundred men were engaged six months of the year, the yield averaging about 1,000 tons of pearl-shell, worth $70 per ton, and pearls enough to raise the whole value to $300,000 yearly. Owing to recklessness pearl-fishing had almost ceased in 1873. Fishing for pearl oysters was forbidden by law in 1872 for several years, to allow the mollusk time to recover vitality; but so far the business has not been revived. Pearl-fishing has been successfully carried on in the coast of Nicoya, and with less favorable results south of Caroon island.

Manufactures are as yet in their infancy in Central America. This part of the Spanish colonies suffered from the same causes as Mexico and the provinces of South America, Cuba, etc. After the independence the different sections rarely if ever had any opportunity to develop any branch of industry for many years, though it should be acknowledged that laws were often passed having that object in view. But after the liberal régime was established, in 1871, an impulse was given to manufacturing as well as to agriculture and every other pursuit conducive to the public weal. The consequence of the change was that in a few years extensive factories were started in Quezalterango, Guatemala, for spinning and weaving In Chiquimula, in the same republic, palm-leaf hats,

mats, and maguey-fibre baskets are made. In Vera Paz the natives continue making excellent hammocks, bags, rope, etc. There are also flour-mills in the several republics. Guatemala is not yet in condition to export any goods of her own manufacturing. Honduras knows no such industry, beyond the primitive one of her native population. In Salvador cotton and silk rebozos are made, which find a ready sale in the other republics. Hammocks, earthenware, straw hats, cigarettes, and sweetmeats are also manufactured. Rum is made, as in Guatemala, from sugar-cane.

Manufacturing is in an incipient state in Nicaragua. Good mechanics are scarce. The Indians, however, make good pottery and other articles for home consumption. Machinery for refining sugar, ginning cotton, distilling liquors, cleaning coffee, sawing lumber, and extracting fibres has been introduced. Mats, baskets, palm-leaf and maguey hats, and cordage are among the commodities made in this country. The hammocks of Masaya and Sultiaba are much esteemed. Cotton fabrics are coarse but strong, and dyed with permanent colors and in original design. Hides enter into the manufacture of several useful articles. Rum is made and sold by the government. The miller's art is in its infancy. Costa Rica and Panamá cannot be counted among the manufacturing countries. Many things, however, like hammocks, straw hats, mats, furniture, cigars, tiles, and bricks are made for home consumption.

CHAPTER XXVI.

MANUFACTURES—TEXAS.

THE NATIVE TRIBES OF TEXAS NOT MANUFACTURERS—MEXICAN COLONIAL TIMES—INTRODUCTION OF SAW AND GRIST MILLS—ABUNDANCE OF RAW MATERIAL—LUMBER AND PLANING MILLS—WAGONS, FURNITURE, AND BARRELS — MEAT-PACKING — TANNING AND LEATHER WORK — IRON WORKS AND AGRICULTURAL IMPLEMENTS—COTTON AND WOOLLEN MANUFACTORIES—BRICK AND POTTERY—TOBACCO AND CIGARS.

IN countries where nature is prodigal with the means of subsistence, and the climate is so mild that little protection is required against inclemency of weather, the inventive faculties of native races are less developed than in regions in which the environments are less favorable. To the west of Texas, in New Mexico and Arizona, where game was scarce and the soil yielded few spontaneous products, we find that the Indian races made considerable progress in agriculture and manufactures. Enormous structures, erected with no little architectural skill, afforded protection to large communities, and became their permanent homes. Under such conditions manufactures were naturally developed; the potter's and the weaver's arts rose to some degree of perfection, and much ingenuity was displayed in designs and decorative coloring, and in the fabrication of personal ornaments and habiliments, household utensils, and agricultural and other implements.

It was far otherwise among the roaming native races of Texas. Hides supported on poles formed their temporary dwellings; deerskins furnished them with clothing, and fagots kindled in the open air supplied the place of cooking-pots and ovens. Their inven-

tion was no further taxed than by the necessity of furnishing weapons for the chase and war, and of cutting moccasins, leggins, and hunting-shirts out of skins, with some little attempt at decoration. The primitive bow, the obsidian, or flint-tipped arrow and spear, and the shield, with its basket-work frame covered with several thicknesses of buffalo hide, were almost the only articles manufactured by these nomadic tribes.

With the advent of the white race among them their manufacturing ingenuity even diminished. Firearms, knives, iron spear-points, and blankets were supplied in exchange for hides and peltry; the bow fell into disuse, and workmanship in obsidian and flint was discontinued.

During colonial times this industry was extremely limited in extent and made no progress. With the exception of the preparation of hides for export and the fashioning of rude household and other implements out of materials at hand no manfacturing was done. Benches and tables were made of roughly hewn wooden slabs; bedsteads of hides stretched upon wooden frameworks; and the same materials supplied them with riatas and bridles, rough saddles, and lumbering ox-carts. For all the better classes of articles, whether of dress or furniture, whether implements or utensils, the more well-to-do inhabitants had to rely for their supplies upon the provinces of New Spain, or the contraband trade with Louisiana by way of Natchitoches.

On the arrival of Austin's colonists manufacturing industries began to be gradually though slowly developed. The first requirements of the settlers were grist-mills for the conversion of Indian corn into meal, and sawmills for the production of lumber. But many years elapsed before establishments of this kind were erected in numbers adequate to the wants of the people, and for well nigh a quarter of a century the scattered population was dependent upon hand-mills for

grinding meal, while log-cabins served as dwellings, except in the more populous towns. The houses in these central points were constructed for the most part of lumber, a few only being built of brick or stone. In 1836 the Harrisburgh Steam-mill company advertised lumber for sale at $25 per thousand feet. Thus at that early date steam-power had been introduced into Texas in the development of her industries.

With the immense supplies of raw material which are found in every part of the state; with forests furnishing a great variety of building and ornamental timber; with a vast supply of hides, available for tanneries, shoe-factories, and the saddlery business; and with immense cotton and wool crops, it is a matter for surprise that Texas has not developed into a great manufacturing state. The cause of this is to be found in the fact that, hitherto, the exportation of raw material has been so remunerative that, with a few exceptions, there has been little inducement for manufactures on a large scale, the capitalists more readily engaging in the primary than in the secondary industry.

Nevertheless local demands have caused the establishment of a great variety of factories, which have increased in number and in the value of their aggregate products in proportion to the increase of population. In 1850 throughout the state there were only 309 establishments, giving employment to 1,066 workmen, who received in wages during that year $322,368, the value of the products being $1,168,538. In 1860 the volume of production was nearly five times greater, and in 1880 there were no less than 2,996 establishments, with 12,159 operatives, to whom was paid $3,343,087 in wages, with products valued at $20,719,928.

Though these figures appear to represent a most satisfactory rate of progress, they will be found somewhat insignificant when compared with those of other

new states. For instance, in 1860 Kansas had only 344 factories, which turned out products to the value of $4,357,408; in 1880 she had 2,803 establishments in operation, producing goods worth $30,843,777. Nebraska is equally noticeable with a total value of products for 1860 of only $607,328, whereas in 1880 the figures were $12,627,336. Lastly, California has thrown Texas completely into the shade as to the extent of her manufactures; the value of which in 1850 was $12,862,522 and in 1880 $116,218,973.

Flouring and grist mills rank first among Texan manufactures and are found in at least forty different counties, extending over the wheat region. The more prominent in the value of products are Grayson, Collin, Kaufman, Dallas, Parker, and Tarrant; farther south McLennan, Bell, and Bexar; and in the east, Galveston county. In 1880 the value of products was $7,617,177, and 2,602 men were employed in this industry alone. The proportion of steam to water power used in the flour-mills of Texas is about eight to one. Connected with them are the bakeries and biscuit factories, Galveston, Harris, and Travis counties taking the lead. In Galveston and Grayson large quantities of confectionery are made, amounting in value to more than half the total product of the state.

Next to importance to flour is lumbering, which has already assumed large proportions. The opening of railroads has given a great impetus to this industry, and in addition to the increase in the production of building material, immense numbers of ties are made, those of the "bois d'arc" being especially in demand on account of their resistance to decay. Most of the lumber is produced in eastern Texas, the counties of Bowie, Jefferson, Montgomery, and Orange taking precedence in their output, which is nearly equal to that of all the other lumber producing counties. The steam-power used is nearly three times greater than the water-power.

Planing-mills are established in many parts of the state, several of large capacity being in operation in Dallas, Harris, and Jefferson counties. Sash, doors, and blinds are manufactured extensively in Galveston county, and in a less degree in Travis and Fayette. Steam-power only is used in this branch.

In Dallas, Harris, McLennan, Travis, Bexar, and Galveston are a number of carriage and wagon factories, and in Galveston, Fannin, and Lamar counties fine furniture is made, the great variety of ornamental woods supplying excellent material for an extended development of this industry. Connected therewith is the business of upholstery which, however, is only conducted on a very limited scale.

Cooperage is another industry allied to the lumber business, and is carried on to some extent in Galveston. Carpentering is necessarily an important avocation, and occupies the fourth place in the statistical table of manufactures.

In spite of the enormous increase of cattle in Texas, meat-packing has not assumed any large proportions. In 1880 there were but three establishments engaged in that business, only one of which, located in Aransas, was in operation on a large scale. The capital employed in it was $200,000 and the value of the products for that year amounted to $453,100, those of the other two small factories being worth only $33,300.

The amount of leather, also, both curried and tanned, is extremely small, though this industry in connection with the above, might be expanded to the dimensions which it has assumed in California, and supply material for the establishment on a large scale of boot and shoe factories, the value of whose output in Texas is now represented by fewer hundreds of thousands than by millions in California. In this as in other branches the former state, with natural resources incalculably greater than the latter, has allowed herself to be completely outstripped. The

cause, no doubt, is mainly to be found in the remoteness of California from manufacturing centres, and her isolation in early days, before the opening of transcontinental railways, developing her self-dependence, while Texas lay within easy reach of the great manufacturing centres.

Saddlery and harness making exhibit a somewhat better showing than the boot and shoe industry. According to the census reports for 1880, the respective values were $587,871 and $372,810, the making of saddles giving employment to 270 workmen, whose earnings for the year amounted to $110,576, and of harness to 235 men, who received $87,223 in wages.

In Dallas, Harrison, Anderson, Galveston, Harris, and Travis counties foundries and machine-shops have been established. The development of these industries is due to the opening of railroads, near to which are most of the establishments. At Kellyville, Marion county, extensive iron-works are in operation, in which the native ore is manufactured into ploughs, stoves, and hollow-ware. In Jefferson, also, there is a foundry which does a large business. A rotary plough manufactory, and two foundries and machine shops have been established in Waco city, M'Lennan county; in Anderson county is a brass and iron foundry, and another at Calvert, Robertson county. At Houston are located the machine-shops of the Huntington lines of railway, including the Texas and New Orleans, and Southern Pacific roads, and at Marshall, in Harrison county, those of the Texas and Pacific railway, in which car-wheels and freight-cars are manufactured. At Dallas are the Trinity iron-works, the former doing a business of $150,000 a year.

Besides the places above mentioned, foundries and machine-shops are in operation in other parts of the state. In many of them farming implements and fence-wire are manufactured, and some small quantity of architectural and ornamental iron-work.

Blacksmithing is an industry that cannot be dispensed with, and in 1880 ranked third on the list of Texas manufactures. The making of cuttlery, edged tools, and hardware occupies a very low place on the statistical tables, nor can it be expected that these industries will attain to any importance until iron-mining has been extensively developed.

Some slight attention is being attracted to the manufacture of cotton goods in Texas, and it may be predicted that this industry at some future date, after the development of the coal fields, will become a very important one. At Cuero, in DeWitt county, and at Iron Bluff, in Tyler, cotton yarns are manufactured for home and northern markets. There is a factory for the production of yarns and seamless sacks at Waco, and a large factory at Terrell, Kaufman county, as also in the state penitentiary in Walker county.

Cotton-seed oil and cake is manufactured in considerable quantities in no small number of the counties lying in the main cotton-growing region. One of the largest oil mills in the state is in Dallas city, and others of great capacity are running at Waco, Houston, and Navasota.

At New Braunfels, Comal county, a very successful pioneer effort in the manufacture of woollen goods was made some years ago, its fabrics now comparing favorably, both as regards quality and finish, with the products of any woollen mill in the United States. It is to such efforts that Texas will eventually be indebted for the greater development of her manufacturing industries—the expansion of which can hardly be foretold. In San Saba county there is also a woollen mill in operation. Connected with the production of cloth is manufacture of men's clothing. In 1880 thirty establishments were engaged in this industry, giving employment to 103 males above the age of sixteen years, eleven females, and four children. The value of the products was $153,831.

The mason's craft is well supplied with material,

brick and tile being manufactured in considerable quantities in the counties of Harris, Dallas, McLennan, and Limestone. There is also a number of marble and stone works, Harris county taking the precedence in this industry.

In Limestone, Cherokee, and Wilson counties earthenware is manufactured, the pottery produced in Limestone being famous for its fine finish and durability. In Rusk county potter's clay of excellent quality exists in large quantities, and with enterprise and the outlay of capital this industry might be developed to a very great extent.

