

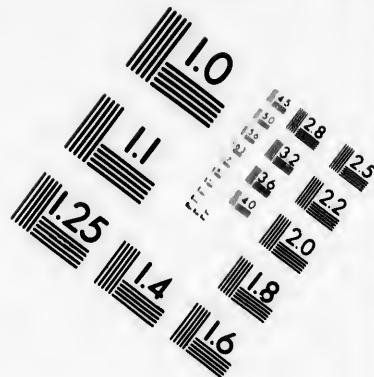
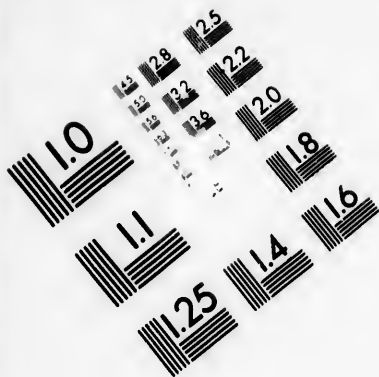
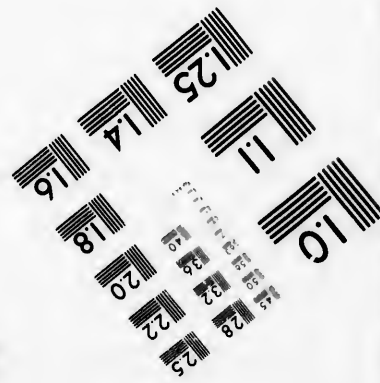
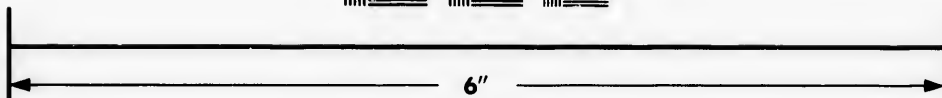
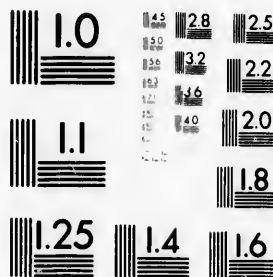


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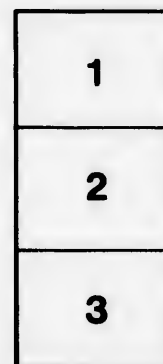
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HINTS

—ON—

MINING AFFAIRS

BY EDWARD LE RUEY, OF LONDON, ONT.

CONTENTS:

WHAT IS A MINE? ANSWERED.—MINING OPERATIONS; How
CONDUCTED (ILLUSTRATED BY WOODCUTS).—THE DIAMOND
DRILL: ITS USE AND VALUE.—REDUCTION OF THE
ORE; LOCATION OF SMELTING WORKS.—
MINING INVESTMENTS AND THE
MANAGEMENT OF MINING
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PROLOGUE.

The large quantity of silver taken out of the famous Silver Islet Mine, amounting to millions of dollars in value, is incontrovertible evidence of the presence of rich deposits of silver ore in the district of Thunder Bay. This district will undoubtedly be developed by some one, and the question immediately arises whether it will be done by Canadians or by foreigners.

No one can deny that foreigners own Silver Islet, and have so far controlled nearly all of the six or seven mines which have been partially tested, and some of which give indications of large returns when thoroughly developed.

It is furthermore evident that unless Canadians soon devote their attention to the development of these resources, foreigners will acquire the most valuable mines, and the country will derive little or no benefit from the rich deposits underlying that portion of Canadian territory.

The degree of prosperity the country would attain by the development of a few rich mines, owned by persons who would re-invest the proceeds in the country, would be immense. The extraordinary vitality of Spain under her misfortunes, was, to a great extent, due to the richness of her silver mines, the most productive in Europe, the richest being those of Hiendelaencina, in New Castile, and, if I recollect rightly, situate about one hundred miles from Madrid. What result might not be expected in Canada, where the inhabitants, undisturbed by war, could devote the whole of their energies to the development of the manifold resources of the country.

The apathy so far manifested by Canadians in this respect, is a stigma on their enterprise. At Thunder Bay, of the four principal mines alive at present, namely, Silver Islet, Duncan, 17 K, and the Sturgeon Bay, owned by the Canada Silver Mining Company, of London, Ont., three are American, the last being the only Canadian undertaking.

Silver Islet is too well known to require comment. Duncan, after being worked several years, is commencing to pay, ore to the value of several thousand dollars having been shipped last October. The two others are being developed.

WHAT IS A MINE?

