

The Normal Review.

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50 CENTS A YEAR.

Entered as second-class matter.

Lee Smith, Oscar Anderson, Lee Herrington and W. D. McGinnis are on the Fayette county committee on permanent certificates.

Messrs. J. H. Sutherland, H. B. Keys, S. J. Crumrine, L. R. Crumrine and Miss Cynthia Manon have been granted permanent certificates by the State department.

Prof. Wallace P. Dick, a professor in the Normal some years ago, and more recently vice-principal of the Lock Haven State Normal, is now professor of Languages in the West Chester State Normal. The Moore Literary Gazette says of him: "He at once impressed his classes with his high scholarship and his power as a teacher, which impressions have only grown stronger as they have learned to know him better." Mrs. Dick, who was known at California as Miss Ida McConnell, is librarian.

Supt. Orville T. Bright, of Cook Co., Ill., in his report on the Cook County Normal, speaks as follows of the science teaching in that school, paying a deserved compliment to Prof. W. S. Jackman, of whom the California Normal is proud, as a graduate of the class of '77: "At the Normal school it is under the direction of Mr. W. S. Jackman, to my mind the most competent man to undertake it in the United States. He is struggling heroically with the teachers that they may have something to present to the children, that is,

are all high school or college graduates. However, I saw some capital work in the line indicated, and if Mr. Jackman is let alone I feel sure that he will make a splendid success in this part of the course. Colonel Parker is enthusiastic about it and has struggled for years to bring the subject into our elementary schools.

The Uniontown News, in reporting the Fayette county institute, has the following paragraph:

Dr. Noss, of the California Normal school, was then called to occupy the last period before noon. After leading the institute in some calisthenics, he gave a very enthusiastic address on "How to earn one hundred dollars a month," in which he urged the teachers of the county to get a "move on." The doctor is a very eminent educator and always presents some valuable thoughts relative to teaching. He thinks that every individual "who is cut out for a teacher" can make himself worth \$100 per month. There is no necessity for a young man or woman teaching for thirty or thirty-five dollars a month. A man does not know his ability. He may be surprised ten years hence at his accomplishments. His advice to the teacher is "have faith in yourself, and move." He cited many examples of men who had risen to notoriety simply by "getting a move on." Be a practical and progressive teacher; know when the key fits the locks; know the difference between bread and stone, and you are worth and can

The National Educator, in its holiday number of Dec. 12th, gives a fine portrait of Supt. Tombaugh, with the following biographical notice:

Supt. B. E. Tombaugh was elected to the office of County Superintendent the 6th of May, 1890, and has filled that position with great credit to himself and perfect satisfaction to teachers, directors and all friends of education. He was born Dec. 3d, 1861. After taking a full course in the common schools, he attended Lone Pine Academy, California Normal School and Huntingdon College. He was graduated from California Normal with the class of '83. He has taught 12 years. He began in East Bethlehem township, then was principal of the Masontown schools in Fayette county for two years, after which he went to Burgettstown, where for several years he filled the position of principal of the schools and founded the academy. In 1887 he received the next highest vote for superintendent. Since occupying the position of superintendent he has given his best thought and effort to the schools and their needs. He has established the district institute, of which six were held last year. The local and township institutes have received much encouragement from him. A plan of graduation from the public schools has also been originated by Mr. Tombaugh, which meets very general approval. The granting of a diploma is based on a satisfactory examination in branches covering a course of ten

EDITORIAL.

New Year's Greetings, 1892!

* * *
We have arranged for a series of articles on live educational subjects by ablest contributors. We hope to present some matter touching literary lines, that may be helpful in broadening the outlook for those whose resources are limited.

* * *
We hope to present less spoon food and more meat than ever before.

* * *
We ask your co operation to make this plan successful.