In Galveston and Dallas counties tobacco, cigars, and cigarettes are made in considerable quantities, but this industry is retarded through the want of more attention to the cultivation of the plant. The soil in many parts of Texas is admirably adapted to the growth of tobacco, but the production of the king staple, cotton, leaves little room for enterprise in this direction.

Mention must be made of the factories in the state penitentiary in Walker county. In that institution a large cotton factory is in operation, with convict labor. There are also planing-mills and furniture, carriage and wagon, and boot and shoe factories. In the eastern branch of the state penitentiary, located in Cherokee county, near Rusk, the county seat, the convicts are mainly occupied in developing the iron deposits found in that neighborhood.

In the statistical table of manufacturing industries in the forty-six states and territories, excluding the District of Columbia and Alaska, Texas is twenty-seventh, and the prominent counties are Galveston, Dallas, Harris, and Travis, which lead all others in their volume of production. As yet their manufactures are mainly imported, the supply of home-made goods being entirely inadequate to the demand.

CHAPTER XXVII.

MANUFACTURES—ARIZONA, NEW MEXICO, COLORADO, NEVADA, AND UTAH.

THE PUEBLOS AND THEIR INDUSTRIES—FLOUR AND SAW MILLS—LUMBER, BREADSTUFFS, AND MEAT-PACKING IN COLORADO—IRON AND SMELTING-WORKS—MINING AND INDUSTRIAL EXPOSITION—LUMBER AND FLOUR MILLS OF NEVADA—ICE AND FISH—IRON-WORKS—CHINESE—COÖPERATION IN UTAH—HER MANUFACTURES.

NEITHER in Arizona nor in New Mexico have manufactures been developed beyond the few ordinary works which naturally spring into existence with the founding of new settlements. The Pueblos have made but little advance in any branch of industry since the time when they were first visited by the Spaniards. The farming implements of the Zuñis and Moquis are still fashioned out of wood, and the present condition of their manufactures may be regarded as a fair example of what they have been from time immemorial. Baskets, pottery, blankets, cloths, and personal ornaments are the principal articles produced. They are extremely dexterous in weaving baskets of willow twigs, which are so closely platted as to be water tight. The twigs are dyed in yellow, dark red, blue, and black, and are often interwoven so as to form figures of birds, animals, and other designs. In the manufacture of their pottery they employ neither wheel, lathe, nor mould, each article being fashioned by the hand alone; yet great skill is displayed both in the designs and work. Most of their domestic utensils, such as vases, pots, dishes, plates, cups, spoons, and ladles, are of earthenware,

many of the vessels being shaped into the figures of quadrupeds, birds, fishes, and tortoises. Moreover, the surfaces are decorated with totemic representations and other figures. Children's toys of a household description are manufactured in pottery. Personal ornaments in silver are wrought by the Zuñis and Navajos with remarkable skill, the Moquis showing less dexterity in this direction. Finger-rings, ear-rings, and bangles are the principal articles of silver jewelry.

But the branches in which these Indians excel are in cotton and woollen fabrics. Their blankets and cloths are of rare quality, although woven with the simplest kind of looms and spinning instruments. Mantles are beautifully and elaborately decorated with embroidery in rich colors, commanding a high price, while others which were worked by the Moquis and Zuñis, and invested with sacred properties, cannot be purchased at any price. Mention must also be made of girdles, wide sashes, petticoats, and excellently knitted stockings. It is said that men also are expert in the latter art. The Pueblos of New Mexico along the Rio Grande are somewhat more advanced, owing to their greater intercourse with the white men.

With regard to the few manufacturing industries existing at the present time, the products of flour and saw mills exceed all others combined. In New Mexico there were in 1880 51 flour-mills and 26 saw-mills, whose output was valued at $529,179 and $173,930 respectively, while the aggregate products of all other industries only amounted to $581,750. Considering the abundance of cattle and sheep, and the existence of a native plant called the cañaigre, which would be serviceable for tanning, the manufacture of leather and woollen fabrics may possibly in time assume some importance, both in Arizona and New Mexico. In the former country the lumber business is yearly increasing, large quantities of pine being

shipped on the Atlantic and Pacific railroad to Los Angeles, California, and it is not improbable that the towns on the treeless plains of the southern portion of that state will look to northern Arizona for their timber.

In Colorado, a commonwealth counting little more than three decades of existence, it cannot be expected that manufactures should have attained great importance, the more so as its proximity to large eastern sources permits the introduction of goods at small expense. A number of productions, such as textiles, hardware, and finer grades of goods in general, have therefore little prospect of finding local competitors to supplant their importation. Cruder wares, and those for immediate and special demand, are, on the contrary, meeting with an ever-growing support from mines and expanding settlements. The general affluence encourages a number of industries, although, without neighborly liberality, they could not maintain themselves against outside rivalry.

The exploitation of mines and the rise of towns called into existence a proportionate number of sawmills, the first being erected by D. C. Oakes of Auraria, on Plum creek, twenty miles south of Denver, and which provided the first lumber for this town. The next two mills were built by Little and Whittemore. They find ample material in the forests, which cover about one-tenth the area of the state; and although the trees are not majestically tall and straight, as in the regions northward, but rather small, squat, and branching, and in limited variety, yet they serve for lumber and fuel as well as those of many other states. In connection with these mills are several sash and blind factories; furniture is also made to some extent, although the finer kind, as well as much of the cheaper, is imported. This applies also to wheels, staves, and other commodities requiring special kinds of wood, cheapness, and skill.

The quality of flour made at Denver is so excellent that a trial shipment to the east in 1874 created a steady demand. The quality is greatly due to the process discovered by L. A. Cole, from Watertown, Wisconsin, who began to manufacture at Denver in 1870. It was to separate the bran by spraying the wheat before sending it to the hopper, thus preventing crumbling. Wheat is brought even from Utah to be ground. Denver has a number of mills, including the Hungarian, Crescent, Davis, and White Rock. Golden has several, and Boulder is among the leading counties in the production of breadstuffs.

Meat-packing promises to acquire great importance with the continuance of stock-raising as the second industry in the state. The preparation of butter and cheese exhibits the participation therein of the farmers. Canneries are rising in different towns, as well as breweries, of which Denver has six, with cigar factories, and other purveyors to palate and comfort. Clothing is made by more than one large establishment, and likewise boots, particularly of heavier grade, the prison at Cañon City having one department in this branch. Harness and saddle factories do a flourishing business, as may be expected in a stock-raising region. At Golden is a mill for making printing and wrapping paper. Several book-binderies find ample employment.

The large deposits of iron disclosed in different counties, and the demand for special machinery and material for mines and buildings, has given rise to a number of iron-works in different parts of the state. At Denver alone the product of the iron and brass foundries exceeds $1,500,000 in value annually. The first iron-works in the territory were built in 1861 by Langford and company, who availed themselves of the bog-ore found sixteen miles northwest of the city. They soon removed to Black Hawk, to continue the manufacture of iron and machinery. One of the largest works in the United States, covering an area

of forty acres, is established at South Pueblo, the seat of the Colorado Coal and Iron company, which turns out steel as well as iron. After the opening of this establishment the Gunnison Steel and Iron company was formed by St Louis men at Gunnison City, which bought iron and coal lands in different parts of the state, and erected furnaces. It then found that the coal obtained was not coking coal, and as the available carbon of this class had been absorbed by the Colorado company, the other had to suspend operations.

Of smelting, stamping, and reduction works the census of 1880 enumerated 175, several of which at Denver in 1883 treated ore to the value of $14,000,000. At Golden are five such works, and at Pueblo Mather and Geist erected in 1878 a large establishment, which employs as many as five hundred men, for treating ores from all parts of the state. The car-shops of the railways at Denver pay out $700,000 in wages annually At Golden are three factories for fire-bricks, pressed bricks, and drain-pipe, and similar works exist at Denver and elsewhere, the prison at Cañon City having one brickyard Here is also a limekiln, with three others at Golden.

The total number of manufactories, according to the census of 1880, was six hundred, exclusive of smelting, reduction, and refining works. Their capital was placed at $4,300,000, and the product of the entire manufacturing industries at $35,000,000.

Since then the advance has been more rapid than ever, as demonstrated in 1882 at the first annual exhibit of the National Mining and Industrial exposition, established under the auspices of the chamber of commerce. The buildings covered seven acres in the midst of forty acres of ornamental grounds, the main structure being 500 feet long by 310 in width, with 100,000 square feet of space on the lower floor and 50,000 in the galleries. Eight towers flanked the entrance. The mineral collection contained speci

mens from every mine in the state, and from most camps in adjacent territories. The second department contained seventy-three kinds of machinery used in mining and agriculture. Here was on exhibition the apparatus of the Denver City Steam Heating company of 1879, for supplying steam to factories or dwellings for mechanical or heating purposes. The agricultural section was especially comprehensive. No inland city in the United States of the same age has been able to make a similar exhibit. It is an established institution, and combines the features of a manufacturing and agricultural fair with those of a scientific exposition.

In Nevada manufactures have been somewhat restricted through the rates established by the railways which control the outlet from the state and the transportation within it. Governor Adams pointed out in his message of 1885 that, while the Central Pacific proclaimed its average carrying rate to be 2.73 cents per mile for fares and 1.91 cents for freight, the fares in Nevada have been kept within a fraction of eight cents, and on domestic products within the state usually ten cents, and often double that amount. Thus when two men built a grist-mill at Reno and sought a market in the towns east of them, the railway charged them more to carry their flour to these places than was demanded from Sacramento millers, and so their enterprise was crippled. The company has discouraged local manufactures in order to sustain transportation ~~for longer~~ distances by which it profited. The few industries that now exist depend almost exclusively upon the mines, or upon special home requirements.

The foremost branch of manufacturing industry is lumbering, the woodland area of the state exceeding 1,500,000 acres. First on the elevations comes a belt of juniper and nut-pine; next above, the white pine

and balsam; then the Douglas spruce, with the Rocky mountain spruce in places. Occasional groups of cedar, cottonwood, willow, and mountain mahogany complete the list. I may add that groves of aspen occur at a height of 9,500 feet, the timber belt reaching to an altitude of nearly 11,000 feet in central Nevada.

The lumber industry centres in the rich timber region along Lake Tahoe and the Truckee river, in which Washoe, Ormsby, and Douglas counties participate. The circle of mines and towns contained within them and the adjoining districts present profitable markets, and access has been facilitated by the invention of the V-flume, whose marked superiority over the old and troublesome box-flume was first demonstrated by J. W. Haines of Genoa. It was introduced in connection with the first flume enterprise in the state in 1865, from Carson river in Alpine county to Empire City in Ormsby, thirty-two and a half miles. Haines took out a patent but it was not sustained by the courts.

Washoe county leads in the volume of manufactures, but the first mill at Lake Tahoe, on the Nevada side, was erected in Douglas county by A. W. Pray, who three years later substituted steam for water power. Others followed, and in 1873 Yerrington and Bliss opened one at Glenbrook, which is now the most prominent lumber point in the state. The slope thence was threaded with flumes and chutes, conveying the greater proportion of the 12,000,000 feet credited to the county annually from its six mills. Among the largest producers is the Pacific Wood, Lumber, and Flume company. Their flume, with a capacity of 500,000 feet daily, touches Evans and Hunter creeks, and extends for fifteen miles to Truckee meadows. The total length of flumes in the three counties above named exceeds eighty miles, which in 1879 carried 33,000,000 feet of lumber. The remote White Pine county has five mills.

Although the average felling of timber in the Tahoe-Truckee region reaches 40,000,000 feet a year, it is calculated that hardly one-tenth of the area has yet been touched, and with care the cleared localities may recuperate, to which end laws have been enacted. The size of the trees is inferior to those in California and Oregon, the average taken for milling being fifty feet in height and about thirteen inches in diameter.

Charcoal burning has been carried on to a considerable extent to supply the mines. It is mostly obtained from the nut-pine, which yields twenty-eight bushels to the cord. The price was thirty cents a bushel in Eureka until 1870, when superintendents combined to reduce it to twenty-seven cents. The Charcoal Burner's association forbade any delivery to the smelters and took forcible possession of Eureka city, with loud threats. The militia were called out, and while they were making arrests at Fish creek five coal-burners were killed. The price was nevertheless reduced soon afterward to twenty-two cents, and in 1884 fully 165,000 bushels were consumed.

Grist-mills are according to official returns even more numerous than sawmills, and ground in 1884 more than 21,000 barrels of flour, besides 7,000 bushels of corn and 22,000 of barley. The barley crop goes largely to the numerous breweries, which in the same years produced 246,000 gallons of beer. Pork-packing has been recently begun by H. C. Emmons at Humboldt sink. A cheese factory was opened in 1880, near Fort Churchill, by John Carling, though in 1875 some 22,000 pounds were packed.

Ice is in great demand on the Comstock, and was for a time brought from Lake Tahoe; but in 1877 the Virginia and Gold Hill Water company began artificial freezing. Electric light companies are multiplying.

