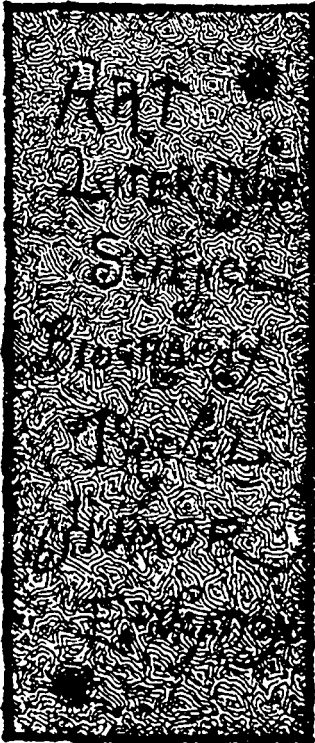


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Monthly Magazine

Edited by

Seymour Eaton

\$2.00 per year.

20 cents per No

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ANNOUNCEMENT.

As announced in our last number we have reduced the size of the SUPPLEMENT page. This will, we feel satisfied, give general satisfaction. We have increased the number of pages, introduced new departments, and added a cover. These changes will likewise be favorably commented upon by our many readers. We have made still another change, namely, a change in the subscription price. Every person who has any knowledge of publishing will consider *two dollars* a very reasonable charge for this magazine. Our engravings cost us hundreds of dollars. We publish the only illustrated educational paper in America, and so far at least as general typography is concerned the SUPPLEMENT is not equalled by any other paper of its class. We are emphatically progressive, and this number is but a fair sample of what we intend the regular monthly numbers of the SUPPLEMENT to be. The change in price does not take effect until October 15, 1885. Subscriptions will be received at the old price—one dollar—until that date. Correspondence and contributions are solicited.

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Engraved for the SUPPLEMENT from a Photograph and Wash-drawing.

THE SUPPLEMENT.

VOL. III. No. 1.

SEPTEMBER, 1885.

WHOLE No. 16.

THOMAS ALVA EDISON.

MEN of genius are found in every age, but genius allied with fertility of resource, with breadth of view, with indomitable energy and persistency, is a gift too rare for Nature to bestow oftener than once in a century. When such a man appears he rises head and shoulders above his contemporaries, and that is where Thomas Alva Edison, by common consent, stands to-day.

His is the old, the oft-repeated, story of a poor boy, of humble parentage, of scarcely any education, and with little if any equipment, discipline or training, outstripping the profoundest thinkers of his time, and upon their own chosen ground. Edison owes nothing to the schools, to society, or to parentage. He is a natural force, and as such has at last made his own way to universal recognition.

Edison was born at Milan, Erie County, Ohio, in 1847. An obscure canal village of the smallest size, it was not a place where the advent of a genius would be looked for, if this elusive spark had the habit of appearing anywhere according to prescribed formulas. The village of Port Huron, Michigan, to which his family removed soon after, and where the greater part of his youth was passed, would not have afforded a better prospect.

His family was an average one of the humbler sort. There were no unusual talents in any of its members upon which a claim to heredity of ability could be based. Of a number of brothers and sisters, none have shown an inclination toward pursuits like the inventor's own. He may have taken from his father—who was in turn tailor, nurseryman, dealer in grain, in lumber, and in farm lands—some of the restlessness which has impelled him to activity in so many different directions. He took, also, a good constitution. His mother—of Scotch parentage, though born in Massachusetts—was of good education, and had formerly been a school-teacher in

Canada. She imparted to Thomas about all the instruction from outside sources he ever received. Of regular schooling he had no more than two months in his life.

When a child he amused himself much alone, and doubtless if his quiet plays had been noted there would have been detected indications of the faculty in which his extraordinary future career was involved. He was in particular an omnivorous reader. He had the intense curiosity about the world we inhabit, and its great names and great deeds, which will be found an early trait in common in almost all the lives that have histories of their own to leave behind them.

At ten he was reading Hume's "England," Gibbon's "Rome," the "Penny Encyclopaedia," and even some books of chemistry, which came in his way with the rest, and gave, as it seems, the direction to his future action.

At twelve Edison began the world—as train-boy on the Grand Trunk Railroad of Canada and Central Michigan. To one who has noted the precocious self-possession, the flippant conversational powers, and the sharp financial dealings of the young persons who for the most part abound in it, it does not seem a profession for the cultivation of a spirit of quiet research, or the most thorough acquirement of the sciences and arts. But it is fair to presume that Master Edison at this time had no very comprehensive scheme of development prepared. It offered the most available means of a livelihood. He went into it with such a will that in course of time he became an employer of labor, having four assistants under him for the disposal of his wares.

"Were you one of the kind of train-boys," he has been asked, "who sell figs in boxes with bottoms half an inch thick?"

"If I recollect right," he replied, with a merry twinkle, "the bottoms of my boxes were a good inch."

A picture of him at this time shows a chubby-faced fellow in a glazed cap and muffler, with papers under his arm. The face has an expansive smile; yet there is something honest and a little depreciating in it, instead of impudence. He was, as will be shown, an eccentricity among train-boys, and was no doubt sensible of it.

He established in the disused smoking-section of a springless old baggage-car--which served him as headquarters for his papers, fruit, and vegetable ivory--two industries little known to train-boys in general. He surrounded himself with a quantity of bottles and some retort stands--made in the railroad shops in exchange for papers--procured a copy of "Presenius's Qualitative Analysis" and while the car bumped rudely along conducted the experiments of a chemist. By hanging about the office of the *Detroit Free Press*, in some spare hours, he had acquired an idea of printing. At a favorable opportunity he purchased from the office three hundred pounds of old type, and to the laboratory a printing office was added.

It seems to have been by a peculiar, good-natured hanging-around process of his own, with his eyes extremely wide open and sure of what they wanted to see, that his practical information on so many useful subjects was obtained. He learned something of mechanics and the practical mastery of a locomotive in the railroad shops, and acquired an idea of the powers of electricity from telegraph operators. With his printing office he published a paper--the *Grand Trunk Herald*. It was a weekly, twelve by sixteen inches, and was noticed by the *London Times* as the only journal in the world printed on a railway train. The impressions were taken by the most primitive of all means, that of pressing the sheets upon the type with the hands, and were on but one side of the paper. Baggage-men and brakemen contributed the literary contents. In 1862, during the battle of Pittsburg Landing, the enterprising Edison conceived the idea of telegraphing ahead the head-lines of his exciting news, and having them posted on bulletin boards at the small country stations. The result was a profitable venture, and the first awakening of interest on his side in the art of telegraphing, in which he was destined to play such a remarkable part.

During this time he continued his read-

ing with unabated industry. His train carried him into Detroit, where there were advantages he had never enjoyed before. He formed a project to read through the whole public library. He began with the solid treatises of a dusty lower shelf, and actually read, in the accomplishment of his heroic purpose, fifteen feet in a line. He omitted no book and skipped nothing in the book.

It could hardly be expected that so many active enterprises should be carried on without mishaps. During the chemist's absence a phosphorous bottle rolled upon the floor and set the ancient baggage-car on fire. A conductor rushed in in a fury, hurled all of the eccentric, painfully amassed apparatus out of the place, and, by way of rendering the abatement of the danger more complete, gave the astonished scientist, editor and merchant a thrashing.

Telegraphing, from the time he obtained a first rude insight into it, became more and more an engrossing hobby. He strung the basement of his father's house at Port Huron with wires. Then he constructed a short line, with a boy companion, using in the batteries stove-pipe wire, old bottles, nails for platina, and zinc (which urchins of the neighborhood were induced to cut out from under the kitchen stoves of their unsuspecting households and bring to him for a consideration of three cents a pound). His movements on the train were free and hardy. He had the habit of leaping from it, while it was going at a speed of twenty-five miles per hour, upon a pile of sand arranged by him for the purpose, in order to reach his home the sooner. An act of personal courage and humanity--the snatching of the station-master's child at Port Clements from in front of an advancing train--was a turning-point in his career. The grateful father taught him telegraphing in the regular way. He tried shoemaking for a short time--he had picked up this trade with others in some inexplicable manner--but it did not please him, and he shortly entered into his life work as a telegraph operator. From that time his interest in electric science has not varied. He has studied it intensely in all its forms. It constitutes the motive power of most of his long list of inventions. He even claims to have evolved from it a new principle, "etheric force," which sends a spark through twenty-five feet of air and has a peculiar action upon

several chemicals, yet it is imperceptible by the galvanometer.

His ready ingenuity is shown in an early instance of facile adaptation of the processes of his new profession to novel circumstances. One day an ice jam broke the cable between Port Huron in Michigan and Sarnia on the Canada side, and stopped communication. The river is a mile and a half wide. It was impassable, and no present means existed of repairing it. Young Edison jumped upon a locomotive and seized the valve controlling the whistle. He had the idea that the scream of the whistle might be broken into long and short notes, corresponding to the dots and dashes of telegraphing.

"Hallo! there, Sarnia! do you get me? Do you hear what I say?" tooted the locomotive, lustily.

No answer.

"Do you hear what I say, Sarnia!"

A third, fourth and fifth time the message went across without response, but finally the idea was caught on the other side; answering toots came cheerfully back, and the connection was recovered.

Edison's history for a number of these first years is chiefly a record of desultory wanderings from place to place, with the view of seeing the world, of procuring better wages, and very often, if the truth must be told, under the stimulus of abrupt dismissals from his positions for blunders or unpardonable negligences. At Stratford, Canada, being required to report the word "six" to the manager every half-hour to show that he was awake and on duty, he rigged a wheel to do it for him. At Indianapolis he kept press reports waiting while he experimented with new methods for receiving them. At Memphis, in 1864, he was first working out his idea of duplex transmission. The office changed hands, and he had created no better an impression than that he was thought a good man to get rid of in the readjustment. At Louisville, in procuring some sulphuric acid in the office at night for his own purposes, he tipped over a carboy of it, to the ruin of the appurtenances of a handsome banking establishment below. At Cincinnati he abandoned the office on every pretext to hasten to the Mechanics' Library to pass his days in reading. It would be gratuitously malicious to cite so many of these instances if they were thought to show a want of conscientiousness. They certainly could not be com-

mended to the imitation of employees in general, but in Edison they seem to have been the result of an uncontrollable impulse. His inventions were calling to him with a sort of siren voice. Under the charm he was deaf and semi-callous to everything else.

In 1868 he appeared in Boston. In spite of his peculiar fashions of passing his time, he had become one of the most accomplished operators. He overcame obstacles and soon took an important position. He had up to this time dallied with a number of the ideas he has since perfected, acquired a beautiful, small, rapid handwriting as clear as print, and gratified considerably his desire of seeing the world.

A new period commenced for him. Some small things of his succeeded—a dial instrument for private use, a chemical note-recorder, and others—and he began upon a vibratory principle of telegraphing. He commenced a great epoch in one's history—to believe in himself.

He had become possessed with the idea that double transmission on a single wire was possible; and his experiments, his search among books, and his preoccupation soon gained for him the title of "lunatic" among his companions. A few years more passed, and the electricians as well as the uninstructed were astounded by the announcement that a mechanism had been perfected by an unknown telegraph operator by which messages were being transmitted over the same wire in opposite directions at the same time.

But we are advancing a little the story of Thomas A. Edison's development from a boy who dreamed dreams and saw visions into the man who has seen most of those visions realized to the fullest extent.

The year 1870 proved to be the turning-point in Edison's career. In that year he arrived in New York. His dabbling with inventions had lost him one situation after another. "Competent but unreliable" was the verdict of one manager after another who had tried him. Unsuccessful in procuring work, it is said that he wandered through the streets of the great city penniless, friendless, and hungry. One day he happened to step into the office of the *Laws Gold-Reporting Telegraph Company*. The office instrument was out of order and the inventor in despair. Edison looked at it; he thought that he could make it work, and was permitted to make the trial. In a few moments he had the

complicated little instrument ticking as usual, and he was immediately employed. His discouragements were now at an end. He at once began the work of improving the Indicator, and had very soon produced his Gold Printer. His inventions pertaining to this branch of telegraphy have largely superseded the old apparatus employed, and they have resulted in greatly extending the system throughout the commercial centres of the country. Means were now at Edison's command. Business flowed in upon him in a steady stream. Establishing himself at Newark, New Jersey, Edison became the head of a manufactory for turning out his improved instruments. With three hundred workmen and full scope for his ingenuity, his inventions multiplied rapidly. Most of these were for improvements in electrical apparatus or methods of transmission. His patents relating to telegraphy alone already numbered not far from a hundred in all.

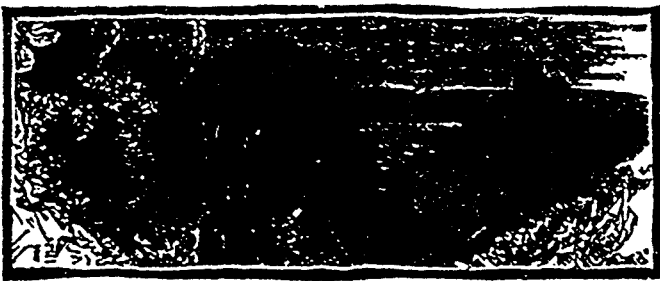
In 1873 Edison was married to Miss Mary Stillwell, of Newark. An incident is related of the honeymoon as tending to show how entire was the absorption of the inventor in his work. One of his friends, upon returning home at a late hour, saw a light in Edison's laboratory, and upon entering found the inventor plunged in one of his characteristic stupors over some problem that happened to be taxing his mind to the utmost. Seeing his visitor standing before him, Edison roused himself and wearily asked the hour. "Midnight," was the reply. "Then," said the inventor, "I must go home. I was married to-day."

Edison's own discoveries, and his applications of new principles to the discoveries

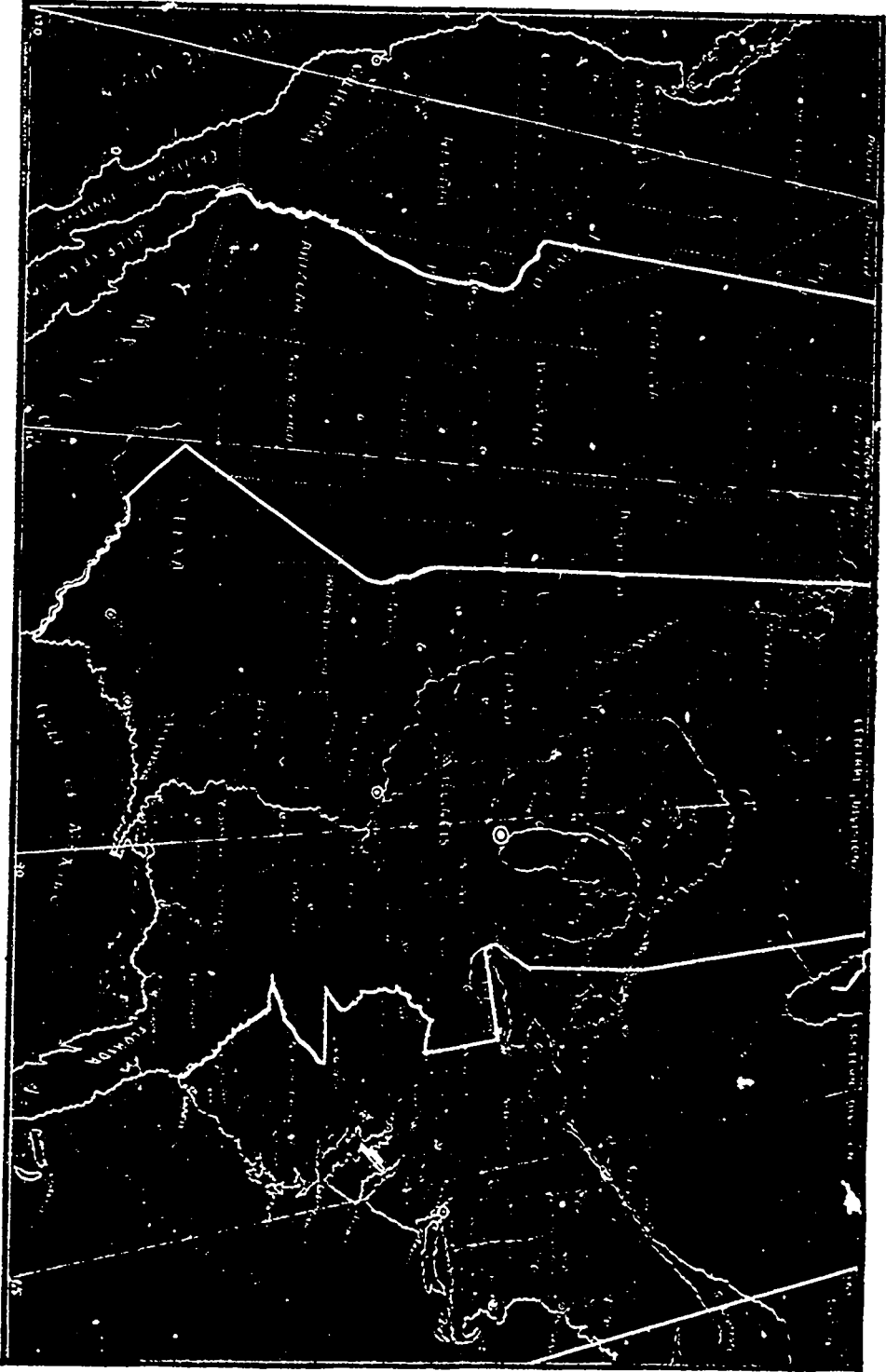
of others, have come so thick and fast that we must be content with a simple reference to the more important. His Phonograph, or "Talking Machine," astounded for a time the ignorant and the learned alike. It has, however, developed less practical value than was hoped for it. His Carbon Telephone was one of the earliest and most interesting improvements made upon the telephone of Professor Bell. For this telephone Edison received the sum of \$100,000. It at once greatly enlarged the sphere of telephone communication by making it available for conversing at distances of several hundred miles. The Megaphone is a combined speaking and ear trumpet, by which persons may converse in the open air when several miles apart. It consists of two great ear trumpets and one speaking trumpet mounted together upon a tripod. Mr. Edison has applied the same principle to a smaller instrument to be used by deaf persons, who may thus hear a whisper distinctly in the largest public hall.

We now come to that most beneficent of modern discoveries, the Electric Light—the only artificial light whose brilliancy approaches that of the sun. It has come into common use, both for out-door and in-door illuminations—street manufactories, theatres, churches, stores, steamships, and lighthouses being included in its practical working.

Mr. Edison's workshop at Menlo Park, New Jersey, is a hive of industry, in which the inventor is the animating genius. His extraordinary talents have commanded universal recognition, and to-day he stands without a peer among the discoverers and inventors of his age.



STANDARD TIME MAP.