* * *
The peculiar conditions surrounding various nations, add an unusual charm to geographical and historical research. The pupil should, when practicable, take the newspaper and the geography and locate these places which are absorbing the interested attention of the world. The condition of affairs in Russia, and the probable famine, must come up for more or less discussion by students of the Eastern Hemisphere. The Chilean difficulty, the suicide of Balmaceda, the situation in Brazil, the resignation of De Fonesca, and finally the death of the ex-Emperor, must excite interest in the minds of those whose attention is directly given to the Western World.

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In a recent article in "The Magazine of American History," C. A. Stokely, D. D., furnishes documentary evidence in support of the thesis that Florida, not Virginia, was the first state to receive the negro. He claims that negroes were introduced into the territory now known as Florida, thirty-two years before Jamestown was founded.

According to "Goldthwaite's Geographical Magazine," a scheme for reaching the North Pole is now set forth by a Norwegian, who proposes to start from the northwestern Spitzbergen with a few men and a large number of dogs to draw the peculiar little sledges of his invention. The distinctive feature about the conveyance is that they can be put together at a moment's notice, to form a huge boat. Rapidity of movement is his aim. The criticism on the idea is, that the dogs will eat too much, and that the country is too rough for that mode of travel.

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The Columbian Association of Housekeepers and Bureau of Information has been recently formed in connection with the World's Congress Auxiliary of the World's Fair. The objects are: To establish a bureau of information where there can be an exchange of wants between employer and employed. To promote a scientific knowledge of food and fuel, and a practical understanding of good plumbing, draining, pure water and good light in the modern house. To attempt securing better trained household service and to meet the increasing demand for those capable of doing plain sewing and mending.

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A superintendent of instruction once said in my hearing, "When I go into a school-room I try to imagine myself in the place of the children, and ask myself the question, 'Would I like to be a pupil in this room?' If I can answer the question in the affirmative, I consider the teacher a success; if not, a failure."

How many of us, measured by this standard, would be successful teachers? And is not the standard just? Have we any right to continue to teach if we find that we make the children under our charge unhappy? The right-minded children, I mean, who in most classes constitute the majority. There are a few children in every class so averse to effort of any sort, on general principles, that it is difficult to make them like anything that requires it; even

these can be reached if the teacher with the right idea has them under her influence long enough. Start in with a theory that every human being is susceptible to kind and friendly treatment, and though you will probably find a case now and then that seems to belie your theory, it is only the exception that proves the rule. Do not be discouraged, and above all, do not be *soured*. Remember that they are only *little children*, and though they seem so formidable and so terribly full of resources, you are after all the mistress of the situation, and ought to be able to turn their superabundant energies into legitimate channels.

Inspire them (you can) with a love for study and a pleasure in doing their tasks. Give them a hunger and thirst after learning—item—its contagious,—make them *want* to know and do. Do not try to crush them into absolute similarity of pattern in the great machine called Public School System, it will only lacerate their fresh young hearts. Many a poetic soul has struggled through years of unappreciated and discouraging work with the awful nemesis known as arithmetic forever at his heels. Arithmetic is a good thing, and the reasoning powers which it cultivates can be used to great advantage all through life: I will admit that "100 per cent." looks beautiful to pedagogic eyes, whether done in chalk on a black ground, or inscribed in the undecipherable hieroglyphics of the blue pencil on an examination paper,—but souls *have* been saved without it, and may hope still to be.

Make the children happy! Help them to enjoy their school days. Look around you and see how small, how very small, is their chance for happiness in after life.

"O little feet! that such long years
Must wander on through hopes and fears,
Must ache and bleed beneath your load;
O little hands! that weak or strong,
Have still to serve or rule so long,
Have still so long to give or ask;
I, nearer to the wayside inn
Where toil shall cease and rest begin,
Am weary, thinking of your road."

M. A. F.

MEMORY GEMS.

"The great secret of success in life is to be ready when your opportunity comes."—*Beaconsfield*.

Do not look for wrong and evil,—
You will find them if you do;
As you measure for your neighbor,
He will measure back to you.