Fish is not represented in large variety in Nevada; yet there are streams and lakes enough to receive them. In 1879 the fish commissioners resolved upon

an experiment, and placed 500,000 young trout and 75,000 salmon in Truckee river. In following years more were added, and 100,000 whitefish were distributed among the streams and lakes and ponds, together with catfish and salmon. Within less than two years 70,000 pounds of trout were taken from Lake Tahoe. A hatchery was thereupon established, with spawn from Maine and Vermont. Not long afterward canneries were founded at Wadsworth, which reported trout thirty pounds in weight. In Carson lake are chub and mullet.

Although the finest machinery for the mines comes from San Francisco, there is a large demand for material from nearer sources for immediate requirement. Two iron-works were accordingly founded in 1862, the first being the Nevada foundry, at Johntown, by Mead, McCone, and Tascar, who two years later moved to Silver city, occupying a stone building that cost $125,000, and employing four or five score of hands. The works were burned in 1872, when McCone purchased the entire interests and moved to Virginia city, absorbing there the Fulton foundry, erected in 1863 by T. R. Jones. At this establishment was cast in 1880 the fly-wheel centre for the Yellow Jacket hoisting works, which weighs 44,500 pounds, the largest casting on the coast. Within the same walls had been made the first engine and pump in the state, for the Bullion company. The Pioneer foundry at Gold Hill, opened in 1862 by Oliver Hyde, produced the first cannon in the state in 1864. The first iron foundry of eastern Nevada was erected at Bullionville in 1873 by the railway company. In 1876 John Kewes started a brass foundry at Virginia city, which suspended the following year.

In Utah, notwithstanding her scant supply of timber and her limited water-power, manufactures have been largely developed, in common with other branches of industry, through the enterprise and thrift of her people, aided by a far-reaching system of coöperation.

The value of intelligent coöperation, or of communism within reasonable limits, has been signally illustrated by the Mormons. Together with the payment of tithes, it was enjoined as for the common good, and as one of the duties of their fellowship. The earnestness associated with conversion was kindred to the energy which prompted to building and planting. The zeal and personal application of the leaders gave an elevating impulse, and joint labor promoted emulation. Thus the community prospered, despite persecution and expulsion. The tithe system encouraged the further subscription of funds for enterprises on a large scale, in factories and banks, as essayed at an early epoch under the direction of the prophet, Joseph Smith, and subsequently with remarkable success under the practical guidance of Brigham Young.

Coöperation is applied chiefly to beginners, to aid in bringing immigrants, and then to assist the farmer in tilling the land granted him, and in building his home, or the artisan in opening his shop and erecting a dwelling. These advances were repaid usually in voluntary instalments, and the individual stood free to develop his fortune. Premiums, and even capital, were advanced by the authorities to foster larger undertakings and encourage subscriptions for them. Thus the joint-stock Nauvoo Agricultural and Manufacturing association was revived in Utah. By the spring of 1848 a number of saw and grist mills had been started, and printing-presses, paper, and carding-machines were on the way. Brigham Young worked as a carpenter in his own mills.

As immigrants arrived, sites were selected in different quarters possessing resources sufficient for the support of communities, to each of which was assigned by voluntary enlistment the number necessary for forming a settlement. If the party did not own the required outfit in livestock, provisions, and implements, the elder in charge of it arranged to obtain what was lacking. Artisans constituting a large

number among the converts, care was taken to apportion them to each colony, usually at the rate of five carpenters and joiners to one surveyor, one millwright, and two blacksmiths, not forgetting masons, shoemakers, and so forth. Woven fabrics, pottery, and even cutlery were produced at lower prices than inferior goods from the east. The effort was to make the territory independent, but this was not altogether possible, from want of skill and natural resources. Hence a respectable traffic was maintained with California and the eastern states.

Agriculture, as the leading industry, gave preëminence to grist and flour mills, and to the manufacture of agricultural implements; but the iron industry now bids fair to attain an equal rank, and will have a marked influence on the future of the territory. The production of the foundries and machine-shops was in 1883 estimated at $360,000. In the same year were produced many thousands of tons of pig-iron and steel rails. With suitable fuel probably no state west of the Missouri could surpass the facilities of Utah in this direction, with her great variety of rich and pure ores, labor and supplies at moderate rates, a climate that seldom interferes with outdoor work, a central location, a network of railways, and rapidly increasing markets, extending to surrounding mining states, with heavy freight rates to restrict distant competition. Unfortunately the production of coking coal has not come up to expectations, for the vast coal-beds so far discovered are of too recent formation. The iron deposits, equally extensive, are of superior quality. Iron county, as its name implies, takes the lead in this industry at Parowan, Cedar city, and other places. As early as 1851 a cutlery establishment was completed, and the first large nail factory in 1859.

The valleys and plains are destitute of forests, and in early days buildings were largely made of adobe, but the mountains contain a fair supply. In 1883 several acres of sawmills were in operation, selling

lumber at from $20 to $25 per thousand feet. Hard and finishing woods are lacking, so that wagon and furniture factories import most of their material. Tanneries must likewise import their bark or its extracts, for there is none in Utah that is available, save that of the pine, which is used only to a limited extent. Nevertheless twenty-five tanneries produced in 1883 $250,000 worth of leather. The export of hides and pelts nearly equals the demands for imported finished leather.

Utah introduced carding-machines in 1849, and claims the earliest production of cloth on the coast, by Mr Gaunt. The Provo Manufacturing company had for years the largest woollen mills west of the Missouri, built in 1872 on the coöperative plan. In 1882 there were ten mills, one of which, the Rio Virgen, produced, also, cotton fabrics; yet only one-fourth of the total wool-clip was used, supplying one-eighth of the demand for textiles, the rest being imported.

The manufacturing interests increased from 14 establishments in 1850, with 51 hands and $291,000 in products, to 48 establishments in 1860, with 389 hands, $443,000 in capital and $900,000 in products. In 1870 there were 533 factories and workshops, with 1,500 hands, $1,590,000 capital and $2,250,000 products; in 1880 over 1,000 factories, with 3,200 hands, $2,840,000 capital and $4,200,000 products, with subsequent large increase, including fully 75 grist and flour mills, 50 lumber-mills, 20 shoe factories, 7 foundries and machine-shops, and several breweries and other establishments. A large pottery was completed in 1851. The facilities offered by the railways for the introduction of cheaper and more finished goods from the east, and even from California, are a check on industrial development, as is the lack or deficiency of some descriptions of raw material. Nevertheless the Mormons are maintaining many factories at a sacrifice, and the profits of others are far below the average for the coast.

CHAPTER XXVIII.

MANUFACTURES—IDAHO, MONTANA, WYOMING, OREGON, AND WASHINGTON.

THE FIRST SAW-MILLS OF IDAHO—BOISÉ CITY AND LEWISTON MILLS—STATISTICS—RESOURCES AND MANUFACTURES OF MONTANA—WYOMING MANUFACTURES—CHEYENNE—OREGON GRIST AND WOOLLEN MILLS—LUMBER AND FURNITURE—SHIP-BUILDING—SALMON—DEVELOPMENT—EARLY MANUFACTURES OF WASHINGTON—TIMBER—SAW-MILLS—SHIP-BUILDING—FLOUR—LIME—WOOL—SMELTING—FISHERIES.

IN Idaho, during the first gold excitement, the miners were supplied with nearly every necessity by the merchants, who brought into their camps stores of provisions and useful articles, even to field tents, which supplied the place of log-cabins to some gold-diggers. When towns began to be built, the demand for lumber called for was-mills, the first one being erected on Grimes creek, where timber was abundant and water-power plentiful, by B. L. Warriner during the winter of 1862. In the same winter one was opened in Boisé basin near Pioneerville, by B. L. Warriner, a practical sawyer and machinist. Early in the following spring Daily and Robbins established a third near Centreville, and in June 1863 a fourth was in operation at Idaho city.

In 1883 Boisé city with its neighborhood was the principal manufacturing centre, with five grist-mills producing a superior article of flour, and a lumber-mill with a capacity of 1,000,000 feet a year, the property of Mr Goodwin, in connection with which was a furniture factory. On Shaffer creek, in a cañon some twenty miles distant, there was also a steam saw-mill, owned by Mr Rossi, capable of producing

1,500,000 feet a year. All of its products, which include pickets, laths, fencing, and rough lumber of all grades, found a ready market within the limits of Aida county. At Lewiston, the metropolis of northern Idaho, about 2,000,000 were cut at the establishment of John P. Volmer and company, the demand for their products being greater than could be supplied. At a single drive 1,800,000 feet of logs, containing some of the finest timber in the territory, were brought down to this mill from the middle fork of the Clearwater.

Within recent years the lumber industry has been largely developed, as was to be expected in a country whose mountain slopes and gulches, apart from the lava region, are covered with forests of pine and fir, extending over 7,000,000 acres. In 1880 there were 48 sawmills in operation, giving employment for a portion of the year to 169 men, and with a total output valued at $349,635.

In the same year the aggregate value of all manufactures was $1,271,317, with 162 factories and workshops, employing 374 hands, distributing $136,326 in wages and $844,874 for material. Nearly one-half of the total was represented by the products of flouring and grist mills, of which there were 16, with an output estimated at $520,986. Apart from lumber, all other manufacturing industries produced only $400,696 worth of goods, which included only a few articles of home requirement. Ada county took the lead in this direction, with $511,790 worth of fabrics, and next came Oneida and Nez Percé, with $232,370 and $129,411 respectively. In common with other states on the Pacific coast, the bulk of her wool and hides, with other raw products, is shipped to the eastern states, while millions are expended yearly on the finished goods for which they form the materials.

Montana is also still mainly dependent upon others for her supplies of manufactured goods; yet she pos-

sesses immense resources to meet the demands of future development in that direction. Her wool and hides, her abundance of iron, copper, coal, and marble, and especially her forests, are sufficiently suggestive of her riches in this direction. In the northwestern portion of the state her narrower valleys and also her mountains from summit to base are covered with timber, which here as elsewhere in the Cordilleran region follows the rainfall, the most valuable species being the pine, fir, and cedar. At present, however, her manufactures are in their infancy, and confined to the more immediate demands for home consumption. In 1880 there were 18 grist-mills in the country, which turned out 588,000 pounds of flour; 57 sawmills, cutting 20,950,000 feet of lumber; 3 foundries; 42 carpenter-shops, and 16 saddlers' shops. At Helena excellent stage-coaches and farm-wagons are made.

Other manufacturing establishments are tanneries, lime-works, furniture shops, planing-mills, gas-works, and woollen mills, besides the smaller workshops which are found in all settled communities. The first flour made for market in eastern Montana was in 1866, at Gallatin mills, by Cover and McAdow of Bozeman; and the pioneer woollen mill was completed in Jefferson county in 1878, though the construction of one at Virginia City was begun in the previous year.

The manufactures of Wyoming are limited to a few indispensable productions which find encouragement in the tariff imposed by high railway rates. Drawbacks exist not alone in the paucity of population, and in the absorbing interests of stock-raising, but in the dearness of and difficulty of access to raw material as compared with older and richer states. Hence even lumber has been largely introduced from Colorado, although forests cover the mountains, especially in the west. There is evidence, indeed, that many districts now covered with timber were bare in times not far remote. The influx of miners to the sources

of the Sweetwater in 1867 brought that usual adjunct of town-building, the sawmill, one for South Pass City and another for Atlantic City. The first mill in the Black hill district did not rise till 1876, and in Johnson county not until half a dozen years later. The first Wyoming timber for Cheyenne was carried from Soda lake by P. Hurd, a large contractor and stock-raiser. The dependence on road traffic sustains wagon-making to some extent, the largest factory of the kind being the Cheyenne Carriage company, into which was merged the pioneer shop of N. Robertson, who had also opened the first carriage establishment at Denver.

Cheyenne as the capital and the earliest and largest town, contains the most of the manufactures of the state, though the chief occupations here are connected with the railway shops. Here are foundry and machine works, a planing-mill, some small shoe factories, two of the half dozen breweries in the territory, wagon and harness shops, and the like. Supplementary to the railway shops are rolling-mills at Laramie, close to which exist iron mines, rich though hard to work. Specimen rails were sent to the Denver exhibition in 1882.

As in the case of trade and agriculture, manufacturing was first started in Oregon by the Hudson's Bay company.

After the arrival of the missionaries, grist and saw mills were constructed. Of the former the first one in the Willamette valley was built by John Hauxhurst, a native of Long island, who accompanied Kelley on his visit to Oregon in 1834. By 1848 there were nine grist-mills in the country and fifteen saw-mills. Bricks were being manufactured; Daniel H. Lownsdale had a tannery west of Portland townsite, and on the east bank of the Willamette James Stevens had a cooper's shop. In the summer of 1848 Wallace and Wilson of Oregon City constructed two thrashing-

machines with endless chains, which were much sought after, and superseded the primitive method of treading out the corn with oxen or horses. These were the beginnings of the manufacturing industries of Oregon.