It is often asked : What is a Mine, and how is Mining Conducted? I will allude briefly to the subject.

Silver is found in lodes or veins in general consisting principally of quartz. The lodes or veins are crevices or cracks, which have become filled with materials of a character different from the body of the adjacent rock, and which frequently extend for miles through certain districts. Their course is generally very sinuous, but it is more or less in a direct line.

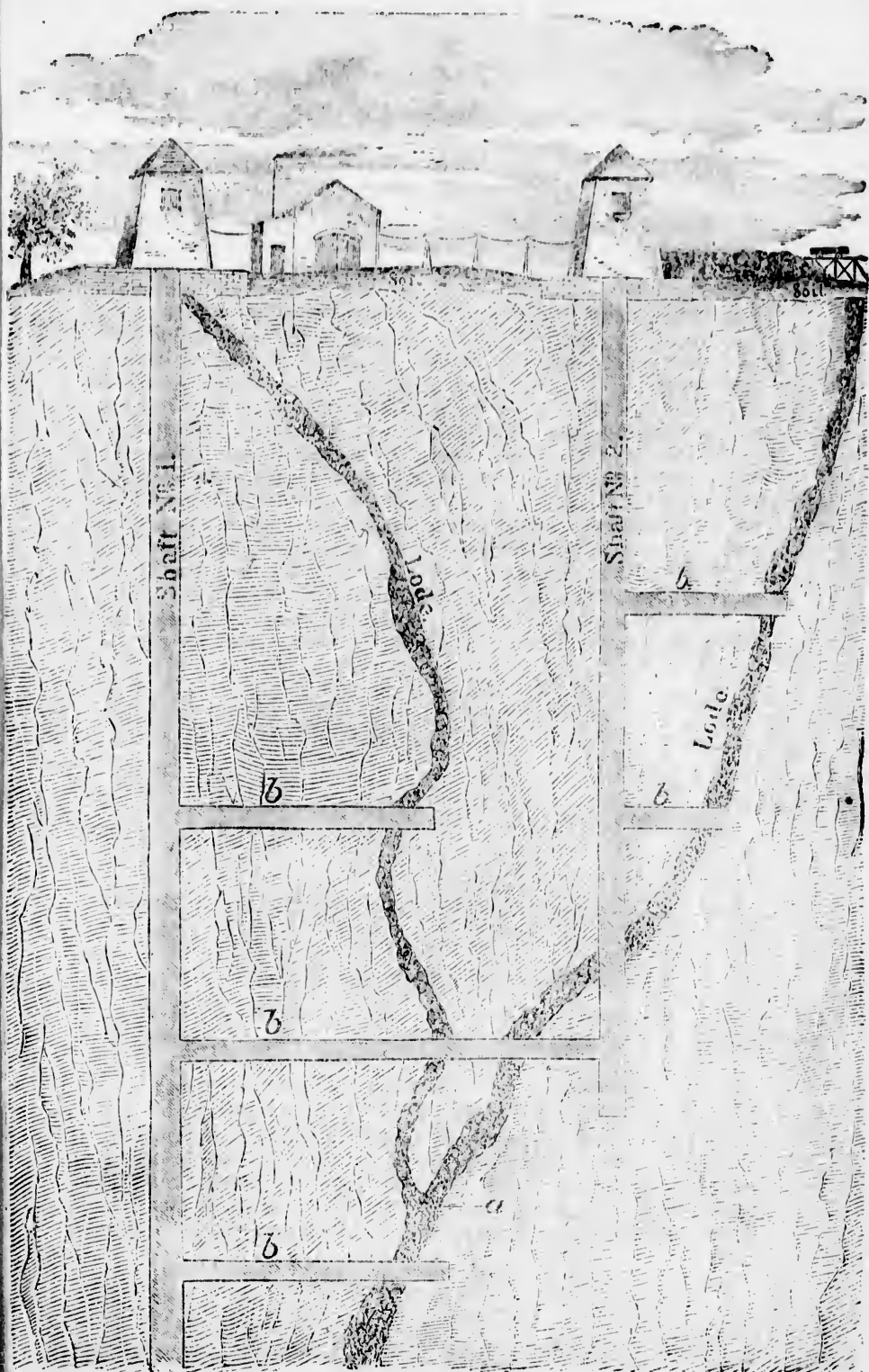
A lode often becomes divided into branches, while feeders, which might be compared to rivulets flowing into a stream, converge into it at different points. The principal portion of the lode is called the "Champion Lode." Throughout its course the width varies considerably, the same lode at some points being several feet wide and at others only a few inches.