Charles Egbert Craddock

Susan Warner 1813 Stowe

Annals B. Edwards

George Eliot Brontë

L. M. Alcott.

M. L. Whaddon

Murphy "Quids"

Katherine Saunders,

George Anne Ritchie

Adeline J. Whitney

Mrs. W. Slipant Harriet Parrs

Mark Twain

T. Carlyle

A. Symonds

W. D. Howells.

Matthew Arnold.

Oliver Wendell Holmes.

Ringside Charles Beade

Thos. Hughes

Edward E. Hale

Robert Browning Wm. Thackeray

Thomas Bailey Aldrich

William Black.

Anthony Trollope



SAMUEL L. CLEMENS (MARK TWAIN).

Engraved for the SUPPLEMENT from a Photograph and Wash-drawing.

SAMUEL L. CLEMENS (MARK TWAIN).

[The sketch of Mark Twain which we give below is abridged from a sketch, by T. C. L. Armstrong, of the life of this noted humorist which appeared in the June SUPPLEMENT.]

MARK TWAIN makes his roosting place at Hartford, Conn., where he lives in his pleasant "Nook Farm," a singular house without a mortgage, but with all other imaginable ornaments and decorations, the mantel of which is said to bear the legend, "The ornament of a house is the friends who frequent it." This variety of ornament "Nook Farm" is seldom without; for Mark, among his failings, is said to have a large, hospitable heart, and to be weak enough to exhibit a genial flow of good humor. His nearest neighbors are Charles Dudley Warner and Mrs. Stowe, thus illustrating the old saying that "birds of a feather flock together." But Mark's neighbors are by no means confined to one street or one city; they are all over, for the genial humorist seems to be a part of every household. In his pleasant Hartford home he lives from September to June with his wife and three daughters. Here he acts papa, entertains his friends, smokes, plays billiards, and occasionally writes, secluding himself in his room on the upper deck or top story of his house, which he has consecrated to tobacco, billiards and letters.

In the summer he retreats to his villa on the Hudson, or to a little cottage in the mountains near Elmira, where he spends the summer with a friend, on whose grounds a summer house has been built on the top of a high peak. This secluded and elevated spot Mark makes his study and workshop. Away up above the distracting influences of the present and the actual, he allows his fancy to roam untrammelled over the rosy fields of the past. In this lofty pilot house he steers the course of his literary work through the meanderings of plot, scene and incident, keeping his imagination at full steam by the stimulating vigor of the constantly-going cigar, which, like the sacred fire of old, is never extinguished. At Elmira Mark works assiduously and does most of the manual work of his productions, but occasionally he takes long walks, or rides around the country on his bicycle.

At present Mark is of slender figure, with a well-shaped head, full of brains and odd conceits, and covered with thick,

curly gray hair. His features are sharp and fine, eyes dark gray, and eyebrows arched. He has had an eventful life, roaming over the continent, trying one expedient after another in his struggle with the ever-present "mother of invention." At last, after many vicissitudes and through much tribulation, he stepped forth a man, armed with experience, gifted with genius, and possessed of the secret of catching the fancy and dollars of the mass of American readers. He has been fortunate in love and letters, in finance and fame, and is yet capable of giving the world many more of his delightful sketches and yarns before he slips into the lean and slippered pantaloon age, or brings his vessel into port for the last time.

Mark Twain's only disguise is his name—all else is taken more or less frankly from his own varied life. Unlike other "funny writers," who assume a peculiarity of spelling as well as a name, he rests satisfied with the current absurdities in English spelling: they are sufficiently abundant and varied for any mortal man to wrestle with.

Mark's natural spelling and straightforward nature are not the only characteristics that distinguish him from the myriad of "funny fellows" on the staffs of American papers. As a humorist his plane is higher than that of most of his rivals. His humor is natural and never forced, nor is disfigured by descents into the lower regions to raise a laugh. Boisterous and rough it often is, but these qualities it has as part of the incidents and scenes it faithfully portrays. This foundation on fact and experience may give a rough-hewn appearance to a literary work, but it is the quality that strikes home to the average heart; for the true humorist always reaches the heart. A man must have experienced and felt before he can pen anything that will interest the rest of the toiling world. We are all toilers, and Mark's writings touch us because he himself has, like the rest of us, felt poverty, privation, disappointment and want of sympathy: and we laugh when he depicts the jocular aspect of our common sufferings. Such allusions, when made by a

man who knows what he is talking of, delight us even while we are engaged in the struggle, or call up the pleasing recollections (they are pleasing) of past troubles to those who have fought successfully.

Mark Twain's sphere of usefulness is not, however, limited to his literary work. His inventive powers have been stimulated by his necessities. He uses his brains as if they were made for use, and has given the world the benefit of his ingenuity in the shape of several useful inventions. His celebrated scrap book has preserved the peace and promoted the even tenor of many a household. His note book, which always opens at the right place, has no doubt saved many a fleeting thought from hurrying into oblivion, and has enabled many an honest politician to charm his constituents with the hoarded products of other people's brains. A vest that dispenses with the use of suspenders—another of his contributions to the economy of the world—must have doubled the happiness of many a wearer of biforked

garments; while the amount of ill-nature, wounded vanity, chagrin and profanity this invention has repressed and prevented is enough to place the inventor among the greatest philanthropists and moral teachers of the day. If not, his shirt without buttons ought to establish his preëminence beyond question. This last will at least ensure him the lasting gratitude of the world of suffering bachelorhood. Mark is also said to have invented a calendar; but this, if true, would place him in such dangerous proximity to those mystical regions occupied by the weather prophet and his angels that we are fain to look upon the report as one of those myths that cluster around all great men.

Mark is in full vigor of life and intellect, and will, we trust, long continue to delight the world with his quaint humor, and benefit it with his ingenuity. May he "live long and prosper," and see the latter end of many thousand fragrant cigars before he has to look seriously on his own.

SEVEN MILLIONS FOR A CHRISTMAS GIFT.

THAT was what the city of Baltimore received at Christmas, 1873. You may ask, Who was the giver? A quiet old Quaker gentleman of seventy-eight, named Johns Hopkins, who had died the day before. He had begun life as a farmer's boy; had afterwards been a grocer's clerk; then rose to the head of a great wholesale establishment; and later became a bank president and a millionaire.

But millionaires are not uncommon, and farmer lads besides Johns Hopkins have counted at middle life their dollars by millions. In what, then, lay the difference between this particular Baltimore millionaire and other men as wealthy? Simply in this fact: He looked upon his vast possessions as constituting a responsibility which he must discharge in the manner that would do the most good to his fellows, and *not* as merely affording unlimited opportunities for personal enjoyment.

During his long and honorable life he gave liberally and judiciously in various ways; but he had one definite object in mind, to which he meant to devote the bulk of his fortune. How much careful,

far-seeing thought he devoted to this end was realized when it became known that in his will he had given seven million dollars to establish Johns Hopkins University and Hospital.

This was the outcome of the wise old Quaker's plans, which he had been maturing through his long life. Comparatively few conditions were attached to this princely gift, the most important being that the buildings for the university should be built from the income and not the principal, and it was requested that several free scholarships should be created for poor students from Maryland, Virginia and North Carolina.

The hospital, which is to be an adjunct of the university, was ordered to be built after the most approved plans, and after thorough investigations of similar institutions abroad.

The trustees of the university were chosen by Mr. Johns Hopkins, and in their selection he exercised the ripe judgment which his knowledge of men had given him, and the wisdom of his choice in this particular has certainly been justified by events.

Though one of the youngest colleges in the United States, the Johns Hopkins University has already become an influence that is felt in many directions. The impulse that it has given to study and research in biology, chemistry, philology, history and other departments has made itself strongly felt in the six scientific journals it sustains and the valuable monographs put forth by Fellows of the University under its auspices. Every year the University, exercising the broad and generous spirit of its founder, distributes twenty-five hundred-dollar scholarships, and eighteen honorary scholarships are awarded to undergraduates who have displayed particular merit. An unusually large number of

its graduates have become active and hard-working professors, and each year sees the great work which Johns Hopkins had at heart growing broader and deeper and of greater worth to the world.

Not to any costly pile of marble must we look for the memorial of this man who knew how to give *wisely*—a rare knowledge—but to the busy, useful lives that generation after generation of scholars will live: scholars whose usefulness will have been made possible by the beneficence of one who recognized that great wealth is chiefly valuable for the opportunities of well-doing which its possession affords.—*Oscar Fay Adams, in the Youth's Companion.*

THE WORK OF PROFESSOR ALEXANDER GRAHAM BELL.

PROFESSOR BELL is actively at work upon problems of sound and electricity in a way that promises an invention of far greater importance, scientifically, than the telephone itself. His laboratory is an old-fashioned two-story house on Connecticut avenue, Washington, in the neighborhood of the British Legation, Stanley Matthews' house, and the residence of Mrs. John Davis. He also has a private and secret laboratory over in Georgetown, where at present he has a most skilful workman engaged upon the forthcoming instrument. What it is is known only to the professor and the man who is working at the idea. The inventor has said to his friends that if he succeeds the new idea will yield him greater returns than the telephone has. It is suspected, however, by those who have given some attention to the course of Professor Bell's thought upon the subject, that it is the photophone, or the use of electricity to reproduce over the wires the image of the person speaking before the instrument. Professor Bell is a man of prodigious mental energy, and he is constantly developing new ideas and new applications of electrical force for the production of useful machines. He throws them off as easily and carelessly as you can fancy. For instance, he made not long ago an instrument called the audiometer, perhaps not a dozen of which have been made. It

consists of magnetic cylinders graduated to each other. These cylinders will indicate by measurement how much sound it is possible for a deaf person to hear, and if they can hear any at all. Professor Bell has also devised an instrument which might be called the submarine telephone, by which can be ascertained, by the echo from a stone dropped upon the bottom of the bay or river in which the craft may be floating, just what the depth is at that point. He has also utilized the telephone to record the echo at sea, which may show the distance of icebergs and other obstructions. Even a buoy can be distinguished by its use. Professor Bell is gradually growing out of all business pursuits and devoting himself to the improvement of the deaf. He is constantly giving more and more time to his little school, where he has perhaps a score of pupils, most all of them wholly deaf, to whom he is teaching the art of sight language. He is training these little children so that they can distinguish from the lips and face of the person speaking what they say, and teaching them to imitate the proper arrangement of the lips, teeth and tongue so that they may articulate sounds. It is understood that Professor Bell is at work upon the problem of resolving heat at once into electricity, a result, if it can be obtained, that will greatly simplify and cheapen all uses of electricity.—*Electrical Review.*



HENRY WADSWORTH LONGFELLOW.
Engraved for the *Spectator* from a Photograph and Wash-drawing.

HENRY WADSWORTH LONGFELLOW.

IT may well be doubted if any one of the poets who have arisen during the last half century has so closely touched the great popular heart as Longfellow has.

If the true grandeur of a country lies in its illustrious men, then has no one who is identified with letters done more to exalt the American name at home and abroad than this eminent and gifted poet; nor does it seem at all likely that the severest tests of time will lessen the love and admiration with which his writings have inspired the present generation of readers.

Longfellow is the poet whom all the world understands. He is no mystic, no seer. His calm philosophy always teaches some worthy or enduring lesson. His theme are as simple as his language is the perfection of melody and grace. If the right word is always a power, then may this poet's exquisite gift of language well stand for what is highest in the art of communicating one's ideas to others. His "Psalm of Life," his "Excelsior," simple homilies that they are, appeal to everyone, however humble, who may have had or is capable of feeling an aspiration toward what is highest and noblest, but who needs the guiding hand to lead him on. He does not seek to carry our hearts by storm, nor to arouse our passions, but rather to conquer through the grace of an abounding love for, and faith in, his fellowman.

He is the poet of universal qualities of attraction. His sympathies are as broad as humanity; and by that mystic bond which makes "the whole world kin," humanity claims him as its poetic interpreter. He gives the unuttered thought of the world's heart its highest expression; the longings, the tears, the sadness, the loves and griefs of humanity he breathes into song, and the tender, loving, genial strains soothe and console.

As a story-teller in verse Longfellow has had no equal in his own time; while few among the great poets of the past are his peers in the power of interesting or of entertaining an intelligent audience. Witness his "Tales of a Wayside Inn" as an example of this rare gift. We do not know whether the sonorous energy of

rhythm in "Paul Revere's Ride" or the playful fancy of "The Courtship of Miles Standish" charm us most. In the first we can almost feel the sting of the sput, as Revere urges his excited steed on over the rough highway, while the rhythm itself keeps time to the quick beat of the hoofs as the eager horseman, with a wild shout on his lips, rides at headlong speed through village and farm, bearing his fatal message of war; and notwithstanding our later knowledge, the fear grows upon us, as we read, that the intrepid rider will be too late. Such ballads, too, as "The Wreck of the Hesperus," leave us with the feeling that we have been made actual lookers-on while the doomed vessel, with the frozen helmsman lashed to the tiller, and the maiden praying on the wave-swept deck, was being borne steadily on to her destruction. We doubt if the realism of this terrible picture has ever been excelled.

Longfellow was a man of noble and gracious presence, free from the littleness that so often degrades great men, a friend to every call of humanity, a foe to every wrong, a guide and benefactor to all who sought his counsel or assistance, a patron of true worth, a most devoted lover of the arts. No literary man of his century has left so sweet a remembrance behind him, or, what is far more, so high an example of his own simple precept that

"We can make our lives sublime."

Longfellow has invented many similes, but hardly any ideas. It is not by originality of thought that he has made his impression upon his times. He has neither luxuriousness nor intensity of expression, and yet he is one of the truest poets that ever lived. It is not in vain that he has devoted himself more persistently than any other American author to the art of verse.

Longfellow had a grave and gentle humor that was most winning. He was a delightful companion and a charming host. Calumny never approached, nor could flattery spoil him. Though his hand will never more touch the pen, we say again that Longfellow is not dead, for his genius still abides with us. — *Samuel Adams Drake.*

NOTES AND COMMENTS.

OUR youthful days are over. We are not sorry for this, although we enjoyed being a boy. We were born on a lucky day, and inherited neither scrofula nor consumption. We never had to buy our clothes in a second-hand store. They were always our own, and were always made to fit. We have survived all the diseases of childhood, and have had our ears boxed a few times by bigger boys. This has tended to make us stronger and more plucky. We have frequently gone on our monthly visits with very little pocket money, but we carried with us so much that was bright and cheerful and good that our arrival was always looked forward to with much pleasure. We did not at all times do as we were told, nor come just when we were wanted. We confess our sins, and now that old things have passed away and we have put on a suit of men's clothes we hope to do better than we did in our earlier years. Our friends, however, must pay our travelling expenses promptly and in advance. They should bear in mind the fact that we can no longer go on a boy's ticket. As in the past, we shall take with us an occasional, intelligent travelling companion at our own expense. We desire to meet a large number of strangers each month, and we trust that those who are acquainted with us will do what they can to introduce us to others.

WE call the attention of every reader of this paper to the monthly offer announced in the Educational Department, and solicit contributions from all who are interested.

ALL old subscribers to the SCHOOL SUPPLEMENT will receive this *two-dollar* magazine until their year expires, when, if they desire to continue the paper, they will be required to pay the increased subscription

price. Renewals will be registered from now until October 15 at the special rate announced elsewhere.

ALL orders for "The New Arithmetic" up to the present date have, to the best of our knowledge, been filled. If any subscribers have not, according to agreement, received arithmetics, they will please notify us at the earliest possible date, giving address, date of order; etc. All such notifications will be attended to promptly.

THE *pupils' edition* of the SUPPLEMENT has been discontinued. Pupil subscribers will receive this magazine until their subscription accounts balance.

If you are pleased with the change which we have made in the form and scope of this paper, don't be backward in saying so. "Our true intent is all for your delight." It is not necessary to write us your opinion unless you begin with the words, "Please find enclosed." Don't fail, however, to let your friends know what you think about it.

FOLLOWING the custom of a number of educational publishers we did not issue a paper this year during the months of July and August. We intend, however, issuing the SUPPLEMENT in its new form and at the increased subscription rate promptly on the first of every month—twelve numbers to the year.

If your subscription expires during the next few months take advantage of our liberal offer and renew before October 15. Your renewal will be dated ahead to the full extent of your time. Make a special effort to secure at least one new subscriber. Show this number to your friends and read to them the announcement on the second page of the cover.



THOMAS A. EDISON is visiting Canada.

REV. T. DEWITT TAYMAGE is in England.

EVANGELIST MOODY has been seriously ill.

QUEEN VICTORIA is at Balmoral, Scotland.

THERE are 35,000 newspapers in the world.

MR. HENRY IRVING is travelling in Germany.

THERE are growing fears of cholera in England.

SERIOUS FLOODS are reported from China and Japan.

ITALY wants to send 20,000 troops to the Soudan.

SIR FRANCIS HINCKS died of small-pox in Montreal.

THE work of fortifying Herat is being pushed on rapidly.

RUSSIA has despatched fifty torpedo boats to the Black Sea.

LORD WOLSELEY has been elevated to the rank of Viscount.

THE cholera epidemic in Spain shows no signs of decreasing.

THE city of Montreal is suffering from a small-pox epidemic.

MR. JOHN MORLEY will abandon literature and take up politics.

RUSSIA is rapidly pushing her railway extension in the direction of India.

SIXPENNY telegrams are to come into operation in Great Britain on October 1st.

MR. GLADSTONE'S voice still continues obstinate, and he can scarcely speak above a whisper.

KING LEOPOLD has given official notice of his assumption of the title of King of the Congo State.

THE suspension of the *Chicago Current*, a weekly periodical devoted to literature, is announced.

TORONTO is rated by dramatic caterers as being one of the best cities on this continent to play to.

THE dairy stock, buildings and equipments of the United States are rated to be worth \$200,000,000.

MR. GEO. DIXON, M.A., of Hamilton, Ont., has been appointed Principal of Upper Canada College, Toronto.

THE Lawrence-Townley estates in England, valued at \$800,000,000, will soon be divided among over 100,000 legal claimants.

MR. ROSS, Minister of Education for Ontario, has been making sweeping changes in the course of study and curriculum of examination for the schools and teachers of the Province.

THE Canadian Pacific Railway will be, when completed, the longest railway in the world. It will be the only unbroken line connecting the two great oceans. The golden spike will be driven very soon.

ARCHDEACON FARRAR, who is visiting America this month, is one of the greatest pulpit orators of the day, a progressive theologian, a master of English prose, and a gentleman of unusual social gifts.

THE total eclipse of the sun on the 29th of this month will not be visible in America. The only land on the globe from which the phase of totality will be visible is the shore of Cook's Strait in New Zealand.

A MOVEMENT is on foot in England to raise a Gordon Anti-Slavery Fund to send out missionaries and commissioners to the Congo to civilize the natives and aid them in repelling the incursions of Arab slave-traders.