In 1854 the first step was taken toward the establishment of woollen factories, E. L. Perham and company erecting a carding-machine at Albany. Early in the following year Barber and Thorpe of Polk county had machinery in operation for spinning, weaving, dyeing, and dressing woollen cloths, and in 1856 a company was organized at Salem to erect a woollen mill, Joseph Watt being the prime mover in the enterprise. This factory was burned to the ground in May 1876, but its success had been a great incentive to similar enterprises, as well as the production of wool. The Oregon City woollen-mill was projected in 1862, and the incorporation papers were filed on the last day of that year in the office of the state secretary, although the building was not erected until 1864–5. In the year 1868 their establishment was also destroyed by fire, but rebuilt during the following year. The enterprise was successful from the start, the annual consumption of wool being not much short of 1,000,000 pounds. Among other woollen-mills in Oregon may be mentioned that at Brownsville established in 1875. The products of Oregon factories are only excelled in amount, though not in quality, by those of California, fabrics to the value of $840,000 being manufactured at the different mills.

The earliest manufactured product of Oregon was lumber, which is one of the grand staples of the country. In 1885 there were over 228 sawmills turning out annually more than $2,000,000 worth of lumber. The principal mills are those on the Columbia, at Coos bay and Port Orford, and on the Coquille river. In 1880–1 the production of lumber amounted to 150,000,000 feet.

Connected with the lumber business is the manufacture of furniture, the forests supplying excellent woods, susceptible of the finest polish, especially the maple and myrtle. As early as 1862 furniture was exported to San Francisco, since which time its production presently reached the annual value of $750,000. In 1875 the Oregon Manufacturing company of Portland began to make first-class fashionable furniture, a building being erected by J. A. Strobridge at a cost of $75,000 for the company's use. Smaller factories are scattered throughout the state, and others for the making of barrels, packing-boxes, and buckets.

Ship-building is carried on to a considerable extent, the principal shipyards being at Coos bay. The oldest yard on the bay is at North Bend, where the brig *Arago* was built in 1856 by A. M. and R. W. Simpson, and in 1874 the *Western Shore*, then one of the largest vessels ever constructed on the Pacific coast. She was of 2,000 tons burden, was designed by A. M. Simpson, and built by John Kruse, her rigging and canvas being designed by R. W. Simpson. This beautiful vessel, which cost $86,000, beat the favorite San Francisco ship *Three Brothers* by eight days in a voyage from San Francisco to Liverpool, and the *British King*, a fast sailer, by fourteen days. Other yards on the bay were those of E. B. Dean and company at Marshfield, and of H. H. Luse at Empire city. Some little ship-building was also in progress on the Umpqua river and on Tillamook bay.

Flouring and grist mills are now very numerous in Oregon, the most famous of which are the Standard mills at Milwaukee, completed in 1860, the Oregon City mills, the Salem Flouring mills, owned by a company organized in 1870, with A. Bush, the former editor of the *Oregon Statesman*, as president, and the Jefferson City mills, owned by Corbitt and Macleay of Portland. The Salem mills manufacture from 15,000 to 16,000 barrels monthly, and the Jefferson mills 10,000 barrels.

Salmon, by the process of canning, comes under the head of manufactured goods, and this industry has assumed large dimensions in Oregon. The exportation of canned salmon commenced in 1871, when 30,000 cases were exported. In 1875 330,000 cases were sold abroad, realizing $1,650,000, and in 1881 the production was 550,000 cases, worth $2,750,000.

The above industries embrace the principal manufactures, inasmuch as they constitute most of the main sinews of commerce. Within the last decade the increase in Oregon manufactures has been remarkable, probably exceeding in ratio those of any state or territory in the union. From about $2,600,000 in 1880, the output of Multnomah county alone increased to $30,000,000 in 1890; the number of operatives from 1,700 to 9,000; the amount of wages from $600,000 to $4,650,000, and the invested capital from $1,500,000 to $16,000,000.

The first attempt at home manufacture in Washington, after the efforts of the fur company, was made by the pioneer Simmons, who, in 1846, erected a small flour-mill at the falls of Des Chutes river, using a set of stones hewn out of some granite blocks which he found on the beach. Late in the following year a saw-mill was constructed at Tumwater by Simmons, B. F. Shaw, E. Sylvester, Jesse Ferguson, A. B. Rabbeson, Gabriel Jones, A. D. Carnefix, and John R. Kindred, who in October 1847 formed themselves into the Puget Sound Milling company, Simmons being elected superintendent. The industry of shingle-making was also started, as well as that of brick-making, Samuel Handcock and A. B. Rabbeson having erected a kiln in July 1847 on the farm of Simon Plomondeau on the Cowlitz. The lumber found a market among the settlers, while shingles were received as currency at Fort Nisqually in exchange for clothing and other goods.

Besides a variety of articles manufactured to meet the demands of home consumption, the production of lumber, lime, barrels, staves, wooden piping, canned

fish, and flour is now extensively carried on for exportation. Foremost of these is the lumbering business, which supplies Washington with her chief article of commerce. The immense forests which skirt the shores of Puget sound for over 1,100 miles furnish an almost inexhaustible supply of excellent timber for the construction of houses and sea-going vessels. In that densely wooded region the red fir supplies an abundance of strong, durable boards and planks for house and ship building, the tide-land spruce furnishes tough knees for ship-builders and the yellow fir masts and spars inferior to none produced in any part of the world. Oak, arbutus, maple, and myrtle are other trees from which are obtained fine-grained woods of the best quality for interior finishing. The fir is exceptional in size, straightness, durability, and freedom from knots and flaws. Closely packed together, like canes in a brake, and branchless to a great height, the trees frequently reach three hundred feet, with a diameter of no more than four feet at three yards above the surface of the ground. Nor is it unusual to find perfectly straight and sound spar timbers 150 feet long, with a diameter of only eighteen inches.

The yellow fir has been submitted to numerous tests, and it has been found that, while possessing all the qualities of the best Riga spars, its fibre is more flexible and tenacious, admitting of the trunk being bent backward and forward, and twisted several times in contrary directions without breaking. Thomas Cranney was the first to make the production of spars a business, commencing about 1855, since which date it has been a regular industry. In 1858 a company of Irish Canadians took out masts on the island of Caamaño for shipment to Europe. Since that time masts and spars have been regularly shipped to the English, French, and Spanish navy-yards, having been found equal to the best after being submitted to most rigid tests. Other markets are Holland, Mauritius, China, and the Atlantic ports of the United States.

Lumber was in early demand owing to the necessities of California. The second sawmill established was that of James McAllister, erected in 1851. It was a small affair, driven by water-power, turning out from 500 to 1,000 feet a day. In the winter of 1852–3, however, Yesler put up a steam sawmill at Seattle, which produced from 10,000 to 15,000 feet per day. About this time, as the business was rapidly increasing, mills were erected at different points on both sides of the bay, one at Port Gamble, which was started in 1852 by Josiah P. Keller, W. C. Talbot, and Andrew J. Pope, having a capacity in 1879 of 36,000,000 feet annually. But the most complete establishment of the kind is that owned by the Meigs Lumbering and Ship-building company, which, after experiencing a series of disasters, has now become one of the first, if not the first, in Washington. It was initiated by Edmund Martin, J. J. Phelps, and Ware in 1852, those associates building a steam mill at Appletree cove, on the west side of Admiralty inlet. Martin afterward became a wholesale liquor-dealer in San Francisco, and cashier of the Hibernia bank. He died about 1880. In 1853 the mill was sold to G. A. Meigs, a native of Vermont, who removed it to Port Madison. In December 1854 it was destroyed by fire, but rebuilt, and in 1861 the boilers of the new mill burst, killing six men. Work being resumed, it was running until May 1864, when the establishment was again burnt to the ground, and again rebuilt. The name of the firm in 1872 was Meigs and Gawley, but in 1877 Meigs cleared the establishment from the embarrassments caused by losses, and associated himself with others, who formed the Meigs Lumber and Ship-building company. The capacity of the mill in 1880 was 200,000 feet in 12 hours, and logs 132 feet long could be cut into lumber. About 300 people were employed at that time, and a model village, with public hall, library, hotel, and store, arose near the establishment. Meigs' perseverance and able man-

agement of the concern are worthy of considerable praise.

Another large lumbering establishment is the one erected by Renton and Howard at Port Blakeley, opposite Seattle, and which went into operation in 1864, with a capacity of 50,000 feet per day. It cut on an average 19,000,000 feet of lumber annually down to 1880, when its capacity was raised to 300,000 feet a day. Howard died in 1863, before the completion of the mill, and the firm was incorporated under the title of Renton, Holmes, and company, but was reincorporated in 1876, as the Port Blakeley Mill company, with a capital of $600,000. Other important enterprises are those of S. L. Mastick and company of San Francisco, with mill at Port Discovery, and a capacity since 1870 of about 24,000,000 feet annually; the Washington Mill company, establishment at Seabeck on Hood canal, with a capacity of 11,000,000 feet per annum; and the firm of Hanson, Ackerman and company, mill at Tacoma, cutting over 80,000 feet of lumber per day. The total producing capacity of all the lumbering mills in 1883 is given as 1,306,000 feet daily or over 300,000,000 feet annually. In 1880 the shipments amounted to about 192,000,000 feet.

Next to the lumbering business and in connection with it, is ship-building, several of the larger firms being engaged in both industries. The first vessel built on Puget sound was the schooner *H. C. Page*, at Whatcom, by Peabody and Roder, in 1853. In the same year the clipper sloop *Rob Roy* was built five miles below Steilacoom by Bolton and Wilson. In 1854 H. D. Morgan established a shipyard at Olympia, and launched the schooner *Emily Parker*, while at Shoalwater bay the schooner *Elsie* was built, during the same year, by Captain Hillyer. These vessels were all of small size, the *Emily Parker* being only forty tons, and the *Elsie* twenty tons burden. With

these initiatory experiments the industry was developed, till finally vessels of over 1,000 tons burden have been launched on the Sound. The first steamer constructed was the little *Water Lily*, launched in 1855, and owned by William Webster. On May 12, 1860, the first ocean steamer, the *George S. Wright*, was completed at Port Ludlow. She was the property of John T. Wright, junior, and plied for some years between Portland and Victoria, and then between Portland and Sitka. In January 1873 she was wrecked at the entrance of Queen Charlotte sound, as was conjectured, and all on board perished, either by drowning or at the hands of Indians. No reliable account of this disaster was ever received.

Shipyards soon became numerous, the pioneer ones being those of William Hammond and E. S. Cheasty at Port Ludlow, Grennan and Cranney at Snohomish, Meigs and company at Port Madison, H. Williamson at Steilacoom, Oliver Engleblom at Port Blakeley, and Hammond at Seattle. All these establishments were started before 1870. At Port Madison, in 1871, a thousand-ton ship, the *Wildwood*, was built, and after being employed for four years in the lumber trade was sold for one-third more than her original cost. During the next decade numerous vessels of all classes, including steamers, were built, and mention must be made of the bark *Cassandra Adams*, 1127 tons burden, launched in 1887 by the Seabeck Mill company. In the ten years succeeding 1872, from ten to twenty vessels were built annually. Were it not for the difficulty of securing shipwrights and mechanics in sufficient numbers, this industry might be developed to a very much greater extent.

The manufacture of flour is an important industry in Washington. From reliable accounts it appears that the first flouring-mill in the territory was erected by the Hudson's Bay company at Vancouver in 1830, a simple affair, consisting of a set of millstones run by ox-power. Two years later water-power was

used, a mill being erected seven miles above Vancouver on Mill creek. Whitman next built a mill at Waiilatpu, which was in operation in 1840. As already mentioned, the first mill started by the American settlers was that of Simmons in 1846. This crude piece of mechanism merely pulverized the wheat without bolting the flour. In 1851–2, however, a good grist-mill was erected by Drew at Cowlitz landing, and a larger one, about the same time, on the Chehalis by Armstrong. Finally, in 1854, Ward and Hays built a complete flouring-mill at Tumwater. As late as 1860 there were only six mills in the territory, which number had increased to twenty-three by 1873, most of them being situated in Walla Walla county. In 1880 there were sixteen grist-mills east of the Cascades.

Lime, which is largely exported to California and Oregon, owing to its almost entire absence in the greater portion of these states, was first made in 1860 by Augustus Hibbard on San Juan island. Hibbard was killed in June 1868 by his partner, N. C. Bailey, in a quarrel about an Indian woman, and in 1874 James McCurdy, who held a mortgage on the works, came into possession. The average annual sales prior to 1879 were from 1,200 to 1,500 barrels, though the capacity of the kilns was 24,400 barrels. In 1879 new lime-works were opened on the north end of the island by Ross and Scurr, and a third kiln on the east side by McLaughlin and Lee. The lime-works on San Juan island are the largest north of California, and of the greatest value to the country. Similar works were opened on Orcas island, and in the Puyallup valley, near Adlerton station on the Northern Pacific railroad. The production of lime in 1880 was 65,000 barrels, worth nearly $85,000.