Lodes extend downwards to unknown depths, sometimes in a nearly vertical direction, but more frequently at an incline of 10 to 45 degrees from it. In their downward course their width also varies greatly, contracting from the greatest width to a mere thread and then expanding equally suddenly.

The forms in which silver is met with in nature are numerous. It is found native in a variety of shapes, sometimes in fibrous masses, and often bearing a close resemblance to branches of trees, in cubes, etc. The greater part of the silver of commerce is obtained from the different sulphurets, the principal being sulphide of silver, brittle silver ore, ruby silver, and chloride of silver. It often occurs in combination with the ores of other metals, such as lead, copper, zinc, etc. The greater part of the silver obtained from British mines is found in combination with lead.

Whatever may be its form, silver is not found disseminated in equal quantities throughout the lode, but usually occurs in collective masses called by miners "bunches." These bunches of ore are often surrounded by vein matter carrying very little metal, and differ greatly in extent, some yielding merely a few hundred dollars' worth of ore and others tens of thousands.

When these "bunches" abound in a particular portion of the lode some of them are left "standing" as a reserve, to be "picked out" whenever the yield from other portions of the mine falls off, or when new ground is being "opened up," thus enabling the "output" to be kept up to the average, thereby avoiding the spasmodic fluctuations in the price of the securities of the undertaking which an irregular yield would cause.

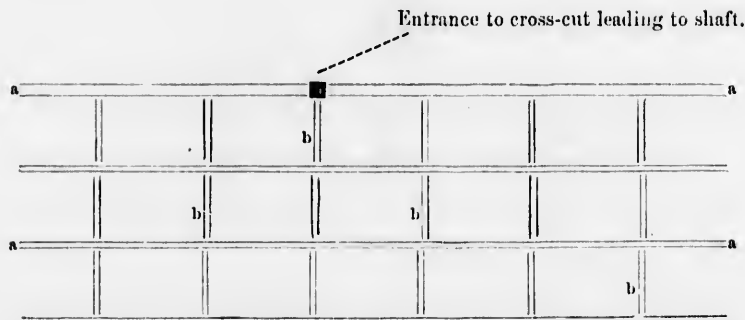


MINING OPERATIONS—HOW CONDUCTED.

A mine is opened up by shafts and levels. *Fig. 1*, on preceding page, represents a cross-section of a lode "tapped" by two shafts. Shaft "No. 1" is the main shaft, and "No. 2" a subsidiary shaft. The lode is shown "split" near the surface and to become united at "a." The cross-cuts "b" connect the workings of the lode with the respective shafts. The ore is conveyed in wagons along them to the shaft, and hoisted to the surface in buckets or "kibbles." The main shaft is divided into two, three, or four portions, according to circumstances. One of the divisions is used for the pumps and serves as an outlet for the foul air from the mine. The others are used for hoisting the produce of the mine and conveying the miners to and from the workings. The cross-cuts or levels being all named or numbered, any portion of the mine is as easily found as streets in a town. The water from the different workings flows into the main shaft whence it is pumped up. At the bottom of the main shaft, tunnels are generally driven for a short distance from it to give space for the accumulation of water. That portion of the mine is called the "sump."

The following (*Fig. 2*) is a section of the workings along the course of a lode. It therefore lies in a direction transverse to the section in *Fig. 1*, on page 5.

Fig. 2.
Surface of ground.



The passages, "a," are known as levels, and the perpendicular excavations, "b," connecting these, are termed "winces." It is scarcely necessary for me to state that these levels and winces are excavated in the body of the lode. The act of removing those portions of the lode lying between them is called "stoping."

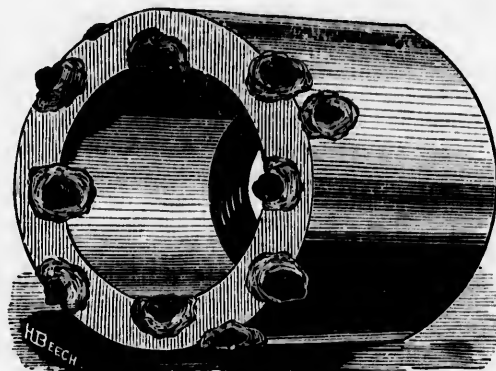
THE DIAMOND DRILL.

In mining, manual labor is being gradually superseded by steam machinery. One of the most important inventions yet introduced is that of the "Diamond Drill." M. Leschot, a Civil Engineer of Paris, France, was the inventor. It first attracted general notice in 1867; since then, like all new inventions, it has undergone important improvements.