Look for goodness, look for gladness,
You will meet them all the while;
If you bring a smiling visage
To the glass, you meet a smile.
—*Alice Carey*.

"By the street called *By-and-By*,
you reach a house called *Never*."

"Beautiful eyes are those that show
Beautiful thoughts that burn below;
Beautiful lips are those whose words
Leap from the heart like song of birds;
Beautiful hands are those that do
Work that is earnest, and brave, and true.
Moment by moment, the whole day
through."

We must be as courteous to a man
as to a picture which we are willing
to give the advantage of a good
light.—*Emerson*.

"There is a land, of every land the
pride,
Beloved of heaven o'er all the world
beside;
Where brighter suns dispense serenest
light,
And milder moons imparadise the
night.
O, thou shalt find, howe'er thy foot-
steps roam,
That land thy country, and that
spot thy home."

Employ thy time well, if thou
meapest to gain leisure; and since
thou art not sure of a minute, throw
not away an hour.—*Franklin*.

Life is a leaf of paper white
Whereon each of us may write
His word or two, and then comes
night.
Greatly begin! Though thou have
time
But for a line, be that sublime,—
Not failure, but low aim is crime.

The Moon's Shape.

Referring to the fact that the photographs of the moon, taken at full, give that body an egg-shaped appearance, with the small end pointing toward the earth, a recent writer argues that this goes to prove that planet's non-globular shape, as was indeed to be expected. According to this writer's reasoning, matter at the surface of the moon is acted upon by two important forces—the law of gravity would arrange the matter in a globe around the center, the moon alone considered, and the attraction of the earth, being always exerted in the same direction relative to the moon's center, would naturally draw all fluid or plastic matter to the side next the earth; the sun shines not less than 325 hours consecutively on any given point on the moon's surface, and it is not probable that water on the surface would remain frozen under such continued sunshine, or that doubtless the fluid part of the moon's surface, obeying the constantly acting force that generates the tides on the earth, have long since gathered themselves together on that side of the moon nearest the earth. This idea, it is claimed, is not inconsistent with anything developed by the shadow of the moon in eclipses, nor with any known fact.

The Causes of the South's Defeat.

Professor Albert Bushnell Hart attributes the South's defeat to no one cause, but to several causes; to the differences in population, to economic and social differences, and to the different moral quality of the people and institutions for which the two sections were fighting. He says:

"Throughout the South the tillage was primitive and rude, and most of it was carried on by slave labor; in the North, machinery and improved processes made it possible to raise a larger crop in proportion to the laborers employed. Manufactures of every kind were woefully deficient in the South. In a region including the

enormous coal and iron beds of Alabama and Georgia, one of the richest deposits on the face of the earth, there was but one large blast furnace and ten rail mills. To manufacture its great staple, cotton, the South had but 150 factories, against more than 900 in the North, and the value of the manufactured fabric of the South was but \$8,000,000, in the total of \$115,000,000. Of the 1,260 woolen factories of the country, seventy-eight were in the South. The manufacture of clothing, an essential industry when war was going on, employed in 1860 less than 2,000 persons in the Southern States and nearly 100,000 in the North. Of boots and shoes, the South furnished but three per cent. of the product."

Then, too, the military resources of the South were meagre compared with those available in the North. "The one large iron works in the country, the Tredegar, was run night and day to supply materials. Arms, cannon, munitions, could be imported in limited quantities by the blockade-runners; clothing came in the same way, but medical supplies, hospital comforts, even food, were often lacking. The limited military resources of the South were made less available because of the lack of sufficient internal transportation. The water-ways, both on the rivers and to the eastward, were early occupied or blockaded by the North. Union troops could be shipped from New York to Hampton Roads, or to Florida, or to Mobile, or to New Orleans; after the first months of the war, no Confederate troops could be forwarded by sea. The country was therefore thrown upon its railroads. These roads were few and improperly built, as had been the case also in the North, and they steadily deteriorated.