IN 1792 there were two hundred and sixty-four post-offices in the United States; there are now about fifty-two thousand. The yearly revenue was then twenty-five thousand dollars; it is now over forty-five millions. The postage at that time from New York to Savannah was eighteen times larger than the present postage to the farthest office beyond the Rocky Mountains.

THE total annuity voted by Parliament to the sons and daughters of Queen Victoria is \$785,000, which, by the death of the Duke of Albany and the Princess Alice, has become \$660,000. It is the custom to grant an annuity to every prince and princess of the blood royal either upon majority, orphanage, or marriage. The children not only of the Prince of Wales, but of the Dukes of Edinburgh, Connaught, and Albany, will be entitled to annuities. But Mr. Edwin Arnold believes that before long something will have to be done to check this flow of money from the treasury.

Literary News Notes

NEWS ITEMS.

JOHN RUSKIN has been dangerously ill.

CANON FAIRBair is to visit America this month.

DARTMOUTH COLLEGE has a new library building.

MISS CLEVELAND's book is meeting with great success.

OLIVER WENDELL HOLMES is seventy-six years old.

A HISTORY of Harper's publishing house has been issued.

MR. W. H. RIDEING is editor of the *Youth's Companion*.

"OUIDA"—or Louise de la Ramee—is fat, fair, and fifty.

THE *New York Nation* has reached its twenty-fifth birthday.

THOMAS P. ALDRICH recently received a fortune of \$70,000.

RUSKIN is the literary head of England in the present age.

GENERAL GRANT'S "Vicksburg" appears in this month's *Century*.

THE demand for "Chinese" Gordon's "Khartoum" still continues.

THE last new and important work on Bacon is by Dr. E. A. Abbott.

EDWARD E. HALE has collected and edited "Stories of Invention."

WILL CARLETON has a volume of "City Ballads" in the Harpers' press.

JOHN GREENLEAF WHITTIER will be seventy-eight years old in December.

THE circulation of the *North American Review* has reached 30,000 copies.

It is said that his wife is the heroine of E. P. Roe's "Opening of a Chestnut Burr."

THE August *Atlantic* contains two anniversary poems by Oliver Wendell Holmes.

GINN & Co. will have ready this month "Outlines of Mediæval and Modern History."

THERE are rumors that *Scribner's Magazine* will be revived by Charles Scribner's sons.

THOMAS HUGHES' "Life and Times of Peter Cooper" is announced by Macmillan & Co.

E. P. DUTTON & Co. announce for the coming autumn a long list of illustrated quarto gift-books.

BRET HARTE's new book, "By Shore and Sedge," is superior to many of his previous works.

MR. CHARLES DUDLEY WARNER gives his "Impressions of the South" in this month's *Harper's*.

STEDMAN's large compilation, "Poetry of America," will be in press towards the end of this month.

ROBERT J. BURDETTE is forty-one years old. He lives at Ardmore, a beautiful suburban town of Philadelphia.

EX-PRESIDENT WHITE, of Cornell, will go to Europe for about a year of rest and change of scene and thought.

GINN & Co., Boston, announce "Language Lessons in Arithmetic," by Miss Ellen L. Barton, of Portland, Me.

"ST. NICHOLAS SONGS," a large volume of selections from *St. Nicholas*, is announced by the *Century Company*.

A PORTRAIT of A. S. Barnes and a sketch of that great school-book house appears in a recent number of the *Bookseller*.

ROBERTS BROS. will publish an illustrated edition of "The Sermon on the Mount," with designs by leading artists.

Unity is a weekly journal published in Chicago in the interest of "freedom, fellowship, and character in religion."

MRS. PAXTON HOOD proposes to devote herself to the production of a memorial volume in honor of her deceased husband.

MR. JOHN BIGELOW is conducting a scheme for erecting in Central Park, New York, a monument to William Cullen Bryant.

"EARLY MARRIAGES AND LONG ENGAGEMENTS" is the popular title of a book on which Mrs. Henry Ward Beecher is engaged.

LORD HORTON considers Wordsworth's "Ode on the Intimations of Immortality" the greatest poem in the English language.

MR. T. S. PERRY's valuable and entertaining "English Literature of the Eighteenth Century" has been translated into French.

AN illustrated subscription edition of Miss Cleveland's book, "George Eliot's Poetry and other Studies," will be issued at once.

Mrs. F. J. FARGUS, "Hugh Conway's" widow, has authorized Henry Holt & Co. to publish "A Family Affair" in this country.

PROFESSOR MAX MULLER is overworked, and has been ordered to Switzerland by his physicians for a complete rest of several months.

OF the new poets, Edith M. Thomas is the most widely praised in print. Her recently published collection of poems is very popular.

GINN & Co. have just issued "A New High School Music Reader," six lectures on "School Hygiene," and "Outlines of Practical Philosophy."

MR. J. W. HARPER, a son of Wesley Harper, the pushing power in the original firm of Harper Brothers, is the American consul at Munich, Germany.

THE attendance at Chautauqua this summer has been very large. A daily paper has been started there under the name of *Chautauqua Boys and Girls*.

IT is the golden age of the novelist. Charles Dickens lies buried in Westminster Abbey, and Charles Reade is to have a memorial church in Willesden, England.

PROFESSOR HUXLEY unveiled the statue of Mr. Darwin in the British Museum on the 9th of June. The best part of his life has been devoted to unveiling Mr. Darwin himself.

THE Rev. Henry Ward Beecher's sermons, phonographically reported by Mr. Ellinwood, are printed in *The Pulpit of To-day*, a monthly homiletic magazine published at Westfield, New York.

DR. EDWARD EGLESTON is settled in London until October. He is hard at work in the British Museum, where he has made some remarkable finds of unsuspected riches for the illustration and elucidation of earlier American history.

MESSES. CASSELL & Co. are confident that a new anonymous novel which they are soon to issue will attract unusual attention. It is called "The Bar-Sinister," the text being Mormonism—"the bar-sinister on the escutcheon of this great republic."

IN an essay on James Russell Lowell, in the *Nineteenth Century*, the writer is convinced that no poetic note higher or deeper than Mr. Lowell's, no aspirations more finely touched toward lofty issues, no voice more powerful for truth and freedom, have hitherto gone to England from across the Atlantic.

AUTHORS AT HOME AND ABROAD.

ECOENE FIELD is a distinguished Chicago poet and journalist. There is a simplicity and quaint pathos in his writings. He is a humorous delineator of rhythmical measures, as well as a remarkable sentimentalist. Mr. Field's language in his poems is pure, his ideas noble, and his sentiments divine.

THE famous M. Renan is an odd-looking individual. Short, obese, shapeless, his body is surmounted by a large head, to which the hair clings fat and greasy. In spite of his unpleasant exterior, no man has greater suavity of manner or a more insinuating smile. And, all ill-favored as he is, no French writer has ever carried to a higher degree charm of form, beauty of imagery, and melody of style; and no poet has ever spoken a correcter, purer, or more harmonious language.

Mrs. FRANCIS HODGSON BURNETT is a lady of tolerably *petite* stature, a trifle given to *embonpoint*. Her hair is of a reddish tinge. Her features are large and expressive. In conversation she is most vivacious and entertaining, and people who have talked with her go away with the impression that she is a charming person. Her dresses are a marvel of the *modiste's* art.

PEOPLE who knew Bret Harte when he went abroad—a slender, graceful, dark-haired, elegant man—would scarcely recall his former lineaments in the gray, wrinkled, corpulent man he has become. His hair is now as white as snow. He has saved very little, and is naturally extravagant. One of his two sons is an actor of great promise, and the other a successful business man.

MISS ELIZABETH STUART PHELPS is slight and extremely graceful in figure, and has a refined face. There is, however, a sadness in the eye, which tells of sorrows which the owner has undergone. She possesses an indescribable charm of person and manner, arising from the extreme unworldliness and loveliness of her nature. She is very charitable, and to the poor she is an unselfish and helpful friend.

MR. WILLIAM BLACK, novelist, is a dark, slender, young, almost boyish-looking man, with a quick movement and dark eyes that look capable of very keen observation, though they are concealed somewhat by glasses, for, like so many literary men and journalists, he is near-sighted.

MR. THOMAS BAILY ALDRICH, editor of the *Atlantic Monthly*, who is pronounced by many to be the handsomest gentleman in the world of letters, is of light complexion, has a fine forehead and well-cut features. His profile is particularly fine. Although always dressed in the latest style, he is not inclined to foppishness, but is always neat in dress. In manners, Mr. Aldrich is very courteous and exceedingly refined. He is forty-nine years of age, and resides in Boston.

MISS BRADDON, the novelist, is described as a pleasant, matronly woman, a little above the medium height, and the picture of physical health.

A PHILADELPHIA *Press* correspondent, who has been talking to Walt Whitman, noticed that the lines of age in the poet's face fade away in conversation, that his eyes are blue-gray, that he wears a large white felt hat, that his spotless shirt front is fastened with a button the size and shape of a button-wood ball, and that though his voice is full and strong, his talk often halts as if waiting for just the right word.

J. T. TROWBRIDGE is fifty-eight years of age this month. His boyhood was passed on a farm, and he had little chance to go to school. When he was fourteen he began the study of German and French by himself. Mr. Trowbridge lives at Arlington, Mass., a quiet, green village not far from Boston. His brown hair is frosting over; but his smile is as sunshiny as ever and his eyes are the kindest eyes ever seen, and his voice and his manner match his eyes.

WILLIAM L. ALDEN, the new Consul-General at Rome, is a noted humorous writer. He was connected with the *New York Times* for some twelve years, contributing to it the humorous articles which were so well known and so much admired. The young people of America will remember Mr. Alden better as the author of the "Jimmy Brown" articles.

E. P. ROE lives at Cornwall-on-the-Hudson. It is here, for many years, surrounded by his books, his flowers, plants, and small fruits, that he has written the novels which have made his name famous all over the civilized world. The early part of the day is spent in writing. The novelist considers from five to eight pages a good day's work. The library is a stranger to midnight oil. The countenance of Mr. Roe is frank and manly. The hair is dark, the beard

long and black. An earnest, somewhat sad expression adorns the face. He is scarcely over forty years of age. Generous to a fault, in a degree far too good-natured, many visitors are entertained at the homestead, and make great inroads upon the time of the novelist. If he hears the voice of a friend, says his wife, he cannot remain at his desk. In recent years Mr. Roe has learned the literary secret of shutting himself away in his own apartment, where he cannot be interrupted.

MISS MARY N. MURFREE, whose identity has so effectually been hidden under the *nom de plume* of Charles Egbert Craddock, is described as a delicate-looking lady, but very pleasant in manners and appearance. She is a resident of St. Louis and the daughter of a prominent jurist there.

GEORGE W. CABLE is a small, slight, fragile-looking man, thirty-nine years old. He is erect, bright and frank, with a strong head and a refined, gentle face. His hair and beard are dark, and his large hazel eyes are expressive of his mental moods. He lives in a high-porched, wide-verandahed house, situated far up in the garden district of New Orleans. Although a Southerner, bred to the prejudices of his community, he has been able, by the sheer force of his own genius, to lift himself above his immediate surroundings and to view them with the eye of the man of the world. Force and delicacy are his especial characteristics, with an all-embracing and ever-vigilant sense of humor, which ripples at every shoaling of the serious stream of his life and work.—*W. H. Pelham.*

IN person J. C. HARRIS (Uncle Remus) has few peculiarities. In stature he is of the average height of the people of the South. His features are small. His face is tanned and freckled. His mouth is covered by a stubby red moustache, and his eyes are small and blue. There is probably no living man so truly diffident; but his diffidence is the result of excessive sympathy and tenderness. His amusements and tastes are few and simple. He is devoted to his family and never goes into society or to the theatre. His home is in Atlanta, Ga.

HENRY W. SHAW, commonly known as "Josh Billings," is over sixty years of age. His eccentricities are not assumed and artificial, but a part of the man; and in his daily conversations he uses the same apt and peculiar similes that are characteristic of his pen productions. He is an odd-looking genius—tall, stoop-shouldered,

with large, massive head, deep-set eyes, and gray beard. His hair, which he parts in the middle, falls loosely on his neck, like the locks of a school-girl. His present home is in an unpretentious dwelling in Sixty-third street, New York.

Mrs. HARRIET BEECHER STOWE is well preserved for a lady who has reached the scriptural limit. Her figure is not heavy, her face of a thoughtful cast, with features expressive of some decisiveness and strength of opinion. Her gray hair is plainly arranged. She dresses with simplicity, and has an air of New England domesticity.

HELEN JACKSON.

THE departure from the world of a woman so gifted and so beloved as Mrs. Helen Jackson (best known as "H. H.") suggests the advantage possessed, after all, by a literary woman over a literary man: her greater nearness to her public. A woman by her very nature puts more confidence in her readers; she can, without loss of dignity, write her own heart into her lines, and she invites more confidences in return. It is doubtful whether the greatest of our masculine poets had attained a place in so many humble hearts as "H. H.;" had comforted or strengthened or stimulated so many; had received so many letters of warm acknowledgment from strangers. And it is a remarkable proof of her real literary quality that she was never absorbed or overpowered by this kind of popularity; so that while her simpler and more familiar verse found its way into as many scrap-books as anything written by American women during the Sigourney period, for example, or the Cary period, she yet attained in her profounder poems a grade of thought and execution far beyond anything produced in these earlier epochs, and probably beyond the poetic work of any woman since the death of Mrs. Browning.

This makes her life and work particularly worth study; and she presents also the interesting instance of a woman who began her literary career after the age of thirty, and after she had experienced and lost that which is held by many to be the whole of a woman's existence—wifehood, motherhood, and a home. Indeed, her mature life may be easily divided—as has already been pointed out by others—into three wholly distinct periods. During the first she was wife, mother, and woman of society; during the second she was a literary woman; during the third literature itself was utterly ab-

sorbed in a generous and unselfish purpose, so in looking forward to death the productions of this last period were the only ones she cared to preserve. Fortunately we build larger than we know; and work so fine and strong as some of her earlier writing can never efface itself, even for the sake of all the Indians between here and the Pacific Ocean.

Few literary women have the personal attractiveness and even fascination of Mrs. Jackson; she exercised a charm over strangers and intimates alike; and, although she sometimes made enemies, she was surrounded by troops of friends, including old and young, both sexes, and residents of every State from ocean to ocean. She had the most cordial and winning manners, an agreeable voice, and a face whose eager youthfulness of expression remained untouched by years. She was brilliant, ardent, impetuous, generous, and confiding; she had strong likes and dislikes, and some unnecessary prejudices; she felt and thought with a swiftness that no man and few women could rival, and she acted almost as rapidly as she felt or thought. In some respects she seemed like one of Daudet's or Cherbuliez's most charming heroines, yet with a thread of New England conscience worked into her whole nature, controlling and fashioning all her later years. She was happy in being able to see positive evidence that she had done good by her work, and she met death with perfect fearlessness and in the hope of immortality.—*The Critic.*

FAVORITE STORY WRITERS AND POEMS.

The Philadelphia *Weekly Press* has been taking the vote of its readers on a number of questions. Two of them were literary: (1) Who is your favorite living story writer? and (2) Which is your favorite poem? On the first question 127 writers were voted for as follows:—

H. B. Stowe	113	Louisa M. Alcott	28
E. P. Roe	112	Mrs. Holmes	26
W. D. Howells	91	Mrs. Oliphant	22
William Black	65	Miss Braddon	21
Saml. L. Clemens (Mark Twain)	43	Ouida	17
J. T. Trowbridge	40	"Pansy"	16
Mrs. Southworth	36	Miss Muloch	15
Wilkie Collins	35	Bret Harte	14
Elizabeth Stuart Phelps	30	Bertha Clay	13
		Abdon W. Tourgee	12

Among the other votes received were the following: Oliver Optic, 9; George W. Cable, 9; George Macdonald, 8; Rebecca Harding Davis, 8; Mrs. Francis H. Burnett, 8; Charles Egbert Craddock, 8; Frank Stockton, 7; Augusta J. Evans, 7; Marian Harland, 7; Oliver Wendell Holmes, 6; Mrs. A. D. T. Whitney, 5; Julian

Hawthorne, 5; Mrs. Henry Wood, 5; Mary Cecil Hay, 5; R. D. Blackmore, 4; James Park, 3; Jules Verne, 3; Henry James, 3; Edward Eggleston, 2; Thomas Hardy, 2; E. E. Hale, 1; T. B. Aldrich, 1; Donald G. Mitchell, 1; Mrs. A. L. Wister, 1.

On the second question 178 poems were voted for:—

Evangeline	125	In Memoriam	17
Gray's Elegy	113	Lucille	16
Thanatopsis	80	Enoch Arden	15
The Raven	58	Curfew Shall not Ring	
Psalms of Life	55	To-night	14
Lady of the Lake	43	Home, Sweet Home	13
Paradise Lost	40	Maud Muller	12
Why Should the Spirit		Barbara Frietchle	12
of Mortal be Proud?	30	Lalla Rookh	11
Hiawatha	26	Cotter's Saturday Night	10
Snow-Bound	17	Star Spangled Banner	10

Other poems receiving votes were: Pope's Essay on Man, 9; Childe Harold, 8; Locksley Hall, 8; Courtship of Miles Standish, 7; Burns' Farewell to Highland Mary, 7; The Bridge, 7; Bitter Sweet, 6; Kathrina, 6; The Deserted Village, 5; Vision of Sir Launfal, 4; Charge of the Light Brigade, 4; Marmion, 4; Burial of Sir John Moore, 4; Sheridan's Ride, 3; Iliad, 3; Ancient Mariner, 2; Midsummer Night's Dream, 2.

FAMOUS OLD MAIDS.

Wordsworth, enumerating his female friends, mentions the

"Maidens withering on the stalk."

This gives him a rhyme, but the phrase is hardly the euphemism he intended it to be for blunt "old maid." Many persons thoughtlessly and rudely use the term "old maid" with an implied slur, as though there was something derogatory in it; but such people forget that single women have adorned positions of the first importance in social and even public life, and written their names high in the history of literature, science, and philanthropy. Herschel's sister and Maria Mitchell could nearly match the famous Mrs. Somerville in the higher mathematics.

The name of Miss Hannah More will occur to every one as representing one of the most influential moral forces of her time. The *North British Advertiser* continues the list:—

Queen Elizabeth of England was certainly one of the most illustrious modern sovereigns. Her rule over Great Britain comprised the most brilliant literary age of the English-speaking people. Her political acumen was put to as severe tests as that of any other ruler the world ever saw.

Maria Edgeworth was an old maid. It was this woman's writings that first suggested the

thought of writing similarly to Sir Walter Scott. Her brain may be called the mother of the "Waverley" novels.