To make the description of the boring bit of the diamond drill as simple as possible, I will liken it to an iron tube, on the end of which diamond points are attached along the periphery thereof. Being caused to revolve, it produces a hole equal in size to the diameter of the tube by cutting out only a little rock, merely the thickness of the periphery of the tube. The combined length of the bit and core barrel is from 8 to 16 feet. As it progresses, a solid cylinder of rock passes up the core barrel (or tube), so that when boring through a lode, the character of the ore is clearly shown.

Fig. 3 illustrates the boring bit separated from the core barrel to which it is fastened when in operation.

Fig. 3.



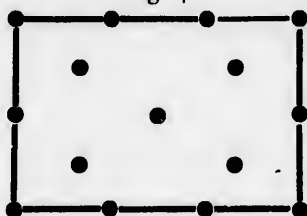
In a pamphlet issued by the American Diamond Rock Boring Company, from which the foregoing design is copied, it is thus described:—

"The projections represent the Diamonds, which constitute the cutting edges. This Bit or Boring Head revolves at a speed of from 400 to 1000 revolutions per minute, the size of the core to be bored out depending upon the inside diameter of the Bit, or more correctly speaking, the track cut by the Diamonds, which, it will be observed, project so that they alone come in contact with the material while drilling."

The advantage of drilling holes for blasting with the diamond drill is, that only a small portion of the rock is pulverized, as will

readily appear from the description above, thereby saving a large amount of power and time. To sink a shaft through hard slate rock, 11 x 7 feet, the number of holes required would be 15, as shown in the following diagram :

Fig. 4.



The work is executed in the following manner : After all the holes have been drilled to the required depth, say 300 or 400 feet, and the machine removed, the holes are filled with sand, water, or any suitable material, to within a certain distance of the top of the hole, the distance being governed by the amount of rock which can be torn out by the explosive agent. It would vary from three to five feet in depth. The explosive is introduced into the hole and tamped in the usual manner.

The centre holes are fired together with an electric battery, tearing out the rock in the centre of the shaft. After the rock is removed, the two holes on each side, opposite the centre, are fired together, and the rock removed. The remaining holes are then fired.

After blasting the centre holes and removing the rock, the line of least resistance is always towards the centre, and consequently, in subsequent shots, the rock breaks inward, leaving the side and end walls perfectly straight and true. The sand, or whatever is used, is removed to the required depth for the next charge, when the holes are again charged and fired as before. The process is repeated until the depth to which the holes have been drilled is reached, when, if any further depth is required, the machine is placed on a wooden frame, wedged fast to the sides of the shaft, and work goes on as in the first instance.

For prospecting, the diamond drill is most valuable. With it one can penetrate to the depth of 1,000 or 2,000 feet, and extract a continuous solid cylinder of the rock traversed. The cylinder being from $1\frac{1}{2}$ to 2 inches in diameter, the nature, character, and value of the rock, for the entire distance is thus completely revealed. In hard slate, similar to that generally met with at Thunder Bay, the cost of sinking a shaft 500 feet would be at least \$30,000. To penetrate that distance with a diamond drill would cost about \$1,000. The time required to sink the shaft would vary from 18 months to $3\frac{1}{2}$ years, according to the machinery employed, and the amount of water encountered ; whereas, to penetrate 500 feet with the diamond

drill would occupy from 10 to 20 days. Merely the interest on the cost of the machinery, and the repairs are included in both estimates. The machinery for the shaft would cost from \$7,000 to \$20,000. The diamond drill and appurtenances \$5,000. The apparent difference in the cost of the machinery does not show the actual difference, for after the completion of the work the depreciation in the machinery used to sink the shaft would be serious, whereas the diamond drill would be as good as new.

Neither a shaft nor one hole with the diamond drill would, under ordinary circumstances, be sufficient to test a mine. Cross cuts would have to be driven from the shaft and levels along the course of the lode. This would entail an additional large expenditure; and even then the ground explored would be limited in extent; whereas, if a hole sunk at a particular point, with a diamond drill, did not reveal rock or ore of a favorable character, the loss would be trifling, and another portion of the mining claim could be selected for the operations.

That, also, is an important consideration, for, in one case, tens of thousands of dollars, and years of time are concerned, and in the other, a very small amount of money and a few days of time only.

Rich ore being found, it would, of course, be necessary to sink shafts, &c., but the outlay would then be of little importance, as a return for it would be assured.

REDUCTION OF THE ORE—LOCATION OF SMELTING WORKS.