Several attempts were made between 1860 and 1870 to establish woollen-mills, but without success. Alfred Ridgely Elder was the first one to engage in this industry on a large scale, erecting at Steilacoom

a factory four stories high with a capacity for carding 250 pounds of wool a day, and with three spinning-jacks of 240 spindles each and four looms. The cost was $33,000, but the mill was sold at auction for $16,050, in June 1871, when it stopped running. Elder was a Kentuckian, born in 1806. In 1849 he settled in Yamhill county, Oregon, and in 1862 was appointed Indian agent at the Puyallup reservation, being subsequently elected probate judge for Thurston county. He died at Olympia in February 1882. A successful company was organized at Dayton, Columbia county, in 1872, S. M. Wait being president. The capital stock was $40,000, and in 1878 over $30,000 was paid out for materials.

As in Oregon, the development of the manufactures of Washington has, within recent years, been phenomenal, and especially at Tacoma with its immense saw-mills and flour-mills, its furniture factories, its foundries, and machine-shops, all the creations of a decade of years.

In 1880 the Puget Sound Iron company erected a furnace for smelting iron near Port Townsend, and commenced operations in January 1881. The ore-beds are at Chinacum and on Texada island, and the ore, delivered at the furnace, costs about two dollars a ton. As the experiment has proved successful the works have been enlarged.

Distinct from manufactures and yet contributing to the requirements of a special industry of that nature, are the fisheries. From Shoalwater bay all along the coast, into the innermost recesses of Puget sound there is a great variety and abundance of fish, affording sources of employment in pickling, drying, and canning. While some attention is given to whale and seal hunting, more enterprise is displayed in utilizing the cod, salmon, herring, and other fisheries. On the coast several species of codfish are found in plentiful supply and of excellent quality. The climate of Washington offers exceptional advantages for drying this article of commerce.

CHAPTER XXIX.

LIFE OF WILLIAM RENTON.

HIS PARENTAGE AND EARLY SURROUNDINGS—A WORTHY FATHER AND A MOTHER OF GREAT CHARACTER—THE SCHOOL OF LABOR—SEA-FARING—SHIP'S OFFICER AT EIGHTEEN—PIONEER AND BUILDER OF THE NORTH PACIFIC COAST—LUMBER-MILLING ON PUGET SOUND—POWER AND USEFULNESS—SARAH MARTHA RENTON, HIS WIFE—HER CHARACTERISTICS AT HOME AND IN AFFAIRS—A WOMAN OF BUSINESS—THEY BUILDED TOGETHER—THE LESSONS DEDUCTED FROM TWO LIVES WHICH WERE AS ONE.

In the early fifties the demand for large quantities of lumber in California gave the first impetus to manufacturing on Puget sound. It is mainly due to this well-known fact in the industrial history of the Pacific coast that it is my privilege to inquire into the life and work of William Renton, who, in his factorship, as a builder has, by dint of hard labor, strict attention to business, intelligent and ceaseless study, become a very conspicuous figure in his department of industry in the Pacific northwest, or, as may be said without exaggeration, in the world. A history of his life will be a demonstration of this fact. A careful analysis of the experience and character of such a man cannot fail to be of interest if studied either with reference to the importance of the things that he has accomplished, or, more particularly, if with reference to his individuality as manifested therein. Beginning the battle of life for himself, at an age when most boys are still in the nursery, step by step, unaided, he wrought out his own fortune by individual effort and force of character.

In the spring of 1853 Captain William Renton came to Puget sound by the way of the Columbia river, steamer *Columbia*, on a tour of inspection in search of a site on which to erect a lumber mill. It was on this occasion (although the captain had been to the Sound in the latter part of the preceding year, taking back to San Francisco a load of piles and timber) that he was first met by another pioneer of Washington who also has risen to distinction in his department of business. Said the latter in regard to the former, between whom an acquaintance began which later matured into mutual appreciation and permanent friendship; "Captain Renton impressed me favorably at once. He possessed a noble carriage, was dignified, straightforward, simple, and uneffected in manner and speech. He was a picture of manly strength, commanding respect by his very presence. Stalwart, of splendid health, his muscles hardened by the exposure and toil of a sea-faring life, standing say 5 feet 10 inches tall, and weighing perhaps 190 pounds, he was not a man to be trifled with. You could see that, if the emergency required it, he would not hesitate to clear the deck, and that it would not take him long to do it. He struck me as being a man to be depended upon; a man that it would do to tie to in times of difficulty or danger; one whose friendship would be valuable. His character was written on his face, which was a picture of sturdy integrity and honest purpose. I have known him now for nearly thirty-eight years; I have had no reason to modify my first impressions in regard to him. On the contrary, they have been strengthened and confirmed by an intimate acquaintance during these years. I regard him as among the chief men who have contributed by their intelligence and labor to the foundation of the remarkable prosperity now enjoyed by this portion of the coast." The opinion thus quoted is not exceptional; it expresses substantially the estimate of Captain Renton by all those who knew

enough of his character and career to judge of them intelligently.

But where did this man of power come from; where had his earlier days been passed; in what school of discipline had he been prepared for a new and wider sphere of labor? Let us endeavor to determine the nature of this force, this individuality; to comprehend the child who is the father of the man. William Renton was born November 2, 1818 at Pictou, Nova Scotia, a small place, in which fishing, coal-mining, and lumbering were the principal industries. The climate was severe; opportunities for fortune making were rare and the rule of life was work. The conditions were such as are best calculated to make men and women strong of body and self-reliant in spirit. His father, Adam Renton, a native of Shields, England, was a ship-master sailing mostly in the West India trade, and was absent from home the greater part of the time. His son saw but little of him and when he died was still a child. He was a tall, raw-boned man, a typical skipper, a first-rate seaman, to which class of men, more perhaps than to all others, England owes her national strength. He was a man of quiet disposition, attentive to duty, watchful and proud of his vocation and his ship. He possessed a strong will and good morals, never drank intoxicating liquors or dissipated in any other way; hence he was always clear-headed and reliable in the performance of his duties as master. He filled his alloted place in life well and faithfully, and was respected by all who knew him. William's extraordinary success in life was largely due to the practice of those virtues which have been noted in his father. As is often the case, however, he resembled his mother in a very striking manner, much more than his father. in personal appearance, disposition, and mental habit.

While Adam Renton was a man of much more than ordinary worth, his wife, Margaret Renton, was a

woman of very remarkable character. The entire care of the family devolved upon the mother. She possessed in an eminent degree the quality of goodness, which is not only an ornament, but is also the greatest element of strength in womanhood. She was kind, charitable, and patient. Her life was a lesson to her children. To a large extent, her capabilities were latent, hence manifested rather in the power of her presence and the control which she exercised without apparent effort. There is a subtle power in great natures that is felt at once, but can never be satisfactorily described. Living under her influence until he was ten years of age, that is, during the most impressionable period of his life, it is only natural that the boy's character should be formed upon the model of his mother's. She was positive in her discipline, but never rigid or sour. His first and most important school was his home. It is singular that this fact is so often overlooked in the character study of distinguished men. It is incredible that the influence of a strong and serious mother can ever be entirely destroyed in the mind of her child; while the effect of a mother's frivolous or vicious example only too often bears fruit in the waywardness and depravity of her children. In bitterness of spirit, Byron exclaimed:

> "Untaught in youth, my heart to tame,
> My springs of life were poisoned."

In his eleventh year, William Renton began a seafaring life at the bottom of the ladder, going on coast vessels and doing such work as a stout willing boy of his age could do. His schooling which was then over had been irregular. Altogether he had not attended school two years. There were no public schools in Pictou at that time, and tuition was expensive and uncertain. He made the best of his small opportunities, however, and having a natural aptitude for mathematics he got on very well in this branch, continuing the study later and applying it practically to navi-

gation. Going to sea during the summer, he worked at home during the winter, making himself useful in any way he could. This second period in his education was of the first importance. At sea he learned the lesson of obedience, out of which comes the ability to command. Besides, he never knew enough of idleness to realize what a curse it is, except as he saw it in its effect upon others. It has been wisely said that work is the best educator. "Schools, academies, and colleges give but the merest beginnings of culture in comparison with it." Daily experience shows that actual labor in our homes, in workshops, counting-houses, or on ship-board produces the most powerful effect, and really constitutes practical education.

Having serve as cabin boy, general helper, and cook, he was accepted as an able-bodied seaman, and when only eighteen years old he became an officer of the ship *Harriet Rockwell* of Portsmouth, New Hampshire. From that time he served altogether in American vessels, mostly in the trade between England and the United States. At the age of twenty-three he became master of a Philadelphia vessel engaged in Mediterranean traffic. During his seafaring experience he saw a great deal of the world, before he threw out his anchor for life on Puget sound. That he never suffered shipwreck or met with disaster may be due somewhat to good fortune, still such fortune as this is much more frequently commanded than merely met with. It is much oftener the result of prudence, and skill than of chance or luck, and I have no doubt that this was the case in this instance.

During the summer of 1850, when the cholera was raging in the city of New York, Captain Renton sailed in the brig *Mary and Jane*, with a load of lumber from Bangor, Maine, bound for Madeira, expecting to bring back a cargo of fruit from Malaga. The quarantine was so strict in the Mediterranean that he decided not to go there. He therefore went to the Cape de

Verde islands and loaded up with salt; thence to Rio Janeiro; finding no market there he went to Buenos Ayres, and thence to Valparaiso, Chili. He found that lumber was scarcely worth anything there; that it would not stand the expense of storage, so that for his share of the cargo he got nothing. For the salt, however, he obtained a good price. Loading his vessel with an assorted cargo of groceries and provisions, he sailed thence to San Francisco. He arrived there on the 15th day of August 1850. The cargo sold at high figures. Captain Renton had been frugal and had husbanded his means, but the compensation for the work in which he was engaged at that time was not large enough to bring him anything like a fortune. Still, upon his advent into California, he had what was called, in the language of the times, a "stake" He sold his vessel and bought another and larger one, and was aboard of her until business got slack, when he gave her up, in August 1852. It is a noteworthy incident in this connection that he did not use this larger vessel for sea-going purposes, but that, taking out her spars, he converted her into a storeship. Before the demand for lumber for building purposes could be supplied at San Francisco, and also at Sacramento, the cost of storage was one of the greatest expenses to the merchant at those places; so much so that a considerable number of vessels were taken from the sea, and, as in the instance just cited, transformed into storehouses.

As heretofore mentioned, Captain Renton, in the fall of 1852, went up to Puget sound. It was on this trip that he got his information with regard to the Sound country as a great timbering region: he was already familiar with the need of building material in California. When he returned to San Francisco he made up his mind to take that step which in his judgment was wise: but he, like all others, could not at so early a day fully appreciate the resources or form any conception of the immense development

that would occur and builded better than he knew. He bought a small saw-mill, and with two men from California, who were supposed to be familiar with the manufacture of lumber, located a site and put up their works on what was first called New York, but now known as Alki point. It was not long, however, before his California associates became tired of the business and returned home, having sold out their interest in the enterprise to Daniel S. Howard. It should be held in mind by all who desire to get a correct idea, or to form a fair estimate of what Captain Renton has achieved, that when he entered into this business it was entirely new to him. He had to serve an apprenticeship; he had to learn milling just as he had had to learn the practice and art of navigation from top to bottom. From the year 1853, for a period of some ten or fifteen years, labor was scarce and unreliable, especially that kind of labor in milling which requires skill. It is said by those who were familiar with the fact that Captain Renton did with his own hands successfully every part of the work in milling, from the handling of logs to the finished manufacture and shipment of lumber in all its forms. On more than one occasion he had to meet emergency, and but for his readiness in personally taking the place of some skilled laborer, it would have been necessary to shut down the mill. For a long time he had to depend largely upon Indians as laborers, but he himself was always present, planning, directing, and, whenever necessary, taking part here and there with his own hands. He became his own blacksmith and engineer, and then taught others. At one time most of his men stopped work and went to the mines. His saws had to be sharpened and he could get no one to sharpen them. Therefore, he had to do the best he could for himself. He set to work with a will, and when the hour arrived to start up, everybody was on the look-out. The mill never worked better. One of certain mill-men from the neighbor-

hood, who were present, remarked: "Now, sir, you are master of the business." The captain's first attempt to weld iron was quite successful, but his second was a failure, until he found out that in order to make two pieces of iron into one they must be both brought to a white heat. It was in this way that he first built up himself and his business, and in doing so built up many others and assisted to promote the general prosperity.

After spending one winter at Alki point, Captain Renton removed to Port Orchard, which is about twelve miles west from the present thriving city of Seattle, but there was no Seattle at that time that could be dignified even by the name of village. There were a few settlers there, but the forest still extended to the water's edge, which is now such a busy scene of shipping and commerce. Seattle's rival, Tacoma, was yet to be born. The Puget sound country, except by entrance from the sea, was almost entirely shut out from the rest of the world. It was inaccessible on the east owing to the barrier of the Cascade mountains, while the only exit on the south was a difficult road by the way of Olympia, then a village of only a few houses, to the Cowlitz river, thence to Portland; navigation being confined mostly to canoes. At Port Orchard, which is now being considered by the United States government as a site for a navy yard, Captain Renton ran his mill for ten years, increasing its capacity slowly from time to time as the demand for lumber grew larger. Its capacity never exceeded twelve thousand feet of lumber per day.