Jane Porter lived and died an old maid. The children of her busy brain were "Thaddeus of Warsaw" and "The Scottish Chiefs," which have moved the hearts of millions with excitement and tears. Joanna Bailie, poet and playwright, was "one of 'em."

Florence Nightingale, most gracious lady, heroine of Inkermann and Balaclava hospitals, has to the present written "Miss" before her name. The man who should marry her might well crave to take the name of Nightingale.

Sister Dora, the brave spirit of English pest-houses, whose story is as a helpful evangel, was the bride of the world's sorrow only. And then what names could the writer and the reader add to those whom the great world may not know, but we know, and the little world of the village, the church, the family know!

LITERARY SCRAP-BOOK.

MR. ROBERT BROWNING to a lady who asked for the date of Mrs. Elizabeth Barrett Browning's birth: "I know neither the day, month, nor year of Elizabeth Barrett Browning's birth. It is a subject upon which I have never had the slightest curiosity."

On the late birthday of Whittier the junior class of the Girls' High School in Boston sent him seventy-seven beautiful roses in honor of his seventy-seventh year. The poet sent this reply:—

"The sun of life is sinking low;
Without, a winter's falling snow;
Within, your summer roses fall.
The heart of age your offering cheers;
You count in flowers my many years.
God bless you, one and all!"

MR. JOHN G. WHITTIER says of "Snow-Bound": "It was written after two beings had passed away whom I loved devotedly—my mother and my sister. It is in one sense a memorial of them, and as I could not dissociate them from my home, the poem became a narrative of my early days in Haverhill. The physician referred to was my old friend, Dr. Theodore Weld, of whom I also speak in the prelude to a little poem, 'The Countess,' and the young woman is Miss Harriet Livermore, the daughter of Judge Livermore. I became acquainted with her while she was stopping at Dr. Weld's house. She was highly gifted and eccentric, but very strong-minded and wilful, and was always a religious enthusiast."

THOMAS HOOD said late in life that his greatest comfort was that he had never written a line which, on moral considerations, he would wish to erase. They who write with studious painstaking as to truth, and they who write with conscientious thoughtfulness as to the moral influence of their words, may, like Hood, have pleasant memories in the evening of life. A multiplication of such authors would honor the literary guild as well as hasten the dawn of millennial days.

FROM the recently-published diary of the Town Clerk of Stratford-on-Avon in Shakespeare's time, it appears that the poet in his old age was very comfortable, living with his wife and his daughter Judith. His other daughter, Susanna, was married to a Puritan physician of some repute, and her little girl, Elizabeth, aged six years, was a great favorite of her grandfather, who made her several bequests in his will. Shakespeare's walks in the neighborhood are described, in one of which he fell asleep under a crab-tree; and his convivial meetings with Drayton and Ben Jonson were frequent.

DR. OLIVER WENDELL HOLMES was a lifelong friend of the poet Longfellow. In a recent letter to Bowdoin College, upon the celebration of the poet's seventy-eighth anniversary, Dr. Holmes wrote: "The image of our dearly beloved Henry Wadsworth Longfellow comes before us. His voice had music in it such as our echoes will listen to no more, until the ears of this generation are deaf to all earthly melodies."

TENNYSON'S epitaph for the monument to Gordon in Westminster Abbey:—

"Warrior of God, man's friend, not here below,
But somewhere dead in the far waste Soudan.
Thou livest in all hearts; for all men know
This earth hath borne no simpler, nobler man."

IN a recent lecture at Vassar College, on Founder's Day, Mr. Mark Twain informed his audience that his usual price was \$500, but that he would do the work on that occasion for fifty cents, and "take the other \$449.50 out in looking at the girls."

MARK TWAIN produces effects and wins applause by methods entirely different from those of his associate. He has been so long before the public that his manner, style and peculiarities are all well known. The foundations of his writings are humor and satire; and while they are broad, palpable, and sometimes coarse, they are free from bitterness or cynicism. The au-

thor is always good-humored, even when he pretends to be ferocious. He strikes vigorously at follies and foibles; but never with poisoned weapons. In fact, he handles his victim as old Izaak Walton handled his fish, "as though he loved it."

CHARLES DICKENS (writes his daughter) was always anxious to impress upon children the belief that as long as they were honest and truthful they would have justice done them. "In the little world in which children have their existence," he said, "whosoever brings them up, there is nothing so finely perceived and so finely felt as injustice. It may be only small injustice that the child is exposed to, but the child is small, and its rocking-horse stands as many hands high, according to scale, as a big-boned Irish hunter."

DR. HOLMES' description of Emerson: "His face was thin, his nose somewhat accipitrine, casting a broad shadow; his mouth rather wide, well formed, and well closed, carrying a question and an assertion in its finely finished curves; the lower lip a little prominent, the chin shapely and firm, as becomes the corner-stone of the countenance. His expression was calm, sedate, kindly, with that look of refinement centring about the lips which is rarely found in the male New Englander unless the family features have been for two or three cultivated generations the battlefield and the playground of varied thoughts and complex emotions, as well as the sensuous and nutritive port of entry."

OF the late Mr. Anthony Trollope this estimate has been promulgated by a discriminating French writer, M. Daryll: "A good father, a good husband, a good post-office official, a great fox-hunter, and, moreover, a man of letters, he does not leave behind him the name of a great author, but that of a man who has succeeded in the business of writing as he would have succeeded in that of a grocer; and if he has left no great work as a mark of his fame, of how many men of letters can even as much as this be said?"

THE following advice was recently sent by Rev. E. E. Hale in reply to the request of the editors of a western college journal; it is understood to be Mr. Hale's literary creed: "Speak the truth. Be pure. Keep the ten commandments. If you have anything to say, say it; if not, not. In writing English come as soon as possible to your nominative case. When you are through, stop."

CURRENT THOUGHT.

OTHER things being equal, the most successful men are the educated men, no matter what the business in which they are engaged.—*Rochester Commercial Review.*

GIVE us the man of one idea, combined with energy and push, rather than the man of a thousand ideas, who does not dare to give undue prominence to any one of them, or to say anything for fear he offends some one.—*Educational Courier.*

THE minds of children are not like rubber bags, to be stuffed and stretched and stuffed again until they are so full that you can get nothing out, but are like climbing plants, which need to be taught to climb for themselves.—*Western School Journal.*

It is important to keep boys employed. Their lessons occupy them during the five or six hours they are at school. What engages their attention afterwards? How many parents make any provision for the unemployed hours? How many choose their sons' companions, or make sure, at any rate, that the boys do not fall into bad company? It is simply miraculous that so many grow up pure and honest, when one considers the temptations to which they are exposed, and the little pains taken by the parent to shield them from attack.—*Elliot McCormick.*

AFTER the division of the public offices between the two parties has been in some degree equalized, there will be the best opportunity that has ever occurred of putting the whole public service, from high to low—the few great administrative offices alone excepted—on a permanent, non-partisan footing. To accomplish this the lower grades in every branch of the service must be thrown open to impartial but searching competitive examinations, and all of the higher places, up to the very top, must be filled by the promotion of meritorious subordinates. This is the natural, logical, and, as we believe, inevitable outcome of the civil service reform movement. Whether this goal can be reached in one administration remains to be seen: but when it is reached one of the greatest political revolutions that this country has ever seen will have been accomplished.—*Century.*

TEACHERS may be divided into two classes—those who teach from patterns and those who teach from principles. In the former we see slavery, in the latter growth.—*Supl. G. Griffith, Lockport, N. Y.*

THE whole aim and purpose of education is, or ought to be, healthful exercise—training and development of all the faculties. It should put the student in the very best of mental and physical health—not break down his mind or body.—*Philadelphia Ledger.*

THE aim of a university is to fit for specialties, but the aim of a college should be to educate, to give a rounded impulse to general cultivation, which implies that, for a certain length of time, it is fitting that the youth should be compelled to study the very things he does not "take to," as the man with strong legs but weak arms will, at the gymnasium, be made to develop his arms and pay no attention to his legs till all his limbs are on terms of equality.—*E. R. Sill, in the Atlantic.*

It is not work that kills men, it is worry. Work is healthy; you can hardly put more upon a man than he can bear. Worry is rust upon the blade. It is not the revolution that destroys the machinery but the friction.—*Henry Ward Beecher.*

THE longer I live the more satisfied I am that in this and in other countries nothing is more important than well-trained labor, and in teaching our young men that there is no degradation, but the highest honor, in following the industrial pursuits.—*Gen. George B. McClellan.*

THIS has been, on the whole, a very good season for "scenery." It has varied in price from two dollars and a half a day for a quiet article to five dollars for the broadest and best. A resort with "a full line of scenery" is, of course, expensive; that is, one that combines mountains, valleys, water, hamlets, rocks, cascades, islands, water-falls. It is difficult to define exactly what scenery is in the popular mind, but all are agreed that it is an article one must go away from home to get.—*Harper's Editor's Drawer.*

WHAT we need is examinations that will measure scholarship; practice that will improve the method; but more than that, we need careful, conscientious oversight that will determine the character, the manliness, the soul power of the teacher.—*Prof. J. M. Milne.*

My advice to boys is, that next to exact regularity in their hours for prayers, and pious reading, they allow nothing to interfere with their hours for study. To know just how much time they can give to each study daily, and never to drop one minute of that time, will tend to form a habit vastly influencing good character and a successful life.—*D. S. Stanley.*

It is pleasant to feel, where the fit character of university education is so much a subject of discussion and difference, that the selection of Professor Charles K. Adams for President of Cornell gives guarantee that the same policy and modes of instruction which, under the direction of President White, have raised that institution to so high a position, will find countenance and strength.—*Harper's Weekly.*

BRAF HARTE is a descriptive writer of the first order, yet many of his tales are overburdened with landscape effects.—*Literary World.*

GENERAL GORDON'S journals run like a rapid. Once launched upon them the reader is borne on as by a tossing, foaming current, which sweeps him past an ever-changing variety of fact, observation and sentiment, his excitement deepening as he passes on to the final catastrophe. The journals will not materially modify the received estimate of Gordon as a man of principle, pluck, faith, tenderness, passion, skill, imagination and devotion, but they will sensibly intensify the public appreciation of these traits, and will not help us to be more charitable towards England's course in the Soudan.—*Literary World.*

MISS MURFREE does her work with touches. She wastes no words. Bold, strong, clear in her style as in her handwriting, she makes you laugh and weep at will.—*Literary World.*

EDUCATION, briefly, is the leading of human souls to what is best, and making what is best out of them; and these two objects are always attainable together and by the same means: the training which makes men happiest in themselves also makes them most serviceable to others.—*John Ruskin.*

If that man be a great writer or a great orator who, conceiving a grand idea, expresses it in terms that live in the memory of the people, then General Grant was both a great writer and a great orator.—*The Current.*

THE boy who resolves to do *one* thing honorably and thoroughly, and *sets about it at once*, will attain usefulness and eminence —*E. P. Roe.*

GRANT was silent, tenacious, enduring, and as with every man to whom it is given to render the highest service to his country, the clouds of differing judgment of incidents and details will gradually yield to the pure and steady sunlight of permanent fame and national gratitude.—*George William Curtis.*

ABOVE all things, be truthful, never try to appear what you are not, honor your father and your mother. Be diligent, recollecting that all permanent success in life is based on labor. Be gentle to those in more humble positions in life than yourself. Be charitable, not only with your purse but in your opinions. Prefer the respect of mankind to their applause.—*Winfield S. Hancock.*

It is a waste for society and an outrage upon the individual to make a boy spend the years when he is most teachable in a discipline the end of which he can never reach, when he might have spent them in a different discipline which would have been rewarded by achievement.—*President Eliot.*

EACH man should try to get as much of a liberal education as is compatible with his joining some craft by which he can live, however humble that craft may be.—*Pall Mall Budget.*

I AM of opinion, altogether apart from the specialties of Greek and Latin, that the acquisition of languages ought not to occupy so prominent a place as it does in the programme of our educational establishments.—*Prof. Blackie, in University Quarterly.*

ONE sentence of honest praise, bestowed at the right time, is worth a whole volley of scolding.—*Rev. Dr. Cuyler.*

MISS CLEVELAND will devote the proceeds of the sale of her book to the endowment of chairs in several educational institutions. This is an admirable example to be set before literary royalty in Europe.—*The Current.*



KIND WORDS.

O MANY a shaft at random sent
 Finds mark the archer little meant,
 And many a word at random spoken
 May soothe or wound a heart that's broken.

—Scott.

RIFTS IN THE CLOUDS.

THE night is mother of the day,
 The winter of the spring,
 And ever upon old decay
 The greenest mosses cling.

Behind the clouds the starlight lurks,
 Through showers the sunbeams fall;
 For God, who loveth all His works,
 Has left His hope with all.

—Whittier.

THE EVENING HOUR.

THEN read from the treasured volume
 The poem of thy choice,
 And lend to the rhyme of the poet
 The beauty of thy voice.

And the night shall be filled with music,
 And the cares that infest the day,
 Shall fold their tents, like the Arabs,
 And as silently steal away.

—Longfellow.

A TRUE AIM.

AIM well!
 No time is lost by care.
 Haste fails. A true aim wins;
 The contest dare,
 Make each aim tell.

LIFE.

FOR life to me is as a station,
 Wherein apart a traveller stands—
 One absent long from home and nation
 In other lands.

And I, as he who stands and listens,
 Amid the twilight's chill and gloom,
 To hear, approaching in the distance,
 The train for home.

—Longfellow.

A FALSEHOOD.

FIRST, somebody told it,
 Then the room wouldn't hold it,
 So the busy tongues rolled it
 Till they got it outside;
 When the crowd came across it,
 It never once lost it,
 But tossed it and tossed it,
 Till it grew long and wide.

—Mrs. M. A. Kidder.

FAITHFULNESS.

THERE'S many a lamp that is lighted;
 We behold them near and afar:
 But not many of them, my brother,
 Shine steadily on like a star.

LITTLE THINGS.

LITTLE grains of wisdom,
 Little gems of wit,
 May make your life more useful,
 And cheer you up a bit.

PURPOSE.

Aim high!
 No shaft is e'er misspent
 Which, aimed with true intent,
 Strikes near the mark. An aim
 Well meant
 Is victory.

HEART VENTURES.

I stood and watched my ships go out,—
 Each one by one unmooring free;
 What time the quiet harbor filled
 With flood-tide from the sea.

The first that sailed, her name was Joy;
 She spread a smooth, white, ample sail,
 And eastward drove with bending spars
 Before the singing gale.

Another sailed, her name was Hope;
 No cargo in her hold she bore,
 Thinking to find in western lands
 Of merchandise a store.

The next that sailed, her name was Love;
 She showed a red flag at the mast,
 A flag as red as blood she showed,
 And she sped south right fast.

The last that sailed, her name was Faith;
 She slowly took her passage forth,
 Tacked and lay to; at last she steered
 A straight course for the north.

My gallant ships they sailed away
 Over the shimmering summer sea,
 I stood and watched for many a day—
 But one came back to me.

For Joy was caught by Pirate Pain,
 Hope ran upon a hidden reef;
 And Love took fire and foundered fast
 In whelming seas of grief.

Faith came at last, stormbeat and torn,
 She recompensed me all my loss;
 For as a cargo, safe she bore
 A crown linked with a cross.

THE GOOD OLD WAY.

JOHN MANN had a wife who was kind and true,
 A wife who loved him well;
 She cared for the house and their only child;
 But if I the truth must tell,
 She fretted and pined because John was poor,
 And his business was slow to pay;
 But he only said, when she talked of change,
 "We'll stick to the good old way!"

She saw her neighbors were growing rich
 And dwelling in houses grand;
 That she was living in poverty,
 With wealth upon every hand;
 And she urged her husband to speculate,
 To risk his earnings at play;
 But he only said, "My dearest wife,
 We'll stick to the good old way."

For he knew that the money that's quickly got
 Is the money that's quickly lost;
 And the money that stays is the money earned
 At honest endeavor's cost.
 So he plodded along in his honest style,
 And he bettered himself each day,
 And he only said to his fretful wife,
 "We'll stick to the good old way."

And at last there came a terrible crash,
 When beggary, want and shame
 Came down on the homes of their wealthy
 friends,

While John's remained the same;
 For he had no debts, and he gave no trust,
 "My motto is this," he'd say,—
 "It's a charm against panics of every kind,—
 'Tis stick to the good old way!"

And his wife looked round on the little house
 That was every nail their own,
 And she asked forgiveness of honest John
 For the peevish mistrust she had shown;
 But he only said, as her tearful face
 Upon his shoulder lay,
 "The good old way is the best way, wife;
 We'll stick to the good old way."

THE HOME SUPPLEMENT

"HER CHANCE."

ABOUT thirty years ago, two young girls were graduated from the same school in a quiet town in one of the Middle States. Each was clever, good-tempered and attractive, and the daughter of a farmer, who could give to his children a comfortable home, but no fortune.

The mother of one of these girls (we will call her Mary) declared that her child should "have her chance." An outfit of silk, velvet and evening-dresses, Paris hats and jewellery, was provided by selling off part of the family acres; and the mother set out with her on a round of visits to the springs and other fashionable resorts.

The girl was shown off to every eligible young man, precisely as a horse would be exhibited to a buyer, but in vain. The effort was renewed summer after summer, until the mortification and shame which the girl had felt at first were worn away, and she became at heart a hard, vulgar adventurer, whose sole object was to make a brilliant match; in other words, to sell herself for a good price.

Just as she was beginning to grow old and soured by disappointment, she succeeded in marrying a man of sixty with a large fortune. His habits were dissolute and his temper intolerable. Her two children, having grown up in an atmosphere of show and pretence, unwarmed by a spark of love, truth, or religious faith, naturally were indifferent to their mother. The son became a spendthrift and drunkard; the daughter an almost imbecile, fashionable woman. Mary has the stately house, the servants, the equipages, for which she planned and struggled so many years. But she has nothing more.

Her classmate, leaving school, entered at once into the work and life of her home. She was the friend and companion of father and mother, the teacher of her little sisters.

"She shall be fitted to become a wife and mother," her mother said, "if God sends her that great happiness. But she shall not go out in the world husband-hunting. The hare should not chase the hounds."

According to this homely philosophy, she remained at home, among her own friends and neighbors, and married a young man who had

no wealth but industry and honesty, whom she heartily loved. They live still in her native village. Their small income goes far there. They have comforts and luxuries; their children are healthy, intelligent, successful men and women, and all devoted lovers of their mother.

Mary sometimes sees her classmate in town, in her old-fashioned country carriage, with rosy cheeks beneath her gray hair, and pities her because she never "had her chance."

Girls, remember your chance in life is something higher and deeper than the chance of being sold as from an auction block to the highest bidder.

BIG TREES.