So far as the District of Thunder Bay is concerned, the cheapest mode of disposing of the pay ore would be to barrel that worth \$400 a ton, or upwards, for direct shipment to smelting works, which should be located in proximity to coal, and to concentrate the ore worth less than \$400 per ton at the mine.

The reasons for this are obvious. It is not probable that, for many years hence, freight from Thunder Bay to Windsor or Sarnia will be carried for less than \$5 per ton.

As a basis for calculation, let us take 8,000 tons of ore worth \$50 per ton.

By shipping same to Sarnia or Windsor, in its crude state, the cost of doing so, at \$5 per ton, would be..... \$40,000

The cost of concentrating the same at the mine would vary, according to circumstances, from \$1.50 to \$2.10 per ton. Take the outside figures and the result is as follows, viz.:

800 tons concentrated to \$400 per ton at a cost of \$2.10 per ton.....	\$16,800
Seven tons of dross, or waste rock, would thus be separated from every eight tons of crude ore. There would, therefore, remain 1,000 tons of concentrated ore, the freight on which, at \$5 per ton, would amount to.....	5,000
	\$ 21,800
Leaving a balance in favor of the latter of.....	\$ 18,200

A difference of 45½ per cent.

In alluding to Windsor and Sarnia, I do so without reference to their merits or demerits, as points where smelting works could be located, and merely for the reason that steamers at present ply regularly between these towns and Thunder Bay. Admitting that the ores would have to be transported beyond these points (which I think very probable), the advantage in favor of concentration would be even greater than the result given above. The difference in the cost of transporting the ore from the mine to the nearest shipping point would also have to be added. With a mine located some distance inland the difference would be greatly increased, the transportation of ore through a rough country being very expensive. I am not prepared at present to state definitely which would be the most suitable point for the erection of smelting works; but I fear greatly that, in the absence of extraneous considerations, it would be more profitable to have them located in the United States than in

Canada. If my surmises prove correct, no one will regret the fact more than I shall do, personally. I should like to see such works located in Canada, but as undertakings of that description must be expected to emanate from joint stock enterprises, in which a large number of persons of various opinions will be concerned, one must take a purely business view of the matter.

Supposing Canada to be as suitable as the United States, or that, from other motives, those concerned determine to locate the works in this country, I believe the most advantageous points to be Sarnia, Windsor, Toronto, and if a canal be built from Georgian Bay to Lake Ontario, the Lake Ontario terminus of the canal.

I have already stated that I am not prepared at present to express a definite opinion; and in the remarks that follow, I merely aim to assist those whose interests may render the solution of the question necessary.

One consideration is—the taxes; another—the cost of transporting the ore from Thunder Bay, and the coals from the pit. As regards the freight on the ore, Sarnia, under present circumstances, should command the lowest rates, as it enjoys the advantage of competition between two rival lines of steamers, and because Toronto would necessitate transshipment at Collingwood, and Windsor would be placed at the mercy of one line of steamers.

On the other hand, coals would, I think, cost more at Sarnia than at the other points. Whether the other advantages alluded to, would more than counterbalance its extra cost, can be ascertained by taking into consideration the quantity of coals necessary to convert each ton of ore into bullion, and to compare the difference in the cost of the coals with the difference in the charges for the transportation of the ore. Were a canal to be built from Georgian Bay, it would become the highway for the carrying trade of the West. The result would be competition, and the consequence, low freight rates from Thunder Bay. The Lake Ontario terminus should then, in that respect, be preferable to Sarnia. The cost of coals at the respective points would then have to be taken into consideration. So would the taxes. The rate of taxation should be lower at Sarnia than at the terminus of the canal, for the latter place will, in these days of bonuses, have to pay liberally for the privilege of occupying that position.

It is to be regretted that we have no coals in Ontario. Could not petroleum supply its place in many respects? I think it could. Properly applied, intense heat can be obtained from it. Why, therefore, are not means devised to apply it to smelting and other kindred purposes? Is it because the attempts that have already been made have not met with sufficient encouragement, or that Canadians are not sufficiently aware of its importance? If so, the sooner the matter receives the consideration it deserves, the better will it be for the interests of the country.

MINING INVESTMENTS AND THE MANAGEMENT OF MINING ENTERPRISES.

In Canada, mining can scarcely be said to have attained its infancy; it is still in embryo. The extent and value of the immense mineral resources of the country are comparatively unknown to the general public, and fewer still know what a mine is. Mining securities, as a sequence, are negotiated with difficulty, and until an improvement takes place in that respect, very little progress will be made in the development of these resources.