"The North, on the other hand, was supplied with all that a rich country could furnish, or that money could buy in foreign countries. No army in the history of the world was ever so well fed, probably no army was ever so we

clothed as that of the United States."

Professor Hart's closing paragraph will be of especial interest to students of American history. "It is the favorite theory of political writers that there was, in 1860, a distinct difference between northern and southern character, arising out of the fact that the dominant element in the North was descended from the Puritan, and in the South from the Cavalier. It is now established that no such difference of origin can be proven. The Virginian and the Maryland planters, the New Jersey Quakers, and the Connecticut and Massachusetts settlers sprang from the same class in England. The elements chiefly represented in all the colonies at the time of their foundation were the intelligent yeomanry and small landowners. The aristocracy of which the South boasted so much was not descended from the younger or older sons of English men of rank; it was made up of the sons and grandsons and great grandsons of those planters who were the first, by their shrewdness and energy, to acquire large landed estates. The climate had brought about some changes, and in the South there had been developed a class of small landholders, the so-called poor whites, who had but little improved during the century previous to the civil war. The original bases of the white population were, however, the same. The great and fundamental difference between the sections was that in one of them the presence of a dependent race, and still more the existence of human slavery, had affected the social and the economic life of the people; that the productive energies of the North were employed, while those of the South were dormant."

The Undeveloped Resources of the Pacific States.

Captain William L. Merry, President of the San Francisco Chamber of Commerce, discusses in the Forum for November the "Commercial Future of the Pacific States." Of the resources of this

region he says: "The timber lands are the finest on the globe, and will become available when our eastern sea-coast and Europe are denuded. The California red-wood has for many purposes no equal in any timber known to commerce; the white cedar of Oregon is exceedingly beautiful, and the sugar pine and the Oregon pine are unexcelled in general usefulness. Other kinds of timber, too, are abundant. The fisheries of the Pacific coast are practically inexhaustible, but they are yet hardly known to commerce, except in a pioneer way. The soil is fertile where the country is not mountainous, and the mountain ranges are rich in minerals. It is true that in the southern part of California irrigation is a necessity, but the lands produce wonderfully when water is applied. The cereal crops of the Northern Pacific States will in California find competitors in horticulture and viticulture fully equal to them in value. The value of the wheat crop for the half decade from 1885 to 1889 inclusive of the seven States and Territories of the Pacific coast, was \$211,344,886. The value of the gold and silver product for the same period was \$213,536,621, and the value of the fruit product for 1889 was \$16,000,000."

AN INTER OCEANIC CANAL THE SOLUTION.

The great problem which the Pacific States have to solve is, naturally, that of transportation. Already these States produce far in excess of the home demand. Such progress as has been made thus far may be attributed in the largest degree to railroads, but transportation by this means has already practically reached its limit. In the construction of a water-way through the American isthmus lies, it is held, the solution of the prosperity of the Pacific States. The canal will not only develop the maritime commerce of the Pacific states, but will encourage the growth of industry in their interiors.

The cities of the western coast which are now railway terminals

will become commercial centres. In the movement of one year's wheat crop of the Pacific coast alone, Mr. Merry estimates that from \$5,000,000 to \$7,000,000 could be saved in freight, insurance, interest and charges for sacking through the construction of such a canal. With the aid of the refrigerator steamers the markets of Northern Europe could be supplied with the horticultural products of the Pacific coast in twenty-five days. Mr. Merry calls attention to the important fact that the route from the ports of China and Japan to the Nicaraguan Canal passes within one hundred and eighty miles of San Francisco and still nearer to San Diego.

Besides the construction of a canal connecting the Pacific with the Atlantic oceans, two other conditions of rapid and successful development of the Pacific are named: First, a rigid exclusion of Mongolian immigration, and second, the encouragement of a desirable Caucasian immigration. The rapid development of wealth, industry and population without the canal, Mr. Merry reasserts, is an impossibility.—Review of Reviews.

Diamonds in Showers.

IT IS POSSIBLE THAT THESE PRECIOUS STONES MAY COME FROM THE CLOUDS.