THE biggest trees in the world come from California. Other places make their boasts. At the foot of Mount Vesuvius there stands a chestnut with a cleft in it so big that a team can drive through; but compared with some of the big trees in California this chestnut is undersized, not to say a pigmy. The natives of California use hyperbole to convey an idea of the size of their trees. Thus they say of a giant of the forest that it took a man and two boys to see the top of it; the boys began to look where the man left off. The idea is more straightforward than that of the Vermont farmer who declared that he had a pumpkin so large that eight men could stand around it. The largest tree ever grown in the valley of the Yosemite is variously said to have had a diameter of thirty-six feet, and to have offered a surface broad enough, when cut across, to easily admit of the turning of a four-horse "Sander-son" coach upon it. The lumber obtained from these trees, on account of its exceedingly close grain, is regarded as invaluable for the timbering up of tunnels, being impervious to moisture, and it was used exclusively in the building of the great Alpine tunnel on the South Park branch of the Union Pacific Railroad, notwithstanding the excessive cost of transporting this particularly heavy wood for a distance of more than one thousand miles. Its imperviousness to moisture makes the red-wood of California exceedingly valuable also as shingling material, and red-wood shingles are rapidly supplanting slate and tin in the roofing of the houses of to-day.

ISLE OF JERSEY.

THE island of Jersey contains about forty-six square miles, 29,000 acres. It supports 60,000 people and over 12,000 cattle, and exports annually over 2,000 head. This is about two persons to an acre, one cow to two acres, and one cow exported to every ten acres.

Where 12,000 cattle are kept on such small territory, and rent is over forty-three dollars per acre, every farmer works with his own hands. Instead of the island being eaten up with cows, and the farmers beggars, it is a little garden thickly strewn with good houses; and poverty is almost unknown. The beef for the people is imported. They do not raise a bullock nor make a cheese.

The Jersey gives richer milk and yields more butter in proportion to her size and the amount of food consumed than any other cow. Her average weight is 700 pounds; and many cows yearly make more than half their weight in butter. She comes into milk very early, is easily managed even by children, and is equally at home in hot or cold weather. Much of the prosperity of Jersey is due to the high price paid for her annual export of 2,000 cows.—*Rural New Yorker.*

SELF-RELIANCE.

If you are ever to be anything you must make a beginning; and you must make it yourself. The world is getting too practical to help drones, and push them along, when there is a busy hive of workers, who, if anything, live too fast. You must lift up your own feet, and if you have a pair of clogs on which clatter about your heels, they will soon be worn off, and left behind on the dusty pathway. Mark out the line which you prefer: let truth be the object glass, honesty the surveying chain, and eminence the level with which you lay out your field; and thus prepared, with prudence on one arm and perseverance on the other, you need fear no obstacle. Do not be afraid to take the first step. Boldness will beget assurance, and the first step will bring you so much nearer the second. But if your first step should break down, try again. It will be surer and safer by the trial. Besides, if you never move, you will never know your own power. A man standing still and declaring his inability to walk without making the effort, would be a general laughing-stock; and so, morally, is the man, in our opinion, who will not test his own moral and intellectual power, and then gravely assure us that he has "no

genius," or "no talent," or "no capacity." A man with seeing eyes keeping them shut, and complaining that he cannot see, is the trumpeter of his own imbecility.

THE WONDERS OF PAPER.

At the Melbourne Exhibition there was a complete dwelling-house made entirely of paper and furnished with the same material. There were paper walls, roofs, ceilings, floorings, joists and stairways. There were paper carpets, bedding, chairs, sofas and lamps. There were paper frying-pans, and even the stoves in which bright fires were constantly burning daily, were of *papier maché*. When the fabricator of this mansion gave a banquet, the tablecloths, napkins, plates, cups and saucers, tumblers, bottles, and even the knives and forks were likewise made of paper.

LIFE.

LIVE for something! Yes, and for something worthy of life and its capabilities and opportunities, its noble deeds and achievements. Every man and every woman has his or her assignment in the duties and responsibilities of daily life. We are in the world to make the world better, to lift it up to higher levels of enjoyment and progress, to make its hearts and homes brighter and happier by devoting to our fellows our best thoughts, activities and influences. It is the motto of every true heart and the genius of every noble life, that "no man liveth to himself"—lives chiefly for his own selfish good. It is a law of our intellectual being that we promote our own happiness in the exact proportion we contribute to the comfort and enjoyment of others. Nothing worthy of the name of happiness is possible in the experience of those who live only for themselves, all oblivious of the welfare of their fellows.

PALMISTRY.

THE desire to read human character by external signs has been felt in the world for a long time now. The phrenologists have asserted themselves most, and bumps on the skull have been the best trusted to indicate the workings and tendencies of the mind within. Novelists and essayists of transcendental reachings have also advanced the human thumb and the human back as give-aways of the mental and psychical complexions of persons. Mr. Geo. Macdonald, lawyer and novelist, of London, for instance, speaks of the infinite appeal and expression of

a human back. He makes it out a sort of eloquent blind wall, calculated to affect any beholder. Finger-nails are the matters that explorers have most recently turned to as the indices of interior traits. Long and slender nails, it is said, show imagination, poetic feeling and laziness; long and flat nails show good sense, gravity and prudence; wide and short nails, anger, obstinacy, rudeness and the love of controversy; dry and brittle nails, anger, cruelty and fierce quarrelsomeness; curved and claw-like nails, hypocrisy and wickedness; soft nails, feebleness of body and mind; and bitten nails, dissipation and folly.

GO STRAIGHT THROUGH IT.

Do your work at once. Don't stop to dawdle. And if ever you find yourself where you have so many things pressing upon you that you hardly know how to begin, let me tell you a secret: take hold of the first one that comes to hand, and you will find the rest all fall into file, and follow after, like a company of well-drilled soldiers; and though work may be hard to meet when it charges in a squad, it is easily vanquished if you can bring it into line. You have often seen the anecdote of the man who was asked how he managed to accomplish so much in his life. "My father taught me," was the reply, "when I had anything to do, to go and do it." There is the secret—the magic word *now*.

DIO LEWIS'S NUGGETS.

THE best supper for a tired working-man is oatmeal porridge with a little warm milk. It will certainly cure many dyspeptics.

To cure "pimples and flesh-worms" you must purify your blood, not by swallowing patent medicines, but by living on plain nutritious food, breathing a pure air day and night, sleeping enough, exercising freely, and keeping your skin open by frequent baths in soap and water. There is no other way to purify your system.

NOTHING so expands the mind, gives clearness to the ideas, elasticity to the form, and health to the system, as early rising and a walk before breakfast.

Our flowers and growing plants are healthful in sleeping-rooms. I am surprised that a question on this point should ever have been raised. Indeed, a window full of plants is a real, positive source of health, as well as of pleasure.

OF all work, brain work is the most healthful, and conduces most to longevity.

OF all the agencies which determine our destiny, climate is the most potent. A climate with sharp alternations of heat and cold, calm and fury, rouses the elasticity of muscle and brain. The sharp and severe changes of our northern regions make that portion of our country the breeding place of strong, wise men.

WALKING is the best exercise, and if spirited, and the arms be allowed to swing freely, it brings into play the muscles of the upper part of the body as well as the lower half.

DESSERT.

TO the ears of a stranger the name Creole is supposed to imply a taint of African blood. This is erroneous. The Creoles are essentially the Latin race in Louisiana. They are the native-born descendants of French and Spanish colonists in the extreme Southern States.

A FRENCHMAN has taken out a patent for making butter by passing a current of electricity through milk.

COMPLAINT is made that in Dublin 31,202 families live in 7,284 houses, containing 48,116 rooms. One hundred and seventy-five Dublin houses which, as freeholds are valued at £8,677, are sub-let to poor tenants for £8,311 a year, and one house which is valued at £8 is occupied by eight families, who pay a rent of £82 a year.

A HINDOO woman writes to one of the newspapers of India: "Without the least fault of mine, I am doomed to seclusion. Every aspiration to rise above my ignorant sisters is looked upon with suspicion, and interpreted in the most uncharitable manner. Our lawgivers, being men, have painted themselves pure and noble, and laid every conceivable sin and impurity at our door. By right divine they can maltreat us at will. The treatment which servants receive from European masters is far better than that which falls to the share of us Hindoo women. We are treated worse than beasts. We are regarded as playthings."

THERE were harvested in Grass Valley, California, last season, seventeen bushels of the great grandchildren of a single kernel of wheat which was planted three years ago. The children of the kernel numbered 860, and the grandchildren one-fifth of a bushel.

A CONVICT in Portsmouth, England, was recently visited by his wife. The visit lasted half an hour. In order to make it the woman had walked from Birmingham, the journey taking twenty-one days, and had wheeled before her the whole way a perambulator, which contained her child, a cripple, eleven years of age.

FIFTY thousand children go to the 187 ragged schools of England. That is a great many children, and that is a strikingly ungenerous name to apply to the schools which they attend.

THE Harvard *Crimson* notes that England, with a population of 25,000,000, sends 5,000 students to her two universities; that Scotland, with a population of 4,600,000, has 6,500 university students; that Germany, with a population of 48,000,000, sends 23,500 to her numerous universities; and that New England, with a population of 4,100,000, has 4,000 students in her eighteen universities and colleges.

MR. ALFRED PARSONS, according to the *Spec-tator*, is without exception the most exquisite draughtsman of flower and foliage which the English school possesses.

BRAZIL has 1,177,022 slaves, and the Brazilian government is contemplating their emancipation by purchase.

A GERMAN school-master, who had served faithfully for upwards of fifty years, was recently retired by the imperial government upon an annual pension of thirty-six dollars and seven metres of fire-wood.

AN inventor in Japan has discovered a means of making from sea-weed a material which can be used equally well (and very well in both cases) for writing-paper or window-glass.

ANTWERP and Hamburg, and one or two other places thereabouts, are in the habit, it is said, of shipping twenty million eggs to this country every year.

OHIO has 35 colleges—more than any State in the Union. New York and Indiana have 28 each, Pennsylvania has 26, and Massachusetts 7. But the Massachusetts colleges have an income from productive funds of \$291,812, receipts from tuition of \$166,538, and libraries containing 303,126 volumes; whereas in Ohio the aggregate income from productive funds is \$210,510, and from tuition fees \$125,382, while there are only 161,302 volumes in the libraries.

Michigan, with 9 colleges, has better provision for their support than Ohio has for hers. The colleges of New York and Pennsylvania are far better endowed.

MR. JOHN BRIGHT to his constituents: "Cast your eye back for a moment upon the reign of the Queen. Do you imagine the reign of the Queen is remarkably a reign of peace, and that Heaven should be thanked for the long peace that we have enjoyed? How much peace have you enjoyed? A great many other people, at your cost, have not enjoyed it. Three wars with China, the most peaceful empire in the world; a war with Burnah; I know not how many wars in South Africa, even before the Zulu war; a war in the Crimea of the greatest proportions; two Afghan wars, in one of which not less than 60,000 camels died of hunger, thirst and over-labor; another war in Egypt; and I assert that it was not possible for anybody to form, I will not say a just defence, but a reasonable excuse, for the wars that have been waged by this country during the reign of the Queen."

A letter addressed simply "Mr. Barnum, America," and posted at Maulmain, British Burmah, on the 15th of January last, reached the great showman at Bridgeport duly. This incident shows both that it is not necessary always to have comprehensive information in order to accomplish an end, and that it is convenient sometimes not to have your name Smith.

FOR every square mile of herself England has sixty-five square miles of colony, Holland has fifty-four, Portugal twenty, Denmark about six and a third, France not quite two, and Spain only about four-fifths of a mile. The area of the British colonies is a little less than that of the Russian Empire, including Siberia and Central Asia, and England speaks with authority in lands which cover almost one-sixth of the solid part of the globe.

SAN FRANCISCO continues one of the healthiest cities in the world, with an annual death rate of 19.58 per thousand, which is lower than the death rate in thirteen foreign cities and ten American cities selected for comparison—that is to say, of foreign cities, London, Liverpool, Manchester, Sheffield, Leeds, Hull, Stockholm, Buenos Ayres, Dublin, Belfast, Berlin, Munich, and Hamburg; and of American cities, New York, Boston, Pittsburg, Washington, St. Louis, New Orleans, Charleston, Baltimore, Savannah, and Richmond.

The Humorist

MEN OF FEW WORDS.

CERTAIN garrulous people might profit by the following lesson in brevity. Rare is the man or the woman who says what he or she has to say *and nothing more*. Farmer Sam Dobbins boasted that he was "a man of few words," as indeed he was. He was always railing against "these wind-bags," as he styled the class of men and women who talk more than is necessary. And he was always wishing he could find a man or a woman who was not "all gab." One day he met the object of his desire.

He was industriously hoeing corn in his field, when a strange gentleman jumped over the fence and came toward him. Then ensued the following conversation, which we give as a model of elegant brevity:—

"Hello!"

"Goo'-day!"

"Hot?"

"Yes."

"You live here?"

"Yes."

"Well 'quainted round here?"

"Yes."

"Know old Sam Dobbins?"

"Yes."

"He live close about?"

"Yes."

"Wha' kind o' man is he?"

"First-rate feller."

"Well off?"

"Ruther."

"Cranky?"

"Ruther so."

"I'm a little that way myself."

"So'm I."

"Ever hear Dobbins peak 'bout a brother o' hisn'?"

"Yes."

"One that went to Californy twenty-five year ago?"

"Yes."

"Name was Jack Dobbins?"

"Yes."

"I'm Jack Dobbins."

"I'm Sam Dobbins."

"How air ye, Jack?"

"How air ye, Sam?"

Then Farmer Sam hoed to the end of his row,

and came back to his brother, whom he was heartily glad to see, and who made him a long visit. The neighbors said it was "as good as a show" to hear their pointed lessons in brevity.

CARELESS LETTER-WRITERS.

Now that Uncle Sam has lowered his price for carrying letters, so that we can send a whole ounce for two cents, it behooves the public to meet the old gentleman's advances, and save him needless trouble.

In all large post-offices one or more persons are employed in merely rectifying the mistakes of careless people. Every day a great many newspapers slip out of their wrappers, and much trouble is taken to get the right wrapper back on the right paper. The attempt is not always successful, and hence many people receive newspapers without being able to guess who sent them or why they were sent.

In the New York post-office there is a *Blind-room*, as it is called, where ingenious men are continually employed in deciphering addresses and rectifying mistakes. The clerks attain a skill in deciphering that appears truly marvelous. Some time ago, a letter was dropped into the London post-office bearing this address:—

"*Coneyach Lunentick
A Siliam.*"

The clerk at once perceived that this meant, "Colney Hatch Lunatic Asylum." Another letter bore the inscription:

"*Ann Meggs
Oilneychilt
Amshire.*"

The clerk promptly changed the address to "Isle of Wight, Hampshire." Another letter was addressed in a way that was for a time quite baffling:—

"*For Mr. Willy wot brinds de Baber in Lang
Caster ware te gal is.*"

After a time it was found that this letter was intended for "Mr. Willy who prints the paper in Lancaster where the jail is."

Our own post-masters could match the most absurd of these. The school-master is evidently abroad. We trust hereafter, or as soon as vacation is over, he will stay at home and attend to his business.—*Ex.*

A CENSUS-TAKER'S EXPERIENCE.

The census taker has been going his rounds in Detroit. He has been giving a part of one day's experience to a *Free Press* reporter, and from it we make the following extract —

At one house I saw the women upstairs at the window as I went up the front steps. A fat, good-looking girl came to the door, and I commenced asking questions.

"Any children been born here during the past year?" says I.

"Don't know," says she; "I haint been here but three weeks. I'll go and ask missis," and away she toddled upstairs. Pretty soon she came toddling back and says—

"Missis wants to know what you want to know for?"

"Tell her I am taking the city census, as required by law each year," says I, and away went the girl again. When she got back she said—

"Yes."

"How many?" says I.

"Only one," says she.

"Boy or girl?" says I.

"Girl," says she.

"What's her name?" says I.

"Dimple," says she.

"That's her baby-name," says I. "What's her real, full name?"

"I'll ask missis," says she, and up she went.

"Beatrice Branscombe Browne," says she.

"When was she born?" says I.

"I'll ask missis," says she, and I whistled "The Watch on the Rhine" clear through before she came back.

"Day before Christmas," says she.

"What is her father's name?" says I.

"Mr. Brown, of course," says she.

"What's his first name?"

"I'll ask missis." The girl was fat and began to puff as she went up the stairs.

"Benjamin Bruce Brown," says she.

"What does he do for a living?" says I.

"Keeps a store," says she.

"What's her mother's name?" says I.

"I'll ask her," says she.

"Betholinda Berthelet Brown," says she.

Just then the woman came to the head of the stairs and says—

"Seems to me you're asking a great many impertinent questions."

"Law requires it," says I. "Where were you born?"

"Buffalo."

"How old are you?"

"None of your business! Matilda, shut the door!"

A BUSTER.

Boys and men who have never travelled far nor read much, sometimes have contracted notions as to the size of the globe we inhabit.

A country lad, brought up in the mountains of West Virginia, once accompanied his father on a visit to his uncle, who lived in an adjoining county. After his return home he put on airs, and often referred to the "sights" he had seen, to associates who listened with open-mouthed wonder.

One day something was said about the size of the world, when our hero thus delivered himself:—

"I tell you what, boys, if the world is as big out the other way, as it is the way me and pap was, she's a buster!"

A MYSTERIOUS ROBBERY.

A boy about twelve years old reported to a policeman the other day that a robbery had occurred at the house under very mysterious circumstances. The sum of \$25, which was in a china vase on a bracket, had taken wings.

"Were any of the doors or windows found open?" asked the officer.

"No."

"Any visitors in the house who might have taken it?"

"No."

"And you haven't picked up any clues, eh?"

"That's the trouble, sir—there's clues till you can't rest. I want to go off and camp out, and dad thinks I cribbed the money. Dad wants to go to Chicago, and marm thinks he's got the boodle. Marm wants a new summer bonnet, and dad says she clawed them ducats for sure. The hired girl is going to be married next week, and dad and marm and me believe she raked in the stake to go on a bridal tour. Tell you what, mister, when I see how many clues can be picked up on a little case like this, it makes me anxious to know which of us will come out on top."—*Detroit Free Press.*

WHAT KIND OF A MAN HE IS.

"WHAT kind of a man is he? Good, bad, or indifferent?"

"Well, that depends a good deal on who teeters on the other end of the plank with him."

"How so, sir?"

"Well, if you size him up alongside of Judas Iscariot he looms up to middlin' fair; but when you come to set him down between such fellows as you an' me, judge, he does dwindle terrible surprisin'—he does, for a fact."

A BIG DOG.

THE minds of many people are not fitted for struggles in mathematics. When it came to fractions Mike, for example, was at sea with no hope of ever getting ashore.

"What are you going to do with that dog, Mike?"

"Sure an' I want to sell him, sor."