To attain that result, it is necessary (1) That shareholders in mining enterprises should be treated fairly and honorably. (2) That those in whose hands the management of affairs is vested should be fitted for the position. (3) That shareholders should be notified officially, at short intervals, of the result and state of the operations, as otherwise, those who have not other means of acquiring information may lose heart, and sell at a moment when their investment is liable to become most valuable.

Many do not object to the uncertainty attached to mining, if they could rely on the money invested being expended judiciously; but they are, and very reasonably so, averse to having it literally thrown away. A frequent mode of organizing such undertakings is fraught with the greatest danger to all concerned. A mining explorer, or a so-called practical man, discovers a mineral location, obtains an introduction to influential city business men (but inexperienced in mining affairs), induces them to lend their names to a scheme for purchasing or developing it. The scheme is launched, ordinary investors, attracted by the names of men noted for ability and shrewdness, subscribe liberally, a Mining Superintendent is appointed, he is despatched to the scene of operations, "monarch of all he surveys," and in nine cases out of ten, like a true monarch, plays at "ducks and drakes" with the funds of the company, until the undertaking finds itself bankrupt.

Men of influence who lend their countenance to a mining enterprise may be most sincere in their professions, and honest in their intentions, and still do those who follow their example a grievous wrong. There is no doubt that in cases of failure such persons have been falsely accused of having willingly deceived the public, and have had to bear the odium incident thereto, when, in reality, none were so thoroughly deceived as themselves. That they may have deserved unqualified censure for negligence, and been morally responsible for the money lost by those who confided in them, no one can deny. It is a widely recognized principle that those who are entrusted with the property of others are bound to exercise the greatest prudence in every respect.

But the loss of capital by a number of individuals is not the only injurious consequence. By it others are deterred from embarking in enterprises which, on an average, would prove very profitable to them, and of great advantage to the country.

From the effect I shall now pass on to the cause. The discoverer of a mining location has generally the same good opinion of it that the inventor of a piece of mechanism has of the latter. It is the best thing ever discovered, and "there's millions in it." We all know there are some valuable inventions, but how long would it take to squander hundreds of thousands if one believed every enthusiastic inventor, and acted on his advice?

The same might be said of "practical men," and their mining locations. There are some of them who are well qualified to form a correct opinion as to the value of a lode, but how many out of a hundred? Besides, it must be recollected that in a sale they have everything to gain and nothing to lose, which may add considerably to their enthusiasm. In mining, thoroughly competent practical men are worth their weight in gold. They are very scarce, but thousands *call* themselves so. Of the latter a number are good mining men in one sense, that is, they are able to remove a given amount of rock faster than less expert fellow-workmen, but they are slightly better able to judge of the value of a lode than a shoemaker.

Admitting, for the sake of argument, that before the purchase be made, some man, supposed to be more or less conversant with mining, be engaged to examine the property. Now, unless those who engage him have good mining connections, such a man will naturally be selected at hap-hazard, and is just as likely to be unreliable as otherwise, and probably more so. Then comes the appointment of a Mining Superintendent, a matter of the gravest importance, for success or failure nearly altogether depends upon it. In this, too, the probability is that the office will not be well filled, unless some of the Directors have mining connections and experience, for certificates of capacity are not to be depended upon.

In ordinary commercial affairs no prudent man would think of entrusting an employee with an important office without afterwards assuring himself that the duties delegated to him were being properly performed, yet that is an error which Directors are frequently guilty of; but of this more anon.

I have pointed out the main sources from which failure too often springs. It is a picture which might confirm timid people in their determination to eschew mining investments, but what branch of business is without perils fully as serious? They may not be so apparent, it is true, but that only makes them the more dangerous.

I shall now endeavor to make a few suggestions, which, united to a reasonable amount of discretion, will assist in separating the dross from the genuine article—in selecting those undertakings which stand on a secure basis from those whose structure is less perfect.

From its nature, mining will, with very few exceptions, be carried on by joint stock associations. In no branch of industry should joint stock undertakings be established on sounder principles. One thing especially is indispensable. They should be formed to assist one or a small number of individuals who have an important amount at stake. If no one is sufficiently interested (a principle too prevalent in joint stock enterprises of every description in this country) to make the welfare of the company a matter of weighty importance to him, it is a serious obstacle to success, as its affairs are very liable to be negligently administered. This has been a frequent cause of failure, when the elements of success were sufficiently marked to warrant the expectation of a happier and more profitable result.