Professor Huntington, of Cambridge, gave the third in his Lowell Institute course of lectures on meteorites at Huntington Hall, recently.

His especial topic was the composition and structure and the relations which the minerals found in the meteors bear to the minerals found in the earth.

Every succeeding meteor, he said, is a matter of interesting and important study. The striking result, thus far, is that no new element has yet been discovered. Fully one-half the seventy or more grown elements in nature have been found in them. The familiar elements appear in peculiar association in all meteorites;

nothing like the combinations are found in mundane deposits.

The first noticeable feature in meteorites is their dark, vitreous crust, the result of heat from friction in their rapid motion. Their fresh fractures are usually gray, with rounded granular structure. Malleable iron is often present, and this alone shows their origin, as it is almost never found elsewhere in nature.

The next largest feature in meteorites is their rock material. This differs from all other rocks, but is practically identical in all specimens yet examined. There are indications, too, of some system of stratification.

A list of elements found terrestrially and common in meteorites was given, and it was remarked that some of the elements most common on the earth are absent. Of these quartz, limestone, feldspar and mica are the most common.

Ten or more minerals or compounds were named which are found only in meteorites, and their peculiarities were given in detail, and the lecturer found evidence that some of these combinations could not have been found in the presence of water or of free oxygen. Some of them bear quite close relations to the earlier volcanic rocks upon the earth, but none resemble the surface rocks.

Meteoritic stones show other variations from terrestrial stones. Of these, their structure, of rounded grains, is notable. Some grains appear to be single crystals worn by attrition, while others seem to be aggregations of similar crystals. Some of them have a crust like the larger mass, and others seem to have been fused together, indicating that each grain had a history antedating the mass. No satisfactory theory explaining their peculiarities has yet been presented.

A recent meteor which fell in Russia in 1886 was mentioned as containing carbon in the crystallized form of diamonds. It suggests that all diamonds came from meteorites. Their origin has never been explained.

There is no evidence of any

organic life in the constitution of meteorites. Certain hydro-carbon gases have been found, and something very like petroleum is claimed to exist. If this is true, it suggests the origin of meteors in some organic deposits in a pre-historic world.—*Boston Herald*.

Great Age of Familiar Sayings.

After all, the newest authors are the oldest. In this new edition ("Familiar Quotations") we have familiar sayings traced away back to Greece and Egypt. A new author by the name of Pilpay figures in this edition. He was a Brahmin, and he lived several centuries before Christ. Writing in some early dialect of Sanscrit, he deliberately and with the most horrible heathen depravity, stole some of the best sayings of Her- rick, Shakspere, Butler, Cibber and others. He was bold enough to appropriate such modern sayings as "What is bred in the bone will come out of the flesh." "Possession is the strongest tenure of the law," and so on. Hesiod, who wrote in the seventh century before Christ, was another of those antique plagiarists. Theognis, Æschylus, Sophocles, Euripides, Plautus, Terence and many others were great suppliers of modern familiar quotations. Every time you say "hence these tears," "the flower of youth," "I do not care one straw," "with presence of mind," or any one of several other things equally familiar, you are simply quoting Terence, who died one hundred and fifty-nine years before Christ. All the way through he is as modern as Mr. Howells. Here is one of his sayings, and after it is quoted nothing more need be said: "In fine, nothing is said now that has not been said before."—*Boston Trans-cript*.

An Underground City.

A STRANGE STORY FROM CENTRAL ASIA.