Captain Renton got along with the Indians without trouble by simply treating them fairly and kindly. The Siwashes, as they are called in Chinook jargon, proved very faithful workers in his service. In refutation of the prevalent idea regarding the natives, who it is sometimes said would rather starve than work it is notable that one of these Indians worked for him for ten years. During the whole time that he

was at Port Orchard, he had six of them working regularly in his mill along with four white men, the latter filling those places which require skill, but one of these Indians took enough interest in his work to go beyond mere manual labor and learned to turn screws successfully. Governor Stevens, who came out from Washington, when he saw how these Indians were occupied remarked to him: "You are really doing more to civilize the Indians by teaching them to work than the government is doing with its money."

It is not unlikely that Captain Renton, besides utilizing their labor to his advantage, owed his safety on one occasion, during the White River war, to the gratitude and friendship which he inspired in them.

Captain Renton could relate many interesting anecdotes of his experience with the natives.

Among the natives whom he employed, there was one who was a practical joker. One morning he went to this Indian's cabin very early to call him to work. In anticipation of the captain's call he had put himself to some trouble to prepare a surprise for him. He had collected a pack of Indian hunting dogs and filled the cabin with these snarling, hungry curs which have as great an antipathy to a white man as the cultivated dog of the white man has for the Indian. Getting no answer to his call, the Captain opened the door and entered the cabin through a narrow passage when in a moment the whole pack were upon him, but not before he had found a stout cudgel with which he strewed the floor with their crippled bodies. The battle was soon over, but the howling of the wounded mongrels continued for some time. The facetious Siwash, who was near by watching the fight from the outside, when next seen was at his post in the mill.

In the year of 1863 Captain Renton removed his mill to Port Blakely, about four miles in a direct line from Port Orchard, being on Bainbridge island. His reason for doing so was the superiority of Port Blakely,

which has an extensive deep water front and offers the least difficulty to the entrance and exit of ships. The mill was started up in the spring of 1864 with a capacity of 30,000 feet of lumber a day, which was increased from time to time to 200,000 feet, when on the 3d day of February 1887 it was totally destroyed by fire. When Captain Renton realized that there was no possibility of saving the mill, and while the flames were still raging in certain parts it is related that instead of giving way to complaints and useless regrets he sat down at once to outline the plan for a new mill which would be larger and better in every respect.

Nor was this the greatest blow and only setback that Captain Renton had to suffer during his milling experience. In the year 1857, at his mill at Port Orchard, the boiler exploded. He was so much injured in the accident, that, supposed to be dead, he was picked up and laid upon a pile of hot bricks, which, before he was thought of again and taken away and removed to the house, had roasted his flesh to the bone in several places. Owing to his splendid vitality and excellent health he recovered from this shock and suffering, and was himself again in time; though not altogether so, for the greatest bodily affliction and trial that he had been called upon to endure was probably traceable to that disaster.

The reconstructed Port Blakely mill will turn out 300,000 feet of lumber per day with a possible capacity of 400,000. It is among the largest mills in the world. It employs two engines of 575 horse-power each, two of 250 each, two of 200 each, and ten smaller ones for incidental purposes, making in all about 3,000 horse-power. The chief machinery consists of two double rotary saws, two re-saws of 60 and 70 inches, two gang saws and eleven trimmer saws, two lath mills and five plainers. California furnished its chief market at first, but later this market has expanded, and now not only includes the eastern states, but Europe, Australia, the Hawaiian

islands, South America, China, and Japan. The total cut for the year 1889 was 63,554,000 feet, of which 34,998,381 feet were for foreign shipment. This brief statement will be sufficient for those who have any knowledge of the milling industry to convey to them an estimate of the enormous proportions to which this enterprise has grown from an almost insignificant beginning. Captain Renton always had partners in the business, but at all times was the principal, and managed and controlled the manufacturing. After the death of Captain Howard his interest passed into the possession of Samuel E. Smith. Captain R. K. Ham succeeded to Smith's interest, which is now held by the latter's heirs residing in California and the east. In 1872 Charles S. Holmes, who had been a long time in the service of the company, became a partner. Under the present firm name of Renton Holmes and company, Mr Holmes attends to the business of the firm in the San Francisco office.

The Port Blakely mill is equipped with all the appliances necessary to make it complete, among which are a first-class machine shop and a carpenter shop. About the mill a town has grown up, numbering about 1,000 souls, the greater part of whom are the 250 men employed at the works and their families. The company provides comfortable homes for all of these, and board for the workmen who are unmarried. It owns also a good hotel, at which residents and strangers in the town are accommodated. Entering the port from Elliott bay, a beautiful sheet of water, the scene presented is one of picturesque beauty, the hills rising abruptly from both shores covered with massive timber and dense undergrowth. In front of you as you enter stands the great mill like a monstrous thing alive, pouring out freight for deep-water vessels waiting to transport it to the four quarters of the globe. Lining the shores on the right and left are the dwellings of Captain Renton and his fellow townsmen, nestling under the great

trees and shrubbery that rise sheer above them. The town has its church and its schoolhouse; the latter Captain Renton built himself at the expense of his company. He took an earnest and generous interest in its affairs, pleased to see that the children of his workmen might enjoy to the greatest extent the advantages of regular tuition.

Captain Renton or his company started their milling on Puget sound with one vessel, which has grown into a fleet comprising every sort of craft that is needed in the industry at home and for the transportation of lumber to distant points.

In the ship-yard at Port Blakely about forty barques, barquentines and schooners, were built by the Hall brothers of San Francisco and Port Blakely, of Puget sound pine, which is both light and very strong, being in fact more durable than oak. Out of this timber are built as good vessels as are turned out of any yard in the United States. It is especially desirable for flooring and planks. In the east a perfect plank forty or fifty feet in length is about the longest seen, while the Puget sound timber furnishes planks as a common thing one hundred feet in length, while planks one hundred and fifty feet have been cut. Spars made of this pine are very desirable, and on account of their length, lightness, and durability are in great demand.

Captain Renton confined himself strictly from the beginning to the lumber business. The soundness of his judgment in this was made conspicuous by success. His milling interests, however, were not confined to Port Blakely. In the neighborhood of Olympia his company owned a large tract of timber land, and a fully equipped railroad, the chief use made of which was to transport lumber. This road cost more than the great mill at Port Blakely.

There is no doubt that the lumber milling business has played the principal part in the development of Puget sound, and that it will be the chief source of

revenue for many years is also apparent, for while its mines of silver, iron, and coal, and its varied agricultural resources will also be a sure basis of prosperity, the timber of the state of Washington, a large portion of which is commanded by the Sound, is increasing in value from day to day, and the supply is practically inexhaustible. That the world will ultimately look mainly to this region for its timber is not an expression of fancy, but of fact. When these things and many others which they suggest, are taken into consideration, but not until then, can the part that Captain Renton played in the industrial history of the north Pacific coast, and indirectly in the general history of the human family on more than one continent be fully appreciated. In comparison with what this plain, unassuming, earnest man of business wrought out in a wholesome conquest of peace, the deeds of many crowned heads are unsubstantial and contemptible. The young men of the country who, in accordance with their gifts, can do more or less to advance themselves in usefulness and influence, cannot make themselves too familiar with the class of men of which Captain Renton was a representative. Let them study what he did, but more particularly how he did it. The usefulness of his example is all the greater, because to the extent of their capabilities, all may follow in his footsteps. Every man of average intelligence possesses the capability to do something worthy and superior—whether it be limited to the faithful use of one, five, or ten talents.

Thus we see, in a general way, how the elements were combined in and controlled by Captain Renton, resulting in what we may call his individuality—his difference from and superiority over a multitude of others who started out in life with fine natural gifts and under more helpful circumstances. Let us look further into his experience; analyze his mental and moral traits; look into his thoughts; endeavor for

the moment to see men and things as he saw them, in order thereby to get at what Carlyle terms the "mystery of the man," but which is really no great mystery after all.

Concerning religion or the question of a future existence, and our present conduct with reference thereto, he thought within the limits of what is comprehensible, much and seriously. He beheld in nature conclusive evidence of the existence of a supreme intelligence that controls the universe. Not being able to see his way clear farther than this, and it being foreign to his disposition to deal with things that were beyond the grasp of his reasoning powers, like a vast number of other sturdy intellects, he did not attempt it; he derived no satisfaction from speculating upon phenomena that baffle his judgment. He was reverential, however, and entertained the greatest respect for all those who, having faith in a creed, make manifest the virtues of christianity by living uprightly. While not a member of any church, he appreciated the great value of the moral lessons taught by every denomination or sect. He had no patience with that class of skeptics who would unsettle or break down the faith of devout people, thus doing them harm without offering them any good in return. Nor did he care to be disturbed by emotional and noisy people, who feel called upon to save him at once from the vengeance of heaven. As he sat in his mill one day he was visited by one of these soldiers of the cross, who opened fire upon him with the question: "Have you made your peace with the Lord?" The reply was: "I did not know that I ever had any trouble with him." The salvationist was persistent, however, and the captain, being constrained to assume the defensive, explained that he was not an infidel; that he had always endeavored to do his duty to his fellow men to the best of his ability; that he had never committed any crime; and that he had never knowingly wronged a neighbor; but that

for any injury he might unintentionally do to others he was always ready to make reparation. Being pressed further, but having nothing more to say than this, he began to whistle a familiar tune, nor did he drop the air until the revivalist had gone elsewhere in search of another victim.

In politics Captain Renton was thoroughly an American. When asked how he became a citizen of the United States, he answered: "By adoption and inclination. I did not need to be naturalized." He looked forward with certainty to the time when Canada, of which his birthplace is a part, would form one country with the United States. The people of Nova Scotia have already expressed themselves very decidedly in favor of this union. He entered politics as a whig, under the leadership of Henry Clay, whom he always regarded as one of the greatest men America ever produced. A speech made by the celebrated Kentuckian on the tariff question impressed young Renton deeply. The following extract from that speech he recalled distinctly, and it serves at the present time as a pretty good cue to his own views on the one great issue which divides the two parties of to-day: "If there is money to be made by manufacturing, let us keep it at home. Let us have something to tax in the event of war." He had never taken any personal part in politics—that is to say, he never desired or sought office. Being always engrossed with his own private affairs, he did, nevertheless, take such part in public matters as becomes the citizen. He was a republican, but not a partisan, holding sound principles and honesty in office above party supremacy or personal considerations. It is noted as characteristic of him (and it is quite exceptional) that he never tried to influence the political opinions of the men in his employ, much less to control their votes. At Port Blakely every man does exactly as Captain Renton himself did, that is, he votes whatever ticket he chooses.

His relations with his employés were always uniformly mutually agreeable and satisfactory. It was Captain Renton's experience and observation that nearly all of the labor troubles in the United States are caused by agitators of foreign birth, whose following is also largely made up of foreigners. For this reason he deemed it of vital importance to the future welfare of the country, which depends so largely upon the relations of capital and labor, that our immigration and naturalization laws be remodeled, so as to exclude the vicious elements of other nationalities, and make it impossible for foreigners to acquire citizenship (which means control of the government) until they have learned the nature of our institutions and become materially interested in our public affairs as holders of property. He regarded it as a most serious danger that there should be no restriction placed upon the act of European nations in emptying their prisons, almshouses, and slums upon our shores.

As to the Chinese, it would have pleased him to see them all out of the country. They are of no advantage to us, except that they fill places which white men and women do not fill acceptably because they will not. He employed Chinese only when he could not help it, because they are faithful workers, and can be depended upon to perform such services as white laborers put beneath them or neglect. If this were not so they would be driven away from the coast for want of employment, and carry away much of the demoralization which comes of their presence and degrading habits. The use of opium borrowed from the Chinese which has already become more general than is ordinarily known, is doing greater injury to the people of the United States at this time, to say nothing of what harm it may do in the future, than could be offset by all the benefit we might derive from the labor of any number of Chinamen, together with all possible advantages of commerce with the

Chinese nation. We cannot bring the Mongolian up to our level; he drags us down to his.

Captain Renton's views on all such questions were broad, practical, and deep, going to the root of the matter. As regards our coast defences, he believed that the do-nothing policy of the government is dangerous and unfortunate. "War," said he, "will come when we are not thinking of it. The country should always be prepared. To insure peace, be ready for war. We are all right on land, but look at the settlements on this Sound, for example. One third-class man-of-war or gun-boat would have this entire part of the coast at her mercy." Speaking of a merchant marine that is worthy of the name, he remarked: "I do not see how we are to get it without a subsidy from the government. This is the policy of every nation that has a competent navy. If this fact alone were considered, they are so far in the lead of us that we shall have to make the most extraordinary efforts to compete with them. But it costs us more to run our vessels than it costs them. Our company loaded an Italian vessel for Port Pirie, South Australia, which paid her crew ten dollars a month, and furnished them with only bread and cheap wine. The meat they ate they paid for themselves. That vessel got thirty cents a ton bounty for every one thousand miles she covered on her voyage to and from her destination. Her largest bill on the trip was for port charges, and she was gone eighteen months. The last time our vessel, the *Mercury*, went to Port Pirie and back her provision bill alone was over two thousand dollars!"