At the same time one extreme is fraught with as much danger as the other. If there be too great a number largely interested, attempts will be made continually by cliques to get their friends into power, and displace those who may be doing the best that could be done for the interest of the shareholders, and whose experience of the affairs of the company could not be acquired by others for a considerable time. Such efforts might not prove successful, and yet the interests of the shareholders suffer seriously, as such contentions always tend to transform the "*esprit de corps*" of the directory into party spirit. I, therefore, would consider it judicious to have a fair portion of the stock well divided amongst a number of holders, in amounts more or less small. I know it to be an accepted assumption that small shareholders are liable to grow easily discouraged, but I am of opinion that they are as spirited as larger holders, if treated considerately. The fact is, officials have been too prone to look upon small shareholders, as unworthy of attention. It is not, therefore, surprising if, finding themselves neglected, they have assumed that they were being slighted with a purpose, and have lost confidence. Of course, amongst a number of persons there will always be found some unreasonable and faint-hearted ones, whether they be large or small shareholders. There is a difference, however, in the effect. A large shareholder, when discouraged, will not only intimidate a number of weaker ones, but he may cause a serious fall in the price of the stock, by forcing a heavy batch of shares on the market at once; whereas, when small holders conclude to sell, the amount being distributed over a large area, the operation passes off quietly. It might be argued that the larger the number of persons discouraged the more public opinion will be unfavorably influenced. Under peculiar circumstances such might be the case, but ordinarily the dissatisfaction of small shareholders has less weight than that of larger ones, however unreasonable the latter may be. Strictly speaking, officials should pay greater attention to the interests of small shareholders than to those of larger ones, for the result is generally of greater importance to the former than to the latter.

A man of limited resources invests a moderate amount in a mining operation. To him success means—one or two thousand dollars. Now, what may not that addition to his capital lead to? Give the command of that amount to many a man and the "dependent" will soon become "independent."

In one word, to a wealthy man the success of the investment usually means increase of capital, but to a man of limited, pecuniary resources, it means "a foundation for the acquisition of worldly position and wealth." Those successful men, who commenced life "at the bottom of the ladder," will tell you that "getting a start" was their greatest difficulty.

I must admit that the interests of small shareholders have not been neglected as much as has been supposed. The harm has been in giving them grounds to imagine that such was the case. It is, therefore, not only necessary to guard their interests, but also to make them conversant with the fact of its being done.

At least one of the Directors should have (1) good mining connections; (2) should be fairly conversant with the rudiments of mining; and (3) should have a large pecuniary interest in the company. The first is necessary to ensure the appointment of a mining superintendent of the proper qualifications; the second, to afford the directors an opportunity of detecting any mal-administration or remissness of duty on the part of the mining superintendent, and of nipping it in the bud. It is, of course, understood that such a director would pay periodical visits to the scene of operations. In addition to this, a yearly visit from one or more of the other directors could do no harm, and might prove beneficial.

The third should be a test of merit, and should assure proper and economical management. I say, should be a test of merit, for the fact that an individual, with experience in mining affairs has a sufficiently good opinion of a mining property to invest largely in it, is strong evidence of its prospective worth. Such a man is not likely to venture deeply into an investment of that description without having previously secured *what he knows* to be reliable information respecting the property in question.

There is no department in mercantile affairs where weak elements can be so readily detected as in mining undertakings. Notwithstanding this, there is none so much maligned when people happen to lose money in unsound undertakings. I know of cases where the weak elements were so apparent that it is inconceivable how they could be overlooked, yet those who, regardless of the most ordinary prudence, have lost what they so foolishly staked, are the most active in casting odium on mining enterprises in general. Matters have reached such a pass that many men are afraid of taking an active part in mining lest their moral reputation should suffer in public estimation. Why should it be so? Is it just to condemn all

those engaged in mining, on account of the dishonest practices of a few? Are there not dishonest men in every branch of trade? When a merchant or a bank fails, through dishonest management, is it assumed that all the other merchants or banks necessarily stand on the same footing? Certainly not. Why, then, should mining be made the exception? None regret more than *bona-fide* mining men the doings of those who bring mining into disrepute through their improper conduct. The fact is, none are so much to blame as those whose complaints are most loud; for, in mining, dishonest men are generally the offspring of stupidity, at whose expense they are reared and thrive. Let there be more discrimination exercised, and mining will soon become more respectable.

I must add that a mining claim may have presented solid indications of value, and the greatest ability and honesty may have guided the affairs relating thereto, and yet success not be the result; but this happens less frequently than is generally supposed. The legitimate contingencies to which mining is subject afford no grounds of complaint against any one. Neither can those whose hopes have not been realized under such circumstances have cause to regret. Those who have not the manliness to abide by the result, should not aspire to anything beyond a doubly secured 5 per cent. investment.