"How much do you ask for him?"

"Well, bein' as it's you, sor, I'll sell him to you chape, and a better dog never walked in shoe-leather. You can have him for two dollars, sor."

"What breed is he?"

"Well, sor, he's—he's—he's half terrier and half Newfoundland, an'—an' half mastiff, sor."

"Ah! Well, this is the first time I ever knew of a dog having three halves."

"Arrah, an' that's a big dog, so he is. He'd make a dozen halves of the little felly goin' along beyant ye there."

A TEACHER'S WEAKNESS.

NOTHING can be more unwise than for a teacher to fly into a passion in the presence of his pupils. Such folly is disastrous to good government, and nearly always ends in mortification and self-abasement to the teacher, who is deserving of all the humiliation he thus brings on himself. The following laughable incident describes the embarrassing position in which a teacher placed himself by not bridling his tongue when he should have done so:

"I left my pencil lying on my desk a moment ago," said an irritable teacher in one of our city schools. "I cannot find it now."

Nothing was said by the pupils.

"I am very sure I left it right here," said the teacher, hastily turning over books and papers on his desk.

"Perhaps it is in one of your desk-drawers," suggested a pupil.

All of the desk drawers are pulled out angrily.

"No, it isn't here; I knew it wasn't. I left it right on this desk just before this class came up to recite," was the frowning reply, in which was conveyed the delicate insinuation that some member of the class had taken the pencil.

The teacher searches again in all his pockets, and says sharply,—

"I'm *positive* that some one in this room knows where that pencil is. I want it returned to this desk immediately."

No one moves.

"I will have that pencil again, if I have to search every desk in this room. Have you got it, Harry Johnson?"

Because Harry Johnson was the most mischievous boy in the school was a poor excuse for the teacher's accusing question, and it was little wonder the boy angrily replied,—

"No, sir; I haven't."

"Well, some one has, and that's all there is about it. And it has been deliberately stolen from this desk."

At that moment a grinning little urchin held up his hand.

"If you please, teacher, the pencil is sticking behind your left ear."

But the teacher lost that day what he could never find again—the respect of his pupils.

TRANSPOSED.

THE transposition of syllables by careless or embarrassed talkers often occasion some very laughable mistakes.

A lady visiting in a large city attended a fashionable church, and, through the carelessness of an usher, was shown into a private pew. Very soon a fashionable family came in, led by a very pompous-looking old gentleman, who stared angrily at the offending stranger in his pew.

The lady, greatly embarrassed, arose and said, "I—I—beg your pardon, sir; do you occupew this pic?"

This was equal to the careless garrulity of the old lady who said that she had just recovered from an attack of "inflammoomy toryism."

A GOOD REASON.

"LITTLE boy," said a gentleman, why do you carry that umbrella over your head? It's not raining."

"No."

"And the sun is not shining."

"No."

"Then why do you carry it?"

"'Cause, when it rains pa wants it, an' it's only this kinder weather that I kin git ter use it at all."

AN absent-minded professor was sitting at his desk writing one evening, when one of his children entered. "What do you want? I can't be disturbed now." "I only want to say good night." "Never mind now; to-morrow morning will do as well."

AN American tourist was visiting Naples and saw Vesuvius during an eruption. "Have you anything like that in the New World?" was the question of an Italian spectator. "No," replied the other, "but we have a Niagara that would put it out in five minutes."

The Children's Hour.

THE THREE TRAVELLERS.

THREE men met at an inn in Persia; and two of them brought their provisions along with them according to the custom of the country; but the third, not having provided any, proposed to the others that they should eat together, and he would pay the value of his proportions. This being agreed to, A produced 5 loaves, and B 3 loaves, all of which the travellers ate together, and C paid 8 pieces of money as the value of his share, with which the others were satisfied, but quarrelled about the division of it. Upon this the matter was referred to the judge, who decided impartially. What was his decision?

NOTE.—Answers solicited from juniors. See next number.

THE SHEEP AND THE ROBBERS.

TAKE seven counters or coins of the same size, shape and appearance. Place five of them on a table thus:—

1	2	3	4	5
○	○	○	○	○

and hold one in each hand.

The trick is to take the coins up one by one, with each hand, and to put them down again, and to take them up again, in such a manner as to get five in one hand and two in the other.

When doing the trick tell some story like the following:—

“There were five sheep in a field” (point to the five counters on the table), “and two robbers” (open your hands and show that there is one counter in each). “The robbers took the sheep away one at a time.” Having said this, take counter No. 1 in the left hand, No. 5 in the right hand, No. 2 in the left hand, No. 4 in the right hand, and No. 3 in the left hand. Then continue: “Just as they had got all the sheep out of the field, they saw the shepherd coming, so they put the sheep back again.” Having said this, put down one counter from the right hand, then one from the left, then one from the right, one from the left, and one from the right. You will now have two counters in the left hand and none in the right, but the audience will imagine you have one in each hand. Be careful, if you first take up

with the left hand, first put down with the right hand; and do not let the counters now in the left hand click, and keep the right hand closed. Then say: “As soon as the shepherd’s back was turned, the robbers took away the sheep again.” Having said this, take up the counters one by one, as before, beginning with the left hand. You will now have five counters in one hand, and two in the other. Go on: “But, being disturbed, the two robbers ran away” (open your right hand and throw down the two counters), “leaving all the five sheep together in a lane” (open your left hand and throw down the five counters).

THE EXPUNGED FIGURE.

In the first place, desire a person to write down secretly, in a line, any number of figures he may choose, and add them together as units; having done this, tell him to subtract that sum from the line of figures originally set down; then desire him to strike out any figure he pleases, and add the remaining figures in the line together as units (as in the first instance), and inform you of the result, when you will tell him the figure he struck out.

$$\begin{array}{r} 76542=24 \\ \quad 24 \\ \hline 76518 \end{array}$$

Suppose, for example, the figures put down 76542; these added together, as units, make a total of 24; deduct 24 from the first line, and 76518 remain; if 5, the centre figure, be struck out, the total will be 22. If 8, the first figure, be struck out, 19 will be the total.

In order to ascertain which figure has been struck out, you make a mental sum one multiple of 9 higher than the total given. If 22 be given as the total, then 3 times 9 are 27, and 22 from 27 shows that 5 was struck out. If 19 be given, that sum deducted from 27 shows 8.

Should the total be equal multiples of 9, as 18, 27, 36, then either 9 or 0 has been expunged.

THE PERPLEXED CARPENTER.

THERE is a hole in the barn floor, just two feet in width and twelve in length. How can it be entirely covered with a board three feet wide and eight feet long, by cutting the board only once in two?

ARITHMETICAL RECREATIONS.

1. If the third of 6 be 3, what must the fourth of 20 be?
2. Place four *nines* so that their sum shall be 100.
3. What part of 3 pence is the third of 2 pence?
4. If a herring and a half cost a penny and a half, how much will 11 herrings cost?
5. Place four *threes* so as to make 34.
6. Write down 13 in such a way that when half of it is rubbed out 8 shall remain.
7. What is the difference between half a dozen dozen and six dozen dozen.
8. Write 24 with three equal figures, none of them being 8.
9. Six ears of corn are in a hollow stump. How long will it take a squirrel to carry them all out if he take out three ears a day?
10. Subtract 45 from 45 and leave 45 as remainder.

A VERY GOOD QUESTION.

A GENTLEMAN who owned four hundred acres of land in the form of a square desired to keep one hundred acres, also in the form of a square, in one corner, and divide the remainder equally among his four sons so that each son should have his lot of the same shape as his brother's. How may this be done?

HEADS OR TAILS.

Cut a tiny notch in a florin, or any other coin, so that the least bit of metal will project from one of its sides. Then spin it on a table having no cloth on it, and you will find that if it goes down notched side up it will make the usual long whirr as it does so; but if the notched side be downwards the coin will stop almost dead, and go down with a flop. The knowledge of this fact will enable you to tell, even when blindfolded, if the coin falls tail or head upwards.

"FUZZ-BUZZ."

This is a game in which any number of persons can play. The more the merrier, however. Some one begins and counts one; the person sitting next to him counts two; the next, three; the next, four; and the one to count five says "Fuzz," instead. Then the one next in order says six, and the one who should count seven says "Buzz." Continue the count, and whenever the number is a *multiple* of five or seven, the words "Fuzz" or "Buzz" should be used

instead. For instance, fifteen is a multiple of five, and instead of saying fifteen, you should say "Fuzz;" and so twenty-one is a multiple of seven, and you should say "Buzz." If you succeed in counting as high as thirty-five you say "Fuzz-Buzz." Whenever a mistake is made the count begins again with one, two, three, etc.

A CANDLE TRICK.

LET a candle burn until it has a good long snuff; then blow it out with a sudden puff, a bright wreath of white smoke will curl up from the hot wick. Now, if a flame be applied to this smoke, even at a distance of two or three inches from the candle, the flame will run down the smoke, and rekindle the wick in a very fantastic manner. To perform this ceremony nicely, there must be no draught or "banging" doors while the mystic spell is rising.

THE ASTONISHED FARMER.

A AND B took each 30 geese to market. A sold his at 3 for a dollar, B at 2 for a dollar, and together they receive \$25. A afterwards took 60 alone, which he sold *as before*, at 5 for \$2, and received but \$24; what became of the other dollar?

A TRICK WITH DOMINOES.

CAUSE a set of dominoes to be shuffled together as much as any of the company may desire. You propose to leave the room in which the audience is assembled, and you assert that from your retreat, be it where it may, you can tell the two numbers forming the extremes of a line composed of the entire set, according to the rules established for laying one domino after another in the draw game. All the magic consists in taking up and carrying away, unknown to everyone, one domino (not a double), taken at hazard; for the two numbers on it must be the same as those on the ends of the two outer dominoes. This experiment may be renewed by taking each time a different domino, which, of course, changes the numbers to be guessed.

THE FOX, GOOSE, AND OATS.

A PERSON has a fox, a goose, and a peck of oats to carry over a river, but on account of the smallness of the boat he can only carry over one at a time. How can this be done so as not to leave the fox with the goose nor the goose with the oats?

EDUCATIONAL DEPARTMENT

MONTHLY PRIZE OFFER.

We shall each month give a prize for the best contribution for this department. Nothing will be published that is not practical, and that cannot be made use of by teachers in their ordinary class teaching. Contributions need not necessarily occupy more than one-third of a page, and in no case should one contribution occupy more than one page. The competitions will close on the 20th of each month, and the prize contribution, together with all contributions worthy of a place in this department, with the names of the several contributors, will be published in the magazine of the month following. All contributions received between the 20th and the end of the month will be included in the competition of the following month. This month we offer a complete set of THACKERAY'S WORKS, 11 volumes, bound in cloth, and illustrated, for the best contribution. The regular price of this set is \$17.50. The competition is open to all readers of this magazine, and the contributions may be either original or selected.

PRACTICAL EXERCISES FOR PRIMARY PUPILS.

EXERCISE ONE.

1. What does it cost to mail a letter?
2. Write your name and address?
3. Write the names of the seven days.
4. Find the sum of the numbers between 9 and 19.
5. How many hours in a day and a night?

EXERCISE TWO.

1. How many days in September?
2. Make *cut*, *spin*, and *come* end in *ing*.
3. Write from memory any verse.
4. Write the five longest words you can think of.
5. What time is it when the large hand is at 5 and the small hand is between 2 and 3?

EXERCISE THREE.

1. How many inches in a foot?
2. Write the names of the months.
3. Write *I've* and *don't* in full.
4. In what month is Christmas?
5. Find the sum of the even numbers between 1 and 15.

EXERCISE FOUR.

1. Write something about yourself.
2. Write XIX. in figures.
3. Write the initials of your name.
4. What is an orchard?
5. Write a word meaning nearly the same as *parcel*.

EXERCISE FIVE.

1. Name four kinds of trees.
2. Correct: The stick had a *not* on it.
3. Name five things used in sewing.
4. What kind of grain is flour made from?
5. Name three kinds of housework, each name to end in *ing*.

NOTE.—Five exercises similar to the foregoing will appear in every number of the SUPPLEMENT. Contributions for this department will be accepted from teachers of primary classes.

HISTORICAL RECREATIONS.

1. What woman was prime mover in the massacre of St. Bartholomew?
2. Who was "King Hal"?
3. Who was "Queen Bess"?
4. Who was the first Prince of Wales?
5. Who were the Ironsides?
6. What German king kept an English king in prison until ransomed?
7. What Stuart sovereign did not meet a tragical end?
8. What English king assumed the title of King of France?
9. Who prepared the Book of Common Prayer?
10. Name three kings who received the title of "the Great"?

SHOEMAKERS' MEASURE.

THREE barleycorns, or *sizes*, equal one inch. Number one, children's measure, is $4\frac{1}{2}$ inches, and every additional number calls for an increase of one-third of an inch in length. Number one, adults' measure, is $8\frac{1}{2}$ inches long, with a gradual increase of one-third of an inch for additional numbers, so that, for example, number *ten* measures $11\frac{1}{2}$ inches. This measure corresponds to the number of the *last*, and not to the length of the *sole*.

CHEMICAL PROBLEMS.

- How much potassium chlorate is needed to furnish 1 lb. of oxygen? *Ans.* 2.554 lbs.
- On completely decomposing by heat a certain weight of potassium chlorate, I obtain 20.246 grams of potassium chloride. What weight of potassium chlorate did I take, and how much oxygen was evolved?
Ans. 33.27 grams; 13.03 grams.
- How much oxygen can be obtained by the decomposition of 100 grams of mercury monoxide?
Ans. 7.4 grams.
- Required the weight of ammonia and of chlorine needed to produce a litre of nitrogen?
Ans. 6.08 grams ammonia gas; 9.52 grams chlorine.
- What weight of copper is required to yield a litre of nitrogen dioxide at 0° C and 760mm.?
Ans. 4.224 grams.
- What volume of oxygen at 0° and 760mm. can be theoretically obtained from 1 lb. of bleaching powder, $\text{Ca Cl}_2 \cdot \text{Ca Cl}_2 \cdot \text{O}_2 + 2\text{H}_2\text{O}$?
Ans. 34.67 litres.
- How many litres of oxygen are contained in 3 litres of nitrogen tetroxide? *Ans.* 3 litres.
- Deduce the formulæ of the following substances:

(a) Potassium, 28.73	(b) Carbon, 19.04
Hydrogen, 0.73	Hydrogen, 4.76
Sulphur, 23.52	Sulphur, 25.40
Oxygen, 47.02	Oxygen, 50.80
100.00	100.00

Ans. (a) KHSO_4 . (b) $\text{C}_2\text{H}_6\text{SO}_4$.
- 1.5055 grams of a mixture of sodium and potassium chloride gave 3.4222 grams of silver chloride. Calculate the relative amounts of the two chlorides. *Ans.* Na Cl 66.3; KCl 33.7.
- What weight of water would be heated from 0° to 1° C. by the combustion of 1 gram of hydrogen?
Ans. 34.46 kilos.

THEORY OF HEAT.

QUESTIONS AND EXERCISES.

- If 6 lbs. of water at 35° C. be mixed with 5 lbs. of water at 67° C, find the temperature of the mixture. *Ans.* 49.11°.
- A glass rod is 8 feet 6 inches long, at 20° C; find its length at 45° C. *Ans.* 8.502 ft.
- How many pounds of steam at 100° C. will just melt 12 lbs. of ice at 0° C.? *Ans.* $1\frac{1}{2}$ lbs.
- Explain the effect of blowing a fire. How is it that you may sometimes increase the heat of a fire by blowing it, and sometimes blow out?
- Explain clearly what is meant by the phrase "the latent heat of ice is 79°."
- Why does hot water cool more rapidly in a shallow dish than in a deep one of the same capacity?
- If a vessel containing ice be brought into a warm room, its sides usually run down with water. Explain the reason of this.
- If 5 lbs. of ice at 32° F. be added to 1 lb. of steam at 212° F., what is the resulting temperature? *Ans.* 104.3° F.
- When the day is warm you cannot see your own breath; when cold you can. State the reason.
- If a certain weight of gas measures 6,000 cubic feet when the barometer is at 30 inches, how much will it measure when the barometer is at 28 inches? *Ans.* $6,728\frac{1}{2}$ cub. ft.

EXERCISES IN GEOMETRY.

ANGLES AND TRIANGLES.

- An angle is equal to 12° 12' 13". Find an angle four times as large.
- What angles do the hands of a clock make at 8 o'clock?
- What angle is described by the minute hand of a clock in forty minutes?
- What angle is described by the hour hand in 5 hours?
- Find the value of two adjacent supplementary angles, if one is 14 times as large as the other.
- Find the supplement of 35° and the complement of 84°.
- What is the supplement of the complement of 42°?
- What is the complement of the supplement of 91°?
- Through the vertex of a right angle a line is drawn outside the angle. What is the sum of the two acute angles thereby formed?
- One acute angle of a right triangle is 24° 32'. Find the other acute angle.
- Of the angles of a triangle the second is twice the first, and the third three times the second. Find all the angles.
- If three angles of a quadrilateral are right angles, what is the value of the fourth angle?
- Make a quadrilateral having the greatest possible number of obtuse angles.

14. What is the value of each of the acute angles in an isosceles triangle the vertex angle of which is 31° ?

15. Find the angles of an isosceles triangle if a base angle is four times the vertex angle.

16. The bisector of the base angle in an isosceles triangle makes, with the opposite leg, the angle 42° . Find all the angles of the triangle.

17. In a right triangle one leg is equal to half the hypotenuse. Find the acute angles.

18. Can a triangle be made having for sides 14 feet, 19 feet, and 29 feet? Why?

19. If one angle of a parallelogram is 62° , find the other angles.

20. The sum of two of the angles of a right triangle is 128° . Find each of the angles.

MECHANICS.

QUESTIONS AND EXERCISES.

1. Distinguish between motion of translation, rotation and vibration.

2. A body begins to move with a velocity of 100 feet per second, and at the end of 7 seconds its velocity is 65 feet. How much is the velocity retarded a second? *Ans.* 5 feet.

3. Explain why it is dangerous to jump out of a railway carriage when in motion.

4. If a ball be thrown out of the window of a railway carriage in motion, in what direction will it seem to fall, and in what direction will it really fall?

5. A body falls freely for 5 seconds; what is its velocity? *Ans.* 160 feet per second.

6. Explain what is meant by *momentum*, and how it differs from *velocity*.

7. A man weighing 140 lbs. forces up a weight of 80 lbs. by means of a fixed pulley under which he stands; find his pressure on the floor. *Ans.* 60 lbs.

8. Forces of 3, 4, 5, 6 lbs. act at distances of 3 ins., 4 ins., 5 ins., 6 ins. from the end of a rod. At what distance from the same end does the resultant act? *Ans.* $4\frac{1}{2}$ ins.