Speaking of the proposed navy yard on the north Pacific coast, touching the relative advantages of Port Orchard and Lake Washington, the two sites which are regarded as the most eligible, he observed: "The entrance and exit from Lake Washington will have to be through a canal. Enough of some powerful explosive can be carried in a man's pocket to blow

up the locks. Were this to happen, then our war ships, whether on the lake or on the Sound, would have to remain in statu quo, whereas, though Port Orchard is inferior to Lake Washington in some respects, it is always open to the Sound and free from this danger."

The captain was always a close, diligent, and careful student and reader. A part of his only leisure, his happy evenings at home, were those devoted to the perusal of books and periodicals containing information of a solid and interesting nature. This reading was kept up just the same after he lost the use of his eyes, for others read many volumes to him. A part of his every-day office routine was to listen to the reading of the principal newspapers and magazines, after the letters were opened and he had dictated how they should be answered. In this way he kept himself familiar with the outer world, and well informed regarding current events and all the subjects that are discussed in the present wide field of journalism; better informed than many others, for his knowledge in history was extensive, and his memory was remarkably retentive.

The captain's relations with other men were largely of a business character. About the only affiliation that he had with any organized body was his membership in the order of the free and accepted masons. He became connected with this order incidentally in Ireland in 1847. During the great famine prevailing there in that year, he took over a cargo of grain, when he and a number of other Americans were induced to become members of this fraternity, in which, though not an active worker, he kept up his standing and exercised his share of benevolence. As a rule he dispensed his charities personally, not giving grudgingly or ostentatiously, but freely and quietly. He had a great many calls upon him, and he never turned a deaf ear to an appeal for assistance in a worthy cause. To the churches he has given

liberally of money and of its equivalent, the staple product of his mills.

All charitable institutions knew him as a sure friend and support. In his bluff hearty way he was wont to say to those who asked him for aid to build a church, hospital, or schoolhouse: "Come over and take what lumber you want." How much he has done in this and other ways to promote the well-being and happiness of others can never be recorded. He was silent on the subject. Much of his benevolence was in his ready sympathy with and kind treatment of others. For instance, in regard to the school at Port Blakely, he remarked: "All these boys must go to school. Many of them will come into the mill after a while. They will be better, and make better workmen and mechanics, for what they can get out of their books, now, while they have the chance. I know that some people who have much book knowledge do not seem to digest it thoroughly; some of them are actually spoiled for business by over-study; but ignorance is a dreadful thing, and every boy and girl in the United States ought to be taught at least to read and write good plain English and enough arithmetic for business."

Occupying a position of authority for many years, he never abused his power. On shipboard, where the master is a despot if he wishes to be so, there was never any trouble between himself and his sailors that originated with him. Sometimes a row broke out between the seamen and his mates. In such cases he was compelled for the sake of discipline to take sides with the latter, though if the former were in the right his sympathies were with them. Possessing a fine sense of justice, it was a trying ordeal for him to be put in a position where there was no alternative. Right or wrong, orders must be obeyed, the life of the ship and all on board depending upon it.

The land, the buildings, and all the trading privileges of Port Blakely are owned and controlled by

Captain Renton's company, which has a large well-furnished store of miscellaneous goods which, being on sale at the lowest reasonable figures, competition is not calculated upon or permitted. A peddler came into the town one day with his pack, and not being aware that he was a trespasser started in to sell his wares. One of the employés of the company ordered him to desist. The man took his case to headquarters; appealing directly to Captain Renton, he said: "I did not know that it was against your rules, sir, for me to peddle here. I am sorry I did not know any better, for it has cost me more to come here and go back than I can afford. I am a poor man, and an old soldier, and I wish you would let me try and sell enough to make my expenses." "Stay here as long as you please," was the reply, "and sell all that you can, and when you get through this time come back and do so again."

The house in which he lived is as unpretentious as he was, and just suited him. It is as small and plain as the other houses about it which are occupied by his employés. Substantially furnished with reference to use and comfort, and modestly adorned, it was to him the happiest place on earth. His wants were simple and few, and while his means were more than ample for the gratification of the most extravagant fancies, he would not have exchanged his cottage at Port Blakely for the palace of a duke. His thoughts were all at war with aristocratic display in this country. Said he: "I think we are better off without it. Why should a pampered few live at the expense of the rest? This is the way it is in Europe, and it may come to that here one of these days. Some of our people seem to be running in that direction. It looks as though our American girls, some of them at any rate, prefer a dissipated sprig of European nobility for a husband, to a countryman of their own who has everything to commend him except a title." Entertaining a decent pride in his own life, and appreciating the dignity of

useful labor his views were not unlike those of Mr Lincoln, who, when asked what was his coat of arms, replied: "A pair of shirt sleeves!"

Captain Renton's manners accorded with his opinion. He had no rule of politeness but common sense. A manly nature expressed itself best without the help of form or artifice. The true gentleman, according to the psalmist, "walketh uprightly and speaketh the truth."

Still what was once said of another man who also carved out his own way may be said of Captain Renton: "Underneath his sweetness and gentleness there is the heart of a volcano. He was a man of excitable and fiery nature, but by the exercise of self-control he converted the fire into motive power instead of permitting it to go to waste in useless passion." There was no other man in the state of Washington who had transacted so much business as he and had so little litigation. Yet never running away from but always ready to assume responsibility, bold and independent in his thinking, nothing became him better than the absolute government of whatever enterprise he was connected with. Possessing this characteristic, combining judgment with will, he belonged to that class of men who, a German philosopher says, "make history, who form nations intellectually and materially, and dictate their fate for years to come—organizers, creators of states."

But how was it that Captain Renton and a few others of the early pioneers on Puget sound who can be numbered on the fingers of one hand stand out to-day so successful and respectable, when others have remained pretty much at a standstill, or have fallen by the wayside? Simply the fittest have survived. Their fitness consisted in those qualities which have been discussed, but in none more than in that force of character by which they were enabled to withstand demoralizing and degrading influences.

It is useful to know that these few who have succeeded in an eminent degree have been uniformly

temperate, and of such habits as are conducive to the healthfulness and preservation of body and mind. Not that they were models, altogether, eschewing tobacco and strong drink, for Captain Renton enjoyed a good cigar, and always smoked the best, and on occasion would join his friends in a glass of good liquor.

The accompanying portrait, engraved from a picture taken some years ago, gives a good view of Captain Renton's massive head and face. The expression is one of repose and thoughtfulness. Relaxed in a feeling of good fellowship, the features became soft and winning in their expression, but roused to determination the lips closed, and the mouth became a mere line upon the countenance. Good nature and benevolence are interwoven in the character lines. A grander face it is difficult to find in any gallery of character portraits of the builders of empire in the world. Standing nearly five feet ten inches tall, erect and dignified in carriage, and weighing about two hundred and fifty pounds, his step was light but solid. He gave evidence as he moved of the power that was within him. How was he dressed? Ordinarily in cardigan jacket, leather slippers, and tall felt hat with broad brim. Ignoring all fashion in his costume, and consulting only his ease, which no one will doubt that he fairly earned a title to, his *personnel* was at once commanding and picturesque. With one exception his health was perfect. His intellect was bright and keen. Retiring to bed early, he awoke after his first sleep with his mind fresh and clear, and then it was that he mapped out the next day's work. Betimes in the morning he was ready to begin work according to programme. This was his pleasure. His whole soul was in his work; his business was his pride. That he was swallowed up in it was not because he was covetous or selfish. He was not only a cheerful giver, but better still than that, his energy opened the way for many others to build themselves up, who, in their turn, assist to promote

the general welfare. It is in the economy of human nature that those who do much for themselves in the creation of value are bound to do a great deal more for others. Besides, it is an utterly low view of business that regards it only as a means of getting a living. A man's business is his part of the world's work, his share of the great activity which renders society possible. It is his drill, and he cannot be thorough in his occupation without having made himself able to meet constant demands upon his judgment, self-control, and integrity. All these things constitute a high practical culture. It is a culture which strengthens and invigorates, which gives force. It makes strong men, and men of vast capacity for affairs.

A history of Captain Renton's life and character would not be complete without reference to a misfortune which would have discouraged and overwhelmed most other men, but in spite of which he moved steadily forward to the wonder and admiration of all who were acquainted with his affliction. In the autumn of 1890 he had been for many years without the use of his right eye, while the sight of his left eye was greatly impaired; still the glimmer of vision which remained was so much better than total blindness as to be a great comfort. As intimated, the beginning of this trouble dated back to the boiler explosion at the Port Orchard mill, when he was struck on the forehead by a heater that weighed over three hundred pounds. The effect of the blow upon the optic nerve of the right eye was immediate resulting as stated. The injury to the other optic nerve appeared later, and necessitated a surgical operation in the autumn of 1883 in San Francisco. Shortly after this operation his vision was improved, but before the wound had entirely healed inflammation set in and he was compelled to return to San Francisco for treatment. Putting himself then in the hands of the celebrated surgeon Dr L. C. Lane,

after a long and painful illness he recovered his health, but his eyesight had been gradually but steadily getting worse. On account of his splendid physique and great vitality, the hope was entertained that Dr Knapp, an oculist of great repute in New York city, would be able to restore his vision. With the view of having an operation performed by this specialist, the patient contemplated going east at the earliest moment that important business engagements would permit. The inquiry is naturally suggested and is often made, how could he, thus apparently incapacitated, attend to so large and complicated a business, the successful management of which depended at all points to such a great extent upon the personal presence and supervision of the one in control? In answer, it may be said, that having practically lost his eyes he could see with his mind. As his vision grew weaker his hearing became more acute. Things that he once saw and managed he heard and governed. The captain had that serviceable faculty of multiplying himself in other men, of putting his activity and intelligenne to work through them. Being a good judge of men, he had gathered about him those upon whom he could rely implicitly to discharge the duties he intrusted to them. Among these are worthy of mention: J. A. Campbell, general superintendent; James Oldfield, in charge of the mill; James Campbell, the head of the carpenter department and milling machinery; Thomas Powell, chief book-keeper and cashier. In this way, though depending largely upon trusted employés, yet having himself a perfect knowledge of everything that goes on, he was as much master of the situation later as in times gone by when his vision was perfect. Thus do trial and adversity develop in great natures the ability to endure and surmount them. Suffering is the touchstone of character. Like others who have stood out all the mightier in disaster, he was more conspicuous in his work because of the darkness which surrounded him, but which he bravely kept

out of his mind and heart. Wailings and murmurings avail not; only cheerful and continuous working in right paths can give us peace. It is an imposing and interesting exhibition of fortitude and resignation and power that this builder presented, inspiring and directing from hour to hour with unabated vigor and ardor the vast affairs of which he was the originator and head. His eyes failing him, he saw by an inner light, and walked by the force of mind whithersoever he wished without fear of harm. Of such stuff are few men made.

The immediate surviving relatives of Captain Renton are two sisters; the elder is Mrs Mary Campbell, wife of John Campbell. Their three sons, John A., James, and William, are holding responsible places in Renton, Holmes and company's service; their daughters are Margaret and Elizabeth. His other sister is the wife of William Campbell, brother of John Campbell. They have no children.

Captain Renton was married, when twenty-three years of age, in Philadelphia, to Sarah Martha Bevans, a native of the city of New York.

Sarah Martha and William Renton were as one person until separated by death; for a half century, lacking a year, their whole lives were so intertwined and blended as to form that typical wedlock and union such as is often heard and read of but only too seldom met with in actual experience. And though she was gone she was still present with him, for

> "To live in hearts we leave behind
> Is not to die."

She entered into his life at every point. On sea or land she was his constant companion, a help-meet for him in adversity, and not less so in prosperity, which, also, has its difficulties, temptations, and trials. She was nearly, if not quite, as well known to all the old settlers on the Sound as Captain Renton himself. A loyal and true wife and mother, she practised at home the virtues of kindness, industry, and economy, which

constitute the highest ornament of female life. Her presence, her words, her example, her character, unobtrusively manifested, had the effect of a powerful but indefinable force. It seemed as though the elements combined in her, as they do in rare instances in men and women, to give her a peculiar spirit of control, such as we yield to willingly and cheerfully. Her face was not one that would attract immediate attention, perhaps, but which seen again and again never became entirely familiar. It invited study, suggesting a depth of thought and character, which it would be difficult to fathom or analyze. No one could look into her eyes without a sensation of the intellectual and moral nature that shone through them. She never talked about herself, as though her thoughts were always otherwise engaged. Personalities and gossip she did not deal in. She was a peacemaker. And her deeds were even kinder than her words. Many a poor family remembers her generous sympathy and timely assistance. Old and young gave her their confidence and came to her for advice. The young men in the mill, far away from home, looked up to her as a mother. The Indians, when sick, came to her for medicine, and went away helped and grateful; if they were hungry she could always find something for them to eat. They wept when told that she was dead. At one time, when it was thought that the project of building Grace hospital, now one of the most beneficent charities in Seattle, had to be given up for the want of funds, Mrs Renton, who had already contributed quite liberally, removed the obstacle at once, saying to the rector in charge of the enterprise: "Go forward, Mr Watson; I will see you through." She was a thorough business woman, and managed her separate estate—which was quite modest when she came to the Sound—with such success that at her death she left property valued at upwards of one million dollars. By this it is not meant that her pecuniary transactions were independent of, or

least of all at variance with her husband's, for while their accounts were kept separately they had but one purse. The credit of his success he ascribed in a large measure to her. He never took any important step without first consulting her; if their views were the same the thing was done, whether it was to build or buy a ship, to loan money, or purchase or sell land. The same confidence he felt in her judgment she felt in his, and if he had a decided opinion opposed to hers she yielded at once: her trust in him was such that if he were convinced that he was right she believed it must be so. She was in no way masculine in thought or conduct, though so strong in affairs which are ordinarily managed by men. Modest, gentle, and loving—a women in the best and truest sense of that tender word—she possessed a calmness of mind, steadfastness of purpose, and practical knowledge that distinguished her above most of her sex in the community in which she lived, though she was not without illustrious prototypes in this respect in general history. Examples are not wanting of celebrated business women, and as shown in this instance there is nothing in the affairs of business that is incompatible with true womanliness.