Every branch of business has its risks. The only difference between mining and other branches is that, in mining the result is known in a comparatively short time; whereas, in ordinary commercial affairs, it takes a lifetime to find out whether success or failure will crown one's efforts. Age has then weakened one's powers to cope with failure, while a life of close attention to business renders the fruits of success a source of care instead of enjoyment.

It is not my desire to convey that all should invest in mining. There are persons who should not do so. For example, ladies should, under no circumstances, invest any portion of their capital. It is even a question whether they should invest what can be spared from their income. Ladies are not less intelligent than men, but under our present social system they lack equal opportunities of judging of the merits of such enterprises. The question is a delicate one; a great deal could be said for and against it. It is my opinion, however, that, as a rule, ladies should abstain from taking part in them. Such of them as do not feel disposed to accept my humble opinion will not, I trust, consider me ungallant in advising them to consult a respectable broker before embarking in any enterprise of that description.

Men who should not be encouraged to invest any portion of their capital are those whose business interests would suffer to a serious extent by any diminution of their capital. Neither should trust funds be engaged therein.

I have alluded to those who should not take part in mining

affairs, and I will now direct the attention of the reader to those who could, with propriety, invest.

Foremost are those whose incomes will admit of a portion being directed into that channel, and they form a very large class. The investment of a reasonable amount could not retard their worldly progress to any appreciable extent, if at all, while a favorable result should prove of the greatest advantage.

The same may be said of those who are in a position to invest a portion of their capital, and many are able to do so.

One thing investors should ever bear in mind is, that however strong the indications of large returns, and however confident of success they may be, they should always keep cool, and not embark too large an amount in any single undertaking.

DUTIES OF SHAREHOLDERS.

Those who become shareholders in any undertaking have important duties on which its prosperity greatly depends. Many require to be reminded that "shareholder" is only another name for "partner," and therefore, as partners, it behooves them to further the interests of the undertaking to the utmost in their power by drawing the attention of their friends to its merits, and so forth. Directors often find it difficult to sell the requisite amount of stock, and undertakings languish through lack of funds, when, by the hearty co-operation of all the shareholders, the financial position could be easily and quickly placed on a satisfactory basis.

Having men at the head of affairs in whom they place confidence, they should support them unreservedly. Unforeseen delays and difficulties sometimes occur, when, instead of growing fretful, shareholders would consult their interests by giving at least their moral support to those intrusted with the management, who, in such cases, generally have enough to contend with. While there exist good reasons to expect a favorable issue, shareholders should not allow themselves to become discouraged, but, on the contrary, should stand shoulder to shoulder, and practice the most determined perseverance. Many a prize has been lost through faintheartedness.

DUTIES OF OFFICIALS.

Those to whom the management of affairs is delegated should exercise the greatest economy and tact in their administration, and should not only prove themselves worthy of the confidence of those whom they represent, but should also enlist their sympathy by affording them an opportunity of becoming conversant with the

manner in which the duties they have intrusted them with are being discharged. Shareholders are always anxious to know what is being done, and the more their wishes (I might say their rights) are attended to in that respect, the greater will be the stability of the undertaking.

It sometimes happens that a manager abstains from doing what his judgment directs through fear of disturbing the composure of shareholders. Such men should not be intrusted with weighty interests, as those they represent are thereby very liable to suffer financial injury. In mining, a large amount of money has been lost simply because the management had not the pluck to stop in time. Heavy expenditures have been wasted on forlorn hopes. Such a course is highly reprehensible. The moment sound indications of success cease to exist, those in power should not hazard a single dollar, but suspend operations at once.

On the other side, while *there are* tangible indications of success, let nothing daunt you. Shareholders may lose heart, reproaches may be cast upon you, and difficulties of every description may surround you, but never despair. Difficulties must indeed be terrible, if they are strong enough to conquer a MAN. The progress onward may be slow. But keep moving on, firmly and resolutely removing the obstructions as you proceed, and if circumstances should compel you to halt, merely consider it an opportunity to gather breath for fresh efforts. One thing ever keep in mind—the issue. You may have to travel over steep hills, and in a roundabout way, but let the issue ever be your aim. Depend upon it, if you persevere sufficiently, a bright sky will make its appearance when least expected. As regards difficulties, you will soon become accustomed to them, and “if you are made of the proper stuff,” the task of surmounting them will afford you greater pleasure than success itself.

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