The Russians have made a singular discovery in Central Asia

(says a correspondent of an Indian newspaper). In Turkestan, on the right bank of the Amoo-Darya, in a chain of rocky hills near the Bokharan town of Karki, are a number of large caves which, upon examination, were found to lead to an underground city, built apparently long before the Christian era. According to effigies, inscriptions, and designs upon the gold and silver money unearthed from among the ruins, the existence of the town dates back to some two centuries before the birth of Christ. The underground Bokharan city is about two versts long, and is composed of an enormous labyrinth of corridors, streets, and squares surrounded by houses and other buildings two or three stories high. The edifices contain all kinds of domestic utensils, pots, urns, vases, and so forth. In some of the streets falls of earth and rock have obstructed the passages, but generally the visitor can walk about freely without so much as lowering his head. The high degree of civilization attained by the inhabitants of the city is shown by the fact that they built in several stories, by the symmetry of the streets and squares, and by the beauty of the baked clay and metal utensils and of the ornaments and coins which have been found. It is supposed that long centuries ago this city so carefully concealed in the bowels of the earth, provided an entire population with a refuge from the incursions of nomadic savages and robbers.

FOR WORKERS.

I ask no ease from restful toil,
My toil is rest:
Who at the Master's table serves,
Is also guest.

For toil is rest, reflection sweet,
When toil is love,
And work itself its own reward
Here as above.

So there His servants shall Him serve,
And, serving, rest,
Conveying blessings but to find
Themselves most blest.
Lord, deepen here the love which there
Thou perfectest.

—*The Cripple News*.

Geography.

TEACHING GEOGRAPHY—FIRST LESSONS.

ELLEN G. REVELEY,
Principal of Cleveland Training
School.

Scope of Geography. One of the leading text books of the day defines Geography to be a description of the earth, and of its productions and inhabitants.

Means to be used:

I. The part of the earth on which we live; the sun, moon and stars, vegetation about us, minerals with which the children are acquainted, domestic animals, different races of men whom the children have seen.

II. Pictures, maps, globe, story books, text books on Geography.

End or aim, first, foremost and ever—power to observe, strengthening the power of imagination, aiding the memory, acquirement of facts.

Preliminary Study.—Long before the child enters school he is laying a foundation in the growing power of perception, for the formal study of Geography to be afterward pursued. Hence, in many courses of study, in the first year's work we find such topics as observations of the clouds, the snow, etc., growth of seeds, study of fruits and nuts.

In the second year's work, study of domestic animals, study of simple forms of plant life, reading "Seven Little Sisters,"

In the third year's work domestic animals are studied still further, plants, trees, etc. Nor is the study of history unassociated with Geography in this year's work—the discovery of America, the story of the Pilgrims and of Penn., etc. All have a relation to the story of the earth.

Topics for direct oral lessons on Geography.—In the fourth year the formal study of Geography is begun. But the pupils must be led to observe the natural objects about them as a basis of these oral lessons, viz.: Bodies of land and water, hills, mountains, etc., or

whatever exists within their range of observation. The first formal lesson should be on the shape of the earth; there should be reference to other things round, which the children know, as a pear, a ball, a foot ball, a globe. Just as little information should rest on the teacher's statements as possible, but rather, whenever possible, lead the pupils to seek their own evidence. How do we know the earth is round like a ball? To those living on the sea or lake shore, or on a wide stretch of prairie, some evidence lies in the appearance and disappearance of objects, the pupils should be led to observe such phenomena.

As recently, sometimes opportunity is afforded to observe an eclipse of the moon; have a talk about the cause.

Experiments may be performed to show that only a spherical body always makes a round shadow. That the earth, which looks to them flat, really is round, requires a great stretch of the child's imagination. A great ball swinging in space around the sun, surrounded by other planets and the stars is the mental picture we must strive to obtain.

In the same way the teacher must dwell on the motions of the earth, illustrating, in a simple way, the conditions, but great care must be used that the illustrations do not convey wrong impressions and hide the truth.

We can only expect the child to see these great facts feebly. Little by little they will appear more clear to his mind. A second step is the appreciation of the fact that the surface of the earth consists of land and water. Here we have a basis in their observation of surroundings. With this, by aid of an outline map of the globe, they see representations of the shapes of land, the continents, and they are quick to know which is our country, North America. The same should be shown on the globe. Let the teacher point out the state in which the pupils live, and the town or city in which they reside.