Mrs Renton was a constant worker, never knowing what it was to spend a waste hour. Nothing could have tried her patience more than to be forced to adopt those ways of killing time that society women resort to. She was always occupied and never seemed to tire. Her cheerfulness and good humor in the round of her domestic duties so deeply impressed those who met her often under her own roof, that the house now seems strange to them as though she could not be altogether departed from it. Her spirit filled the house, its life appeared to go out with hers.

It was a touching and admirable picture of mutual love and dependency that this elderly couple presented as they sat evenings by the fireside alone or with children or grandchildren or great-grandchildren about them, side by side, he in his large

rocking chair and she in her smaller one drawn up close by, and hand in hand chatted or seriously discussed matters of business, recalling the familiar couplet:

"Two hearts in council, two beside the hearth,
Two in the tangled business of the world."

Neither exalted by prosperity nor cast down by adversity, she keenly enjoyed the result of a wise investment, but never worried over a failure. If they lost a ship she would say to her husband, "Well it was our turn this time," and that would end the matter between them. She took a pride in adding to her estate, having a due appreciation of the independence and power that wealth alone can make certain; and she valued it for its uses, not the least of which was to do good. It was in this way that she became able to enlarge her charities, which she did as her wealth increased. She took no pleasure in hoarding her riches; her money was kept active, and was itself a power in promoting the growth of industries and the development of the country. Her fortune always benefitted others more than herself while she lived, and now that she has gone it forms a part of the wealth of the community, and in worthy hands is still doing a good work in the cause of industry, education, and charity.

During her last illness, which resulted in her death on the twelfth day of May 1890, she was patient and uncomplaining. Her mind was calm and clear almost to the last. It was thought during her sickness that it would make her worse to be occupied with business, but this was shown to be a mistake; she decided whatever matter was submitted to her with her wonted readiness, and then dismissed it from her thoughts altogether and at once. One of her last acts, as she lay bedridden, was to bring about a reconciliation between two friends who had become estranged from each other. She worshipped at the episcopal church, although not a member of any denomination. She

practised rather than professed religion. Like every other mortal, she had her cross to bear, but she lessened its weight by the spirit with which she bore it. Afflicted for many years with deafness, she adapted herself to the affliction without petulancy. Her loss to the community was great. The place that she had filled no one else could occupy. The rector who officiated at her obsequies was familiar with her good deeds, many of which were done by her through him. So impressed was he with her lofty virtues and the charm of her life, that he said he felt constrained to do what he had never done before; he must go beyond the ritual of his church, which is so beautiful and rich in sentiment, adapted to ordinary funeral occasions, and speak particularly of her character, as he had learned to appreciate it by actual test in Christian work. The principal men of wealth and standing in the state would have been pleased to act as pall-bearers at her burial; but this sad tribute was one which her friends and neighbors at Port Blakely felt it was their privilege to offer, and so it was arranged; and so she would have wished it done. But if Mrs Renton's decease was a bereavement to a large circle of relatives and friends, what a struggle it must have cost the strong man, the light and inspiration of whose life she had been for so many years, to bid her farewell forever. Those who witnessed the earthly separation of these two souls can never forget the scene.

Captain Renton died at his home at Port Blakely, July 18, 1891.

CHAPTER XXX.

MANUFACTURES—BRITISH COLUMBIA AND ALASKA.

ABORIGINAL ARTISANS—BLANKETS FROM CEDAR FIBRE AND WILD HEMP—DYEING AND STAMPING—UTILIZATION OF INDIAN LABOR IN CIVILIZED MANUFACTURES—SALTING AND CANNING SALMON—OTHER FOOD-FISH—OIL—LUMBER—SHIP-BUILDING—THE FISHERIES OF ALASKA—SALMON AND SALMON-CANNING—COD AND OTHER FOOD-FISH—WHALING—TIMBER AND SHIP-BUILDING.

THE Indians of British Columbia are noted for their imitative faculty, as instanced in the carvings which adorn the posts of their dwellings and their implements. The handiwork is skilful, with much elaboration and intricacy, and often remarkable for symmetry of form and for inlaying and mounting with metal. Some chiefs kept special artisans for the making of masks and similar work. Blankets were woven from cedar fibre and wild hemp, strips of skins and feathers being also interwoven. In dyeing, each tribe had a distinguishing pattern, which was displayed also in their hats and water-tight baskets, made from fine cedar-roots.

These crude efforts at manufacture have almost disappeared since the advent of the whites; that is, in the more useful branches, for carvings and fancy work still receive attention, stimulated to some extent by the demands of tourists. Missionaries are taking advantage of the native bent to introduce superior methods, and the colony of Metlakathla is a remarkable instance of what may be accomplished in civilizing these remote fisher tribes. It is a town with regular streets and neat two-story houses, with saw-mill and brickyard, a sash and door factory, and a salmon cannery which exports a portion of its pro-

ducts. The weaving of shawls forms a prominent industry, and other manufacturing enterprises are contemplated.

Next to fur-trading the fisheries attracted the first attention of the white occupants, although the labor connected therewith was performed by Indians. In 1829 Fort Langley was supplied with 7,500 salmon at a cost of £14 in goods, and a few years later trade sprang up in this article, chiefly with the Hawaiian islands, 3,000 or 4,000 barrels, smoked and salted, being shipped annually. Regular canning was not undertaken until long after the turn of the half century, and in 1876 the production amounted only to 8,247 cases, from three canneries. Quality and improved methods exerted their influence, however, and by 1882 twelve establishments were in the field, with a yield of 255,000 cases, valued at $1,400,000, out of a total of $1,840,000 for all the fisheries. The various branches in this connection gave employment during the season to more than 5,000 men, with nearly 1,000 boats and canoes, besides 26 steamers and schooners.

The seas, lakes, and rivers swarm with food-fish. The herring, bass, flounder, halibut, sole, smelt, sardine, and ulikon are almost as abundant as salmon, and sturgeon weighing more than 500 pounds have been caught in the rivers. The silver salmon begins to arrive in March. From June to August are taken the finest varieties, and in the latter month every second year commences the run of the humpback salmon, followed by the hookbill, which continues until winter. Herring and haddock are taken during the winter; anchovies in the autumn. Trout have been caught weighing more than forty pounds. The best oyster-beds are at Oyster bay, Cowitchen, but the difficulty of landing the product at Victoria limits the demand.

The dog-fish and ulikon are esteemed for their oil, the extraction of which provides employment for

a number of people. The natives obtain it by throwing heated stones into hollow logs filled with dog-fish livers. This was barely marketable, and superior methods had to be introduced, notably by the Skidegate Oil company, which has been producing by means of retorts about 40,000 gallons a year so pure and clear as to be widely in demand for lubrication.

The lumber resources stand so far in reserve, owing to the superior advantages, in variety and quality of timber, and in shipping facilities, of Puget sound and regions to the southward. Queen Charlotte islands, for instance, is covered with forests of spruce, hemlock, and cedar, but presents no locations where large mills can be profitably established. The first sawmill was built in connection with the fur-post at Victoria, and long remained the only one, but the gold fever of 1858 gave the impulse to manufactures, and grist as well as saw mills rose in connection with rapidly spreading camps and towns.

The building of ships dates since 1788, when Meares launched the *Northwest American* at Nootka. Boats were subsequently built by the fur company, and with the influx of miners larger vessels were placed on the stocks along the coast and in the interior. A small iron vessel, brought in sections from England, was put together in 1851, since when the foundries have contributed to the building of larger ships of this class. Puget sound and San Francisco bay possess advantages, however, in the construction both of timber and iron vessels which tend to restrict this as well as many other branches.

With high wages and a lack of facilities for competing with the established factories southward on the coast and in the mother country, the province is hampered in the effort to establish manufactories. Nevertheless, high freights and distance from those sources present protective features which have permitted the growth of certain industries, including boiler and machine shops, iron and brass works, bis-

cuit factories, binderies, breweries, factories for sashes and doors, shoes, soap, and other articles of domestic requirements. Tanneries have been favored by the existence of hemlock bark and the high price for leather formerly prevailing in San Francisco. Most of the raw material, as wool and hides, is exported, and perhaps returned in the shape of textile and other manufactured fabrics, with the addition of double freights, commissions, and other charges. Many promising branches of enterprise have no doubt been paralyzed by the advent of the transcontinental railway, which reduces the distance from superior sources of supply, together with the cost of introduction. Such was also the effect in California. There is room for expansion, however, in the industries mentioned, and with the influx of population and the development of natural resources, prospects will open for additional departments of manufacture.

In Alaska one of the most important resources is found in her fisheries, although from the scanty population of the Pacific coast, and the distance from other markets, they have as yet been little utilized. The value of their product was estimated by the census of 1880 at $565,000, though since that date it has largely increased, while peltry was rated at over $2,000,000. But with increasing population and a growing demand from abroad, together with the gradual depletion of the Columbia river fisheries, operations are assuming larger proportions.

Salmon are here more abundant, and for some species finer in quality, than elsewhere in the Pacific. It forms the staple food of the Indians, who with their wasteful process of curing consume fully 10,000,000 fish annually. On the Yukon the run is too brief to warrant the establishment of canneries for the present, but in the rivers and inlets to the southward the season is of longer duration. The oldest cannery appears to be the one erected at Klowak in 1868, and subsequently purchased by Sisson, Wallace, and company,

who incorporated under the name of the North Pacific and Trading company. In 1868 a cannery was opened by Cutting and company near the site of the old town of Sitka, but was afterward removed to Cook inlet. After the first year the pack averaged about 20,000 cases. In 1889 there were at least fifteen canneries in operation, the increase in their number being caused by higher prices and the diminished supply from the establishments on the Columbia and Sacramento rivers.

The chief obstacles are the briefness of the season, lack of reliable labor, cost of supplies, and irregular communication. Yet business has been fairly profitable, owing to the abundance and cheapness of the fish, which, moreover, averages over thirty pounds, or nearly double the weight of the Columbia salmon. The natives furnished it in former years at about one-fifteenth the price paid at the latter point. The total pack had increased by 1885 to 65,000 cases, besides salted fish, and there was also a steadily improving demand.

The cod-banks are here the most extensive in the world, stretching, with intervals, from the Shumagin islands north and westward to the ice line of the Bering sea, eastward to Cook inlet, and southward to the strait of San Juan de Fuca. The average depth is barely one-third as compared with the Newfoundland banks. Yet the deeper waters contain the best fish, including the true cod, which exists here alone. Defective curing and the prejudice in favor of the Atlantic cod have still to be overcome. Since 1870 the catch has averaged 500,000 fish, occupying fully a dozen schooners, some engaged for a portion of the year in salmon fisheries.

Among other food-fishes found here in abundance are the halibut and the ulikon, or candle-fish, little in use except among the natives, the mackerel, which is growing in favor, and the herring, whose present commercial value is confined to its oil, for the extraction

of which the Northwest Trading company of Portland has opened establishments.

The once productive whale fisheries are almost exhausted under the great inroads committed for several decades. In 1850 some three hundred whaling-vessels visited Alaskan waters. Two years later the north Pacific catch was estimated at $14,000,000, among 278 ships. After this it declined to less than $800,000 in 1862, and with fluctuations stood at about the same figure in 1883. The fish have been driven away from the waters of the Aleutian range, even to Greenland. Most of the north Pacific whaling-vessels, reduced in 1882 to forty, now enter the Arctic ocean, where the catch is fairly profitable.

The mines may assist to enlarge the demand for timber, which is abundant even as far north as the Yukon, with a sprinkling of stunted vegetation even to the Arctic sea. Spruce of different kinds ranks first in extent, but the yellow cedar of the south is the most valuable. The remainder, as birch and willow, is of little worth save for the bark. So far the cheapness and greater accessibility of the timber of Puget sound and other districts are overshadowing Alaska, so that by 1880 only three sawmills were there in operation for a portion of the year. Whipsawing was early introduced by the Russians, in connection with the construction of buildings and of vessels. In 1842 the first steamer and steam-tug were launched here, but after this the business of the ship-yards, latterly concentrated at Sitka, decreased to very small proportions, owing to the supply of cheaper vessels from abroad.