9. Show that as the angle between two forces is increased their resultant is diminished.

10. A ladder 20 feet long weighs 60 lbs; its centre of gravity is 8 feet from the thicker end; it is carried by two men, one of whom supports the heavier end on his shoulder; where must the other stand that the weight may be equally divided? *Ans.* 4 feet from smaller end.

EXERCISES IN COMPOSITION.

A FACT or a truth, expressed in several short or detached sentences, is usually more easily understood than when expressed in one long, involved sentence. Short sentences also give sprightliness and animation to the style. On the other hand, too great a succession of short sentences becomes monotonous and tiresome. French writers generally are characterized by their fondness for short sentences, while Germans are equally remarkable for sentences which are long, involved and cumbersome. The practice of reconstructing sentences, combining short, independent sentences into long, connected ones, and resolving long, complex sentences into short ones, is a very useful exercise for the student. In making these changes a slight change of words is sometimes necessary. The object of the exercises is to learn how to vary the form of a sentence and yet express clearly the meaning.

EXERCISE.

NOTE.—Combine the short sentences into long ones.

- I know that that prayer will be answered.
I know that that love will be shed abroad.
I know that it will swell all hearts.
I know that it will kindle every tongue.
I know that it will be in every hand more than a sword of fire.
- I am satisfied.
The ship sails on.
We cannot see, but we can dream.
We have no work, no pain.
I like the ship.
I like the voyage.
I like the company.
I am content.
- Novels, as a class, are injurious to young people.
They destroy the taste for more solid reading.
They cultivate the emotions to an undue extent.
They convey false impressions of life.
- Antony has done his part.
He holds the gorgeous East in fee.
He has avenged Crassus.
He will make kings, though he be none.
He is amusing himself, and Rome must bear with him.
He has his griefs as well as Caesar.
Let the sword settle their disputes.
But he is no longer the man to leave Cleopatra behind.
She sails with him, and his countrymen proclaim how low he has fallen.

STANDARD TIME EXERCISES.

1. When was Standard Time adopted?
2. What advantages has it over the old local time?
3. How many divisions are there? Name them.
4. What is the difference in time between
 - (1) Halifax and Chicago?
 - (2) Toronto and San Francisco?
 - (3) Denver and Philadelphia?
5. What meridian forms the centre of the Mountain Division?
6. Has the time of Philadelphia been changed?
7. Name the States and Provinces that are entirely in the Mountain Division.
8. Name three cities in the Central Division where Standard Time is in advance of old local time.
9. In travelling from Toronto to Chicago by the Grand Trunk where is a change of one hour made?
10. Why are some of the division lines irregular?
11. What is the difference in time between
 - (1) New Orleans and Boston?
 - (2) Montreal and Winnipeg?
 - (3) Buffalo and Victoria, B.C.
12. When it is 11.20 a.m. at Cleveland, what time is it at
 - (1) Topeka?
 - (2) Minneapolis?
 - (3) Halifax?
13. A difference of one degree is equal to a difference of how many minutes?
14. How many degrees from the centre of one division to the centre of the next?
15. Columbia is 81° W. L. Is its present time slower or faster than the old local time, and how much?
16. At Herkimer, N.Y., the old time and standard time agree; what is its longitude?
17. Name a large city in the Central Division whose time has been but slightly changed.
18. Trains enter Pittsburg, Pa., from the east by the time of what division? How about trains from the west?
19. In travelling from Chicago to Denver by the Burlington route, where is a change of one hour made?
20. What city in Michigan is between two Divisions?
21. Which Division has the largest number of railway lines?

22. Omaha is 96° W. L. When it is 12 noon there by the old local time, what is the standard time?

23. Boston is 71° W. L. Is its present time slower or faster than the old local time, and how much?

24. San Francisco is $122\frac{1}{2}^{\circ}$ W. L., and Buffalo is 79° W. L., what is their difference in

- (1) Astronomical time?
- (2) Standard time?

25. In travelling from Omaha to San Francisco by the Union Pacific, a change of one hour is made at what place?

JUNIOR CLASS COMPOSITION EXERCISES.

NOTE.—Caution your pupils with regard to capitals and punctuation. Explain the meaning of a sentence to them.

1. Write a sentence containing only two words.
2. Write a sentence about yourself.
3. Write a sentence about yourselves.
4. Write a sentence about newspapers.
5. Write a sentence about railways.
6. Write a sentence about a game.
7. Write a sentence about churches.
8. Write a sentence containing four words.
9. Write a sentence about boating.
10. Write a sentence telling something you did.
11. Write a sentence telling something you saw.
12. Write a sentence telling something you like.
13. Write a sentence telling something you heard.
14. Write a sentence requiring an interrogation mark.
15. Write a sentence containing Roman numerals.
16. Write a sentence containing twenty words.
17. Write a sentence requiring two capital letters.
18. Write a sentence requiring three capital letters.
19. Write a sentence requiring six capital letters.
20. Write a sentence containing the name of a friend.
21. Write the name of some association.
22. Write the names of any three churches.
23. Write a sentence requiring quotation marks.
24. Quote from memory two lines of poetry.
25. Write the name of some railroad.

- 26. Write your own name and address in full.
- 27. Write a name with three initial letters.
- 28. Write the abbreviation of *Pennsylvania*.
- 29. Write the contraction of *could not*.
- 30. Write the contraction of *does not*.

Copy the following words, putting capitals where necessary:—

- | | | |
|---------------|----------------|---------------|
| 31. saturday. | 32. journeyed. | 33. margaret. |
| evening. | saratoga. | picturesque |
| connecticut. | california. | columbus. |
| continent. | septembe. | washington |
| protestant. | beautiful. | africa. |
-
- | | | |
|---------------|----------------|---------------|
| 34. garfield. | 35. mountains. | 36. colorado. |
| navigation. | residence. | christian. |
| particular. | elmavenue. | alexander. |
| missouri. | chemicals. | enjoyment. |
| victoria. | nobleman. | livingston. |

Write the correct abbreviations of the following names:—

- | | | |
|--------------|--------------|--------------|
| 37. Alabama. | 38. Esquire. | 39. Colonel. |
| Ontario. | California. | General. |
| Kentucky. | Quebec. | February. |
| Thomas. | Louisiana. | Illinois. |
| Captain. | William. | Manitoba. |
-
- | | | |
|-------------|--------------|----------------|
| 40. George. | 41. Brother. | 42. Honorable. |
| Doctor. | Post Office. | Governor. |
| Agent. | Barrels. | Namely. |
| Mister. | Number. | Secretary. |
| Professor. | Street. | Month. |

Write in full the names for which the following are abbreviations:—

- | | | | |
|---------|----------|-----------|------------|
| 43. Jo. | 44. B.A. | 45. inst. | 46. G.T.R. |
| Me. | A.D. | ult. | C.O.D. |
| Pa. | A.M. | doz. | Y.M.C.A. |
| Mo. | P.S. | etc. | I.O.G.T. |
| Ga. | D.V. | cwt. | R.S.V.P. |

ALGEBRA.

SOMETHING NEW IN FACTORING.

The following method of *factoring* is adapted, like all methods of factoring, to a special class of examples:

Factor

$$x^3 + 9x^2 + 23x + 15.$$

$$x^2 \quad + 4x \quad + 3.$$

$$x \quad \quad \quad + 5.$$

The factors of the first term are x^2 and x , and the factors of the fourth term are $+3$ and $+5$. Place these in position as above. All the signs will be *plus*. Now, to get the co-efficient of x in the first factor, multiply the x^2 of the first factor by the 5 of the second, subtract the product from the second term of the quantity to be factored, and divide the remainder by the

first term of the second factor. The quotient will be the desired term, $4x$.

$$\{9x^2 - (5 \times x^2)\} \div x = 4x,$$

$$\text{or, } \{23x - (3 \times x)\} \div 5 = 4x.$$

In this example the pupil will not know which, 5 or 3, to put first. The correct one can be found only by the *trial* work, necessary in all factoring.

Factor

$$2x^3 + 17x^2 + 23x + 14.$$

$$2x^2 \quad + 3x \quad + 2.$$

$$x \quad \quad \quad + 7.$$

In this example there will be two *trials*—first, to place the co-efficient 2, and second, to place the factors 2 and 7.

$$(17x^2 - 14x^2) \div x = 3x.$$

Factor

$$10x^3 + 32x^2 + 37x + 33.$$

$$2x^2 \quad + 2x \quad + 3.$$

$$5x \quad \quad \quad + 11.$$

$$\{32x^2 - (11 \times 2x^2)\} \div 5 = 2x,$$

$$\text{or, } \{37x - (3 \times 5x)\} \div 11 = 2x.$$

EXERCISE.

1. $x^3 + 2x^2 + 2x + 1.$
2. $x^3 + 10x^2 + 26x + 15.$
3. $x^3 + 8x^2 + 22x + 35.$
4. $3x^3 + 15x^2 + 45x + 33.$
5. $6x^3 + 56x^2 + 136x + 26.$
6. $x^3 + 7x^2 - x - 7.$
7. $x^3 - 4x^2 + 9x - 10.$
8. $6x^3 - 19x^2 + 19x - 6.$
9. $5x^3 - 10x^2 + 7x - 14.$
10. $abx^3 + x^2(a^2 + b^2) + bx(a + c) + ac.$

PRACTICAL GRAMMAR.

SENTENCES FOR CORRECTION—JUNIOR CLASSES.

NOTE.—Do not use adjectives for adverbs.

1. He spoke eloquent.
2. They searched everywheres.
3. The crowd cheered hearty.
4. Can't you walk more quick?
5. The wounded soldier fought brave.
6. The south wind blows soft.
7. She decided too hasty.
8. You should listen more attentive.
9. The work is near finished.
10. We have waited quite patient.

NOTE.—Place adverbs where there can be no doubt as to the words they modify.

11. I only bring forward a few things.
12. We merely speak of ourselves.
13. The Chinese chiefly live upon rice.
14. I only ate one apple to-day.
15. We have often occasion for thanksgiving.

NOTE.—Adjectives must not be used for adverbs.

16. The curtain hangs graceful.
17. That is a decided weak point.
18. These are the words nearest connected.
19. She is a remarkable pretty girl.

NOTE.—Do not use two negatives so that one shall contradict the other.

20. I haven't no umbrella.
21. We didn't say nothing.
22. He don't know nothing about it.
23. Father wouldn't give me none.
24. He hasn't been sick neither.
25. I won't never do so again.

NOTE.—Do not use pronouns instead of adjectives.

26. Pass me them potatoes.
27. Them are my books and papers.
28. Hand me them books.
29. Them men are too old to work.

NOTE.—Never use adjectives too grand for the nouns modified by them.

30. This is a magnificent pen.
31. They gave us lovely bread.
32. He plays a dreadful game of croquet.
33. What an awful fine hat!

NOTE.—An adverb should not stand between an infinitive and the *to* which usually precedes it.

34. He intended to often visit me.
35. He was seen to suddenly fall.
36. Do you expect to immediately go?

NOTE.—It is usually bad English to modify a participle by *very* or *too*.

37. I was too enraged to speak.
38. I was very pleased to hear from you.
39. We were too disappointed to enjoy the afternoon.

NOTE.—Never use a preposition except it is needed to express your thought.

40. The best place for oysters is at Baltimore.
41. I will return at about noon.
42. On what train did you come in on?
43. To what school do you go to?
44. At noon is the time for dinner.

NOTE.—*Between* is to be used when reference is made to two things or sets of things, and *among* when reference is to more than two.

45. The three boys quarrelled between themselves.
46. Between us all we have money enough.
47. Divide the work between the three.

NOTE.—One may use *from*, but never *to* or *than*, after the adjective *different*.

48. My plans are different than yours.
49. His preaching is different to his practice.

NOTE.—*Like* must never be used as a conjunction instead of *as* or *as if*.

50. He acted like he was frightened.
51. Read to me like you did yesterday.
52. Be industrious, like I am.

NOTE.—Do not use *if* when you mean *whether*.

53. I doubt if he will come to-day.
54. He does not know if his father is at home.
55. I question if you are right.

NOTE.—*And* is often improperly used instead of *to* before an infinitive.

56. Try and come to-morrow.
57. Try and behave properly.

NOTE.—Do not use inappropriate words.

58. He *allows* that he will do it.
59. We *calculate* to leave to-morrow.
60. The box is not *overly* large.
61. At what hotel are you *stopping*?

NOTE.—Do not use superfluous words.

62. She is a poor widow woman.
63. Find two dollars herein enclosed.
64. We don't wish for any at all.
65. He walked at a quick, rapid pace.
66. Give me a yard off of this piece.
67. He's not there, I don't think.
68. By what road did you come by?
69. We were compelled to return back.
70. In what drawer are your gloves in?

MISCELLANEOUS ERRORS.

71. I haven't near so much.
72. We were at Europe this summer.
73. He will never be no better.
74. This here road is rough.
75. He must have knowed me.
76. Who did he hurt?
77. This railroad is forty mile long.
78. I dislike these sort of berries.
79. Walk with me a little ways.
80. The right hand is usually the strongest.
81. Neither of them are merchants.
82. When was you in the city?
83. Will I put the kettle on?
84. I expect he is angry with me.
85. He learns them all sorts of things.
86. Don't say nothing about it.
87. Nobody never suspects you.
88. The lily were just in bloom.
89. They roasted three or four turkeys.
90. Isn't the lake beautiful?
91. Where is these things to go?
92. Me and him can carry it.
93. The eggs have sank in the water.
94. Father has went with me before.
95. Have the parcels come home yet?
96. Who did you meet at the door?

97. John has holes worn in his shoes.
98. One of you are mistaken.
99. It was awfully amusing.
100. He did his work very good.
101. I do not like too much sugar in my tea.
102. In what latitude is Boston in?
103. Thomas is a year older than me.
104. Have either of you a pencil?
105. I couldn't be comfortabler.

TABLE OF MULTIPLES.

- DIAMETER of circle $\times 3.1416$ = circumference.
 Radius of circle $\times 6.2832$ = circumference.
 Square of radius of circle $\times 3.1416$ = area.
 Square of diameter of circle $\times 0.7854$ = area.
 Square of circum. of circle $\times 0.07958$ = area.
 $\frac{1}{2}$ circum. $\times \frac{1}{2}$ diam. = area of circle.
 Circumference of circle $\times 0.159155$ = radius.
 Circumference of circle $\times 0.31831$ = diameter.
 Diam. of circle $\times 0.86$ = side of inscribed equal triangle.
 Diam. of circle $\times 0.7071$ = side of inscr. square.
 Circum. of circle $\times 0.282$ = side of an equal sq.
 Diam. of circle $\times 0.8862$ = side of an equal sq.
 Base of triangle $\times \frac{1}{2}$ altitude = area.
 Surface of sphere $\times \frac{1}{2}$ diameter = solidity.
 Circumference of sphere \times diameter = surface.
 Square of diam. of sphere $\times 3.1416$ = surface.
 Cube of diam. of sphere $\times 0.5236$ = solidity.
 Radius of sphere $\times 1.1547$ = side of ins. cube.

THE VERBS "LIE" AND "LAY."

1. Lie.—Lie, lay, lain.
2. Lie.—Lie, lied, lied.
3. Lay.—Lay, laid, laid.

The first verb means to be placed or to place one's self in a horizontal position; to rest; to remain; to have place or position.

Illustrations:—

- His room-mate *lies* in bed until noon.
 The book *lies* on the table.
 The apples *lay* on the ground all winter.
 He has *lain* on the floor since morning.
 The lake *lies* between the two counties.
 The second verb means to utter what is not true; as, The boy *lied* to his father.
 The third verb means to put or place; to bring forth; to charge.

Illustrations:—

- He *laid* (placed) the book on the table.
 They have *laid* the foundation.
 The hen *laid* three eggs.
 The coloring should be *laid* on thin.
Lay these papers on your desk.

Lay is often used for *lie*, and *lie* is sometimes used for *lay*. This confusion in the use is due, in some measure, to the fact that *lay* appears in both verbs. We say, "A mason *lays* bricks," "A ship *lies* at anchor," "I must *lie* down," "I must *lay* myself down," "I must *lay* this paper on the desk," "He *lies* on the grass," "He *lays* his plans well," "He *lay* on the floor," "I *laid* it away," "He has *lain* in bed long enough," "We have *laid* up some money," "Hens *lay* eggs," "The ship *lay* at anchor," "The hen *laid* one egg." *Lay* always expresses transitive action, and *lie* expresses rest.

Errors to be corrected.—

1. Go and lay down.
2. I remember when the stone was lain.
3. I laid there an hour.
4. We were forced to lay down.
5. Let these books and papers lie.
6. The book lays on the table.
7. He has lain his plans well.
8. The shower has lain the dust.
9. The bird has lain an egg.
10. He has laid in bed all day.

SQUARING NUMBERS.

Of the several contracted methods of squaring numbers the following are the most practical:—

1. To square any number ending in 5.
 $25^2 = 625$, or $2 \times 3 = 6$, followed by 25.
 $35^2 = 1225$, or $3 \times 4 = 12$, followed by 25.
 $65^2 = 4225$, or $6 \times 7 = 42$, followed by 25.
 $75^2 = 5625$, or $7 \times 8 = 56$, followed by 25.

NOTE.—Multiply the first number, 7, by the number next higher, and follow this by the square of 5.

- $195^2 = 38025$, or $19 \times 20 = 380$, followed by 25.
 $395^2 = 156025$, or $39 \times 40 = 1560$, followed by 25.
 $995^2 = 990025$, or $99 \times 100 = 9900$, followed by 25.

2. To square 18, 19, 21, 29, 32, etc.

$18 + 2 = 20$. $18 - 2 = 16$. $16 \times 20 = 320$.
 $320 \div 2^2 = 324 = 18^2$.
 $19 + 1 = 20$. $19 - 1 = 18$. $18 \times 20 = 360$.
 $360 \div 1^2 = 361 = 19^2$.
 $29 + 1 = 30$. $29 - 1 = 28$. $28 \times 30 = 840$.
 $840 \div 1^2 = 841 = 29^2$.
 $97 + 3 = 100$. $97 - 3 = 94$. $94 \times 100 = 9400$.
 $9400 \div 3^2 = 9403 = 97^2$.

3. To square 51, 52, 53, 54, 55, etc

$53^2 = 2809$, or $5^2 + 3$, followed by 3^2 .
 $54^2 = 2916$, or $5^2 + 4$, followed by 4^2 .
 $57^2 = 3249$, or $5^2 + 7$, followed by 7^2 .
 $59^2 = 3481$, or $5^2 + 9$, followed by 9^2 .

SINGULAR AND PLURAL SUBJECTS.

In determining the proper form for a verb, much depends upon the number of its subject. It is important, therefore, to know certainly whether a subject is singular or plural. One must often look beyond the mere form of a word to the character of the thought expressed by it.