Sully, in the Hand-book of Psy-

chology, says: "In Geography, for example, the teacher, after a brief elementary account of the earth, starts with the child's own country and locality, and so passes gradually to more distant parts of the globe."

But there must accompany the lessons leading from the shape and motion of the earth to the child's locality, certain preparatory lessons to assist him in future study.

Among the first of these are lessons on the points of the compass, taught objectively, so that the child knows immediately north, south, east and west, as well as the intermediate points. Succeeding these are lessons on the meaning and use of maps.

One evidence of improved methods in Geography teaching is that pupils are no longer set to studying page after page of definitions, for which he knows no use, and after memorizing has little idea of their meaning. These pages at the beginning of a book may be considered like the store room of a housekeeper to which she resorts when she needs a given article. So the teacher should use of these definitions as she has need. When the pupils are to study about a given lake, they may learn what a lake is, etc.

When the general study with the side lights has been concentrated on the pupils' own locality, the class is ready to commence what Alex. Frye considers the most important of all subjects in Geography, viz.: Slope. The children are now ready to observe which way streams flow, how streams are formed, little basins, and the general slope of the land.

The simplest and most forcible way to put it is "water runs down hill." The children readily observe which way water runs; then they always know the slope of the land. A class is readily interested in these home stories, because they realize that they are finding out things. From this they may pass to the State in which they live, its limits, its surroundings, what a State is, and the slope of their own. This leads to drawing the outline. With the map of the text

book open before them they may study the direction of a single river, drawing the conclusion concerning the slope of the land through which the river flows. Now they may study a river, its source, mouth, banks, bed, etc., learning the definitions in the text book after they know the idea of the thing. They should be able to draw and describe the principal rivers of their own State, telling (1) where the river rises, (2) in what direction it flows, (3) through what it flows, (4) into what it flows. If a great lake borders the State the class may next study it and learn the main points concerning all lakes, viz.: What a lake is, the head, the foot, what is meant by "up the lake," "down the lake," etc. Let the children tell about the small lakes they know. The climate or weather may follow. To prepare for this, illustrations should be made with the globe. Too much must not be attempted in showing why the hottest parts of the earth are on the equator, and the coldest parts at the poles. Imaginary travels may be made to the south, to the north. The idea of temperature may be developed, and the kind of climate we live in, may be the subject of a conversation.

With the subject of vegetation should be developed the idea of soil, and that heat and moisture are required to make plants grow. A distinction should be made between natural vegetation and cultivated vegetation, and the children be led to discriminate. They should be led to ascertain the kinds of vegetation that grow naturally in the State, as grass, trees, etc., and the varieties of cultivated vegetation. If the State is rich in minerals, as Pennsylvania or Ohio, they should know about those which are most abundant and most valuable. We have now prepared the way for occupations. They should be thoroughly acquainted with the word and its applications. One of the foremost educators in this country went into a primary school where he found the class studying about occupations for the first time. He proceeded to develop the sub-

ject, and thought he had succeeded in helping the children to form correct ideas. But when he inquired what the most of the people in Cleveland were doing, the pupils said they were engaged in agriculture. This merely goes to show that we need to use great care, and not take too much for granted in teaching this subject.

When the topics, agriculture, manufacture and commerce have been studied, the pupils are ready to study cities. In all these subjects we are to remember the natural order, viz.: First, the thing, then the name. To teach country children what a city is, and to teach city children what is meant by the country, is only made easy to the extent that they have had opportunities to observe. But few cities in each State should be learned by a primary class; not more than three or four. Either in the lessons on commerce or in those about cities the names of the railroads which enter the town or pass through their part of the country should be learned. If one State is taught thoroughly, much of the ground work for other states has been laid. Other states than our own are taught first by sections, and then individually.

The order of topics may be followed as (1) surface, (2) slopes and heights of land, (3) rivers, (4) lakes, (5) climate, (6) vegetation, (7) minerals, (8) inhabitants, (9) occupations, (10) chief cities.

Aids.—Jackson's Astronomical Geography, D. C. Heath & Co., Lockyn's Primer of Astronomy, Heath's Picturesque Geography Series.

"Do It."

Peter Cooper, who founded the Cooper Institute, in New York City, had a hard struggle. As a boy, his health was of the frailest. He went to school but one year in life, and during that year he could only go every other day. But when he was eight years old he was pulling hair from the skins of the rabbits his father shot, to make hat-pulp.

He had not "half a chance." It seemed almost literally that he had no chance at all. He went to New York when he was seventeen years old. He walked the streets for days before he got a place, and then apprenticed himself to a carriage-maker for five years for his board and two dollars a month.

He had neither time nor money for what the world called pleasure, but he had the pleasure of hope. While he was working for fifty cents a week he said to himself, "If I ever get rich I will build a place where the poor boys and girls of New York may have an education free," and so he did.

William Hunt, the painter, used to say: "Don't talk of what you want to do—do it!"

Education.

BY F. HARRISON.

All that education can really give is this: It can supply the opportunities of self-culture; hold forth new standards and ideals to aim at; it can bring the budding mind into contact with a formed and mature mind; shed over the young spirit the inspiring glow of some rare and beautiful intelligence. It can open to the learner the door into the vestibule of the great library of the world's wisdom; but it cannot cram its contents into his brain. It can show him a superior intellect in the act of collecting and distilling his materials. It can suggest, explain, connect and guide in a very general and occasional way; but it can not teach vigorous thinking, or thrust coherent knowledge into a raw mind, as a plough boy can with trouble be taught to write or to remember the multiplication table.

FORUM.

A simple remedy for round shoulders is to stand facing a corner of the room, and with hands extended on the wall in either direction, and the feet firmly placed, to move the body slowly toward the corner. This exercise faithfully repeated every morning will make the form beautifully erect.

Clionian Review.

MOTTO—Pedetentim et Gradatim Oriamur.

MAUDE LYTLE, Editor.

Clio has indeed "hitched her wagon to a star;" may her course ever be onward and upward.

At our first meeting eight new members were received, and many old ones have come back to swell our ranks.

In anticipation we are all eating a slice of delicious "Boston brown bread" this week. May we not be disappointed.

Clio is awakening to the fact that she has some very fine performers. So it seemed after hearing Miss Peterson's recitation on Saturday, Jan. 9.

In order that our financial affairs may be straightened out a committee of five has been appointed to revise the Constitution and By-Laws referring to the finances.

An old member while on a visit to the school was heard to remark, "How is Clio? I am coming to the meeting to-morrow night; that is the only place second to home."

The proceeds of our entertainment were not large; but more than that is the literary training our members have received from the efficient services of Byron W. King.

Miss McClure demonstrated to the new members of the school in a critique on "The Social Life of James Russell Lowell" what Clio has of literary culture and refinement.

Miss Anna Dague is gaining quite a reputation as editor of our periodical. She has had much practice and now bids fair to become a fine editress as her paper showed on Saturday evening.

The following officers have been elected for the present term of of-

ice: President, Mr. Baker; vice-president, Miss Dague; secretary, Miss Katie Reed; attorney, Mr. Tombaugh; treasurer, C. S. Smith; critic, Miss Lytle; chorister, Mr. Meyers.

Among the old Clios present at the first meeting of the new term were Harry McEldowney and Walter Hertzog. The change in the date of meeting may have prevented others attending. Miss Greathead's salutatory was one of marked originality and very appropriate to the occasion. In it she alluded to a beautiful dream and to this compared Clio's course.

At a meeting not long since we were highly entertained by a violin solo by Prof. Keffer, accompanied by Mrs. Hall on the piano. What ideal dreams of the good and the beautiful music awakens in us! May the strains of sweet music often greet our ears in Clio hall and who can tell the results that will thus be obtained.

The question, Resolved, That the abolition of the