Illustrations:—

1. A *portion* of the wheat was saved.

2. Nine *tenths* of the soil is bad.

NOTE.—Here the subject is a partitive word followed by *of* and a noun or pronoun singular in meaning, and the verb is singular.

3. A *number* of the boys were disobedient.

4. *One third* of the words are misspelled.

5. A *half* of my pupils were ill.

NOTE.—Each partitive word in these sentences is followed by *of* and a plural noun. The verb in such sentences should be plural.

6. *William*, as well as others, were present.

7. *The King*, with all his hosts, has come.

NOTE.—The number of a subject is not changed by joining it to another noun by means of *with*, *like*, *but*, *as well as*, etc.

8. *I*, and not they, am to blame.

9. Not they, but *I*, am guilty.

NOTE.—When there are two subjects, and one of them is preceded by a negative word, the other determines the form of the verb.

10. A great *rarity* of plants grow in this latitude.

In determining the number of a relative pronoun, look at its antecedent, and be careful not to mistake an apparent antecedent for the true one.

SCHOOL QUESTIONS FOR FRIDAY AFTERNOON.

1. Name the present Governor-General of Canada.
2. Name the present Prime Minister of Great Britain.
3. Who wrote (1) "Jane Eyre," (2) "The Heathen Chinee," (3) "Barriers Burned Away?"
4. Name in order the Presidents of the United States since 1870.
5. Name two noted American statesmen who have died since 1880.
6. Name in correct order the ten largest cities of the world.
7. What great poets are living at present?
8. Name four noted American humorists.
9. Where is the Yosemite valley, and for what is it noted?
10. In what year and in what month was the great Chicago fire?

11. Name the three greatest inventions since 1870.

12. When was the art of printing invented, and by whom?

13. Name two poems in each of the following languages, and give their authors:—

(1) German.

(2) English.

(3) Latin.

(4) Greek.

14. Name three kings of England who were authors?

15. What noted French author died during 1885?

16. Name two noted poets who were brothers-in-law.

17. Name the colors of the rainbow.

18. Name the authors of (1) "Robinson Crusoe," (2) "Gulliver's Travels," (3) "John Halifax, Gentleman."

19. Give the real names of the following noted authors:—

(1) Mark Twain.

(2) A. L. O. E.

(3) Boz.

(4) Josh Billings.

(5) Ouida.

20. Who invented (1) the steam engine, (2) the railway engine?

NOTE.—The answers to any of the foregoing questions will be given if asked for. Twenty similar questions will appear in every number of the SUPPLEMENT.

THE WEIGHT OF COAL.

WHEN broken for the market a cubic foot of anthracite coal will weigh about 54 pounds, and of bituminous coal about 50 pounds. To estimate the weight of coal in any given space, multiply the contents in cubic feet by 54 or 50 respectively, and the product will be the weight in pounds.

EXERCISES.

1. How many tons of anthracite coal can be stored in a bin 50 feet long, 40 feet wide, and 5 feet deep?
2. How many pounds of bituminous coal in a car 30 feet long and 7 feet wide, the depth of the coal being 18 inches?
3. How many pounds of anthracite coal can be placed in a cart which measures 6 feet in length, 4½ feet in width, and 3 feet 6 inches deep?
4. A dealer purchases 1,500 tons of anthracite coal, 2,240 pounds to the ton, which he wishes to store in an inclosure 100 feet long and 50 feet wide. What will be the depth of the coal?

SHORT METHOD OF MULTIPLICATION.

A VERY large number of excellent short methods are fully explained in "The New Arithmetic." The following method of multiplying does not appear in that excellent text-book, and will, we feel satisfied, be new to many of our readers.

Example 1.—Multiply 2043 by 427.

NOTE.—Note the multiplier; one part of it, 42, is a multiple of the remainder. Whenever this occurs the method explained below will apply.

$$\begin{array}{r} 2043 \\ 427 = 420 + 7 = (7 \times 60) + 7. \\ \hline 14301 = 2043 \times 7. \\ 858060 = 2043 \times 420 = 14301 \times 60. \\ \hline 872361 \text{ Product.} \end{array}$$

NOTE.—We first multiply by 7, then by 420, thus taking the number 2043 427 times. The contraction is made in multiplying by 420. We take its factors, 7 and 60; we have already multiplied by 7, so that all that remains to be done is to multiply 14301 by 60 and place it under. The sum of the two partial products gives the whole product.

Example 2.—Multiply 3142 by 972.

$$\begin{array}{r} 3142 \\ 972 = 900 + 72 = 900 + (9 \times 8). \\ \hline 2827800 = 3142 \times 900. \\ 226224 = 3142 \times 72 = 28278 \times 8. \\ \hline 3054024 \text{ Product.} \end{array}$$

Example 3.—Multiply 42013 by 14412.

$$\begin{array}{r} 42013 \\ 14412 = 14400 + 12 = (12 \times 1200) + 12. \\ \hline 504156 = 42013 \times 12. \\ 604987200 = 42013 \times 14400 = 504156 \times 1200. \\ \hline 605491356 \text{ Product.} \end{array}$$

EXERCISE.

- | | |
|----------------|--------------------|
| 1. 2013 × 927. | 6. 21401 × 729. |
| 2. 1214 × 279. | 7. 31252 × 14412. |
| 3. 3135 × 728. | 8. 42001 × 70357. |
| 4. 2146 × 287. | 9. 15421 × 81273. |
| 5. 3210 × 189. | 10. 30012 × 94572. |

SENTENCE-BUILDING.

FILL each blank of the following sentences with the correct pronoun:—

- Every friend has — faults.
- A person's manners often show — morals.
- Let everybody act for —.
- The darling loves — nurse.
- The kitten chases — tail.
- The snake shows — forked tongue.
- Earth yields — increase.
- Let the wicked forsake — way.
- Every boy took — books.
- Everyone must judge of — own feelings.

POSITION OF THE ADVERBS.

AMBIGUITY is often produced by the improper position of the adverbs. Care should be taken to place the adverb as near as possible to the word which it qualifies, and in such a position, either before or after, that it can easily be taken to qualify any other word.

The student is expected to criticise and correct the following sentences in regard to the position of the adverb:—

- I only bring forward some things
- He is considered generally insane.
- I did not talk to him but to you.
- The French nearly lost five hundred men.
- I only ate one apple to-day.
- The light, sandy soil only favors the fern.
- I never expect to see Europe.
- The productions mostly consist of corn and cotton.
- Port wine is now only favored by two classes.
- It was by hunting and fishing that the Indians chiefly subsisted.

NOTES ON NUMBERS.

WHAT is meant by $\frac{3}{4} \times \frac{1}{2}$? Is it possible to multiply by a fraction? Does not a fraction always divide?

Any number is exactly divisible by 2 if 2 measures evenly its last digits. The same rule holds for five.

Any number is exactly divisible by 4 if 4 measures the number formed by its last two digits. The same rule holds for 25.

Is a unit necessarily a single thing? Give illustrations. Is a fraction a unit, a part of a unit, or several units?

The product of the highest common factor and least common multiple of two numbers is equal to the product of the two numbers. Why?

Any number is exactly divisible by 8 if 8 measures the number formed by its last three digits. The same rule holds for 125.

Any number is exactly divisible by 3 or 9 if 3 or 9 measures the sum of its digits.

Any number consisting of three equal digits, as 111, 222, 333, etc., is divisible by 37, and the quotient is the sum of the digits. Explain this.

Any number consisting of three digits followed by the same three in the same order is divisible by 7, 11 and 13; or 1001; and the quotient is the number formed by the three digits.

A vulgar fraction in its lowest terms cannot be reduced to a *terminating* decimal if its denominator contains any other prime factor than 2 or 5.

No number ending in 2, 3, 7 or 8 is ever a perfect square.

No number ending in 5 is a perfect square except the ten's digit is 2.

Note the result of multiplying 12345679 by 9 or any multiple of 9 up to 90. *Ex.*—12345679 $\times 36 = 444444444$.

Turn $\frac{1}{2}$, $\frac{2}{3}$, $\frac{3}{4}$, $\frac{4}{5}$, $\frac{5}{6}$ into decimals in the order here given, arrange the results under each other, and carefully note the transpositions.

NOTES AND HINTS IN PHYSICAL GEOGRAPHY.

Dew appears chiefly where it is most wanted, on herbage and low plants, avoiding, in a great measure, rocks, bare earth, and water. Explain the cause of this.

When dew is deposited on bodies cooled below the freezing point, it is solidified into hoar frost.

Dew is formed more freely on a clear night, because clouds radiate back the heat intercepted by them in its progress from the earth upwards.

Dew is formed more freely on a calm night, because any agitation of the atmosphere tends to send continually currents of warmer air, which will replace the heat that substances lose by radiation.

Grass, on a clear and calm night, is much colder than the gravel or earth by its side, because heat is conducted better to the latter from the earth below.

From the moist and warm soil vapor rises, spreads itself with the cooler air, and is condensed into small aqueous particles, which float in the air, and become visible as mist or fog.

Clouds are formed from the condensed vapors rising from the earth, and differ from mist only in occupying higher regions of the atmosphere. When this watery vapor becomes more condensed, the particles unite and fall as rain.

Snow is vapor suddenly condensed into the solid state.

Hail is formed out of rain-drops, that freeze as they fall through colder regions.

The south wind is moist and warm, and mixing with the colder air of the northern regions results in clouds and rain.

The mists on low-lying marsh lands in the evening are caused by the rapid cooling of the air when the sun has set.

The morning mist over rivers and lakes is caused by the water cooling much more slowly than the air that is in contact with it.

THE TRADE WINDS.

THE air about the equator is heated, expands, and rises, its place being supplied by air moving towards the equator from the poles. Hence there is a constant current of air above setting from the equator, and a constant current below setting towards the equator. The lower current forms what is called *trade winds*, which are felt for 30° of latitude on each side of the equator. If the earth were at rest these winds would set due north and south; but as the earth's surface, revolving from west to east, has its greatest velocity at the equator, and this velocity gradually decreases from the equator to the poles, the currents from the north and south are constantly acquiring a motion from east to west relative to the place over which they are passing; and this motion, combined with their original motion from north to south, and from south to north, produces a permanent north-easterly current in the northern hemisphere, and a south-easterly current in the southern hemisphere.

SYNONYMS.

AN ungraceful repetition of the same word several times in a sentence not only destroys its beauty, but denotes a poverty of language. While it is easy to commit this error, it is often difficult to call to mind the precise word best adapted to express the particular thought. The following sentences illustrate the value of synonymous words:—

1. He was an *accomplished* speaker, *accomplished* in manners, *accomplished* in speech, *accomplished* in debate, and *accomplished* in his choice of words.

He was an *accomplished* speaker, *polished* in manners, *faultless* in speech, *skilful* in debate, and *legant* in his choice of words.

2. A diligent scholar may *acquire* knowledge, *acquire* celebrity, *acquire* rewards, *acquire* prizes, and *acquire* high honor, though he *acquire* no money.

A diligent scholar may *acquire* knowledge, *gain* celebrity, *obtain* rewards, *win* prizes, *get* high honor, though *earn* no money.

3. How strangely are the opinions of men *changed* by a *change* in their condition!

How strangely are the opinions of men *altered* by a *change* in their condition!

MARKING GOODS.

Business men make use of various devices to prevent the cost and selling price mark of their goods from becoming known, except to their salesmen. The device may consist of any word or phrase containing ten different letters or characters, each representing a figure. Thus take the word

C U M B E R L A N D
1 2 3 4 5 6 7 8 9 0

If it is required to write the cost, say \$2.45, and the selling price, say \$3.75, the proper mark will be $\frac{ube}{mic}$.

An extra letter, called a repeater, is used to prevent the repetition of any letter. Hence, instead of writing \$4.00 according to the above key, which would be *rdl*, the *k* or any other letter not found in the key could be used, which would make the mark *rk*.

The following words and phrases afford examples of marking-keys:—

Blackhorse.	Importance.
Cash profit.	Now be sharp.
Hard moneys.	Gambolines.
Do be quick.	Vanderbilt.

Give the cost price, and per cent. advance, and ask your pupils to write cost and selling price, using one of the above key-words.

A FEW TEST QUESTIONS.

1. Name the first year after 1896 that will be leap year?
2. What fraction of an inch is a shoemaker's "size"?
3. How many chains in 198 yards?
4. How many acres in a section of land?
5. Pure gold is how many carats fine?
6. How many stone in a barrel of flour?
7. How many units in a gross?
8. What is the value of an English pound in our money?
9. How many pounds in a "long" ton?
10. Name a country that has not a decimal money system?

A GOOD ARITHMETICAL EXERCISE.

A FARMER rented 100 acres of land for one year at \$3.50 an acre. He paid \$2.75 an acre for spring work and \$1.15 a bushel for 212 bushels of seed wheat. He paid 32 cents an acre for sowing the grain, and 65 cents an acre for cutting and saving. The wheat yielded an average of 27 bushels to the acre. After paying 3 cent

a bushel for threshing and 2 cents a bushel for teaming to market, he sold the wheat at \$1.17 a bushel. Find his gain or loss, supposing the whole farm to be put in wheat.

NOTE.—See "The New Arithmetic" for similar exercises.

ONE OR TWO ERRORS.

AN error quite common among cultivated writers is the use of adverbs with the verb to look, as "he looked wretchedly," "she looked beautifully." It might as well be said, "the grass looks greenly," or "the man looks bluey." A man who lives wretchedly will probably look wretched; a woman who is formed and dressed beautifully will look beautiful. The error is the consequence of a confusion of *look* in the sense of to direct the eye, and *look* in the sense to seem, to appear. The same persons who say that a man looked wretchedly or a woman looked beautifully, would not say that he seemed wretchedly, or she seemed beautifully. In the phrases, "he looked well," "she seemed ill," *well* and *ill* are not really adverbs. Such phrases as "I had rather," "you had better," "had have done," "ready to have fallen," "right away," "different to," and "looked wretchedly," have, it need hardly be said, nothing in common with such as "we made the land," "the ship stood up the bay," "he took his journey," "they came in thick," "a house hard by," "I won't put up with it," "given to hospitality," or "stricken in years." The latter are truly idiomatic, and generally metaphorical; and, although they defy analysis, they are not, like the former, at variance with themselves and defiant of reason.

THE PLANETS.

THE principal planets are eight in number, including our earth. They have been named after ancient deities: the two interior ones Mercury and Venus, and the exterior ones Mars, Jupiter, Saturn, Uranus and Neptune, the three first being smaller than our earth, and the remainder a great deal larger.

To get an idea of the true scale of the solar system, take a globe a little over two feet in diameter to represent the sun; Mercury would now be proportionately represented by a grain of mustard seed, revolving in a circle 164 feet in diameter; Venus, a pea, in a circle of 284 feet in diameter; the earth also a pea, at a distance of 430 feet; Mars, a rather large pin's head, in a circle of 634 feet; Jupiter, a moderate-sized orange, in a circle nearly half a mile across; Saturn, a small orange, in a circle of

four-fifths of a mile; Uranus, a full-sized cherry or small plum, upon the circumference of a circle more than a mile and a half; and Neptune, a good-sized plum, in a circle about two miles and a half in diameter.

Mercury, the nearest planet to the sun, revolves round him at a distance of about 35,000,000 miles; the earth's distance from the sun being 91,000,000, it has a diameter about one-third of that of the earth. It can be seen at certain times just after sunset, and at others just before sunrise. It is 84 days in traversing its orbit, so that its year is less than a quarter of ours. Little is known of Mercury itself; we know not whether it has a land and water surface like the earth, or is waterless like the moon—whether it is enveloped in a dense, cloudy atmosphere, which protects its inhabitants, if such there be, from the intense heat of the sun, or not.

Next to Mercury comes **Venus**, at about 66,000,000 miles from the sun, with a diameter nearly as large as the earth. It can generally be seen either just after sunset or before sunrise, according to its position in its orbit round the sun. It is the brightest of the planets, and when visible cannot be mistaken. It takes 224 days to perform its annual revolution, and 23½ hours for its rotation on its axis.

The next planet after Venus is the **Earth**, and then **Mars**. Mars is about 139,000,000 miles from the sun. Its diameter is about one-half that of our earth, and its days are half an hour longer than ours. It requires 686 days to complete its annual revolution round the sun, making its year nearly double the length of ours. When seen through a telescope this planet appears to have a bright surface, on which are darker portions, the former being the lands and the latter the seas.

The next planet is **Jupiter**, which revolves in an orbit at a distance of 476,000,000 miles from the sun, completing its year in 4,333 days. Its diameter is about ten times the diameter of the earth, and its days are about 10 hours long. When observed with a telescope, Jupiter appears to be crossed by several dark belts, which are continually changing. This planet has four moons revolving round it.

We next come to **Saturn**, a truly grand sight in a telescope. Besides having eight moons, this planet has an immense bright ring surrounding it. It revolves in an orbit at about 872,000,000 miles from the sun, taking 10,759 days, or nearly thirty of our years, to complete its year, and having a diameter nine times greater than that of our earth. The length of its day is about 10½ hours. It is thought that

the rings represent a vast assemblage of small satellites or moons revolving round the planet.

Of **Uranus** very little is known, its distance—1,703,000,000 miles from the sun—being so immense; it takes 30,686 of our days to complete its revolution, and it is known to have four moons.

Neptune is the most distant of the planets, being 2,746,000,000 miles from the sun. Its year consists of 60,126 days.

MISCELLANEOUS BUSINESS EXERCISES.

FROM THE SIXTH DEPARTMENT OF THE NEW ARITHMETIC.

Transaction.—Toronto, August 3rd, 1886. F. M. Knowles gives T. Gibson an order on C. Fraser & Co. for \$25, to be paid in goods from his store.

288. Write the order.

289. Gibson gives Knowles a receipt. Write the receipt.

Transaction.—New York, July 5th, 1885. S. S. Packard borrows \$450 from D. T. Ames, and gives his note at ninety days in payment.

290. Write this note. Make it payable to bearer.

291. When will it be due?

292. If interest were charged at 6%, how much would be due at maturity?

Transaction.—New York, July 12th, 1885. D. T. Ames has Packard's note discounted at the First National Bank at 7%, and receives cash in return.

293. Indorse the note before discounting it.

294. How much cash should Ames receive?

Transaction.—Chicago, September 4, 1880. Richard Lees buys goods to the amount of \$35.80 from D. E. Lantz & Co., and gives his check on the Second National Bank in payment.

295. Write this check. Make it payable to order.

296. Indorse the check, making it payable to J. Tait's order.

Transaction.—St. Louis, November 15th, 1886. W. A. Beer borrows \$337 from E. P. Rowell, and gives his note at three months in payment. Interest 7%.

297. Write this note. Make it payable to order.

298. When will it be due?

299. What amount will be due at maturity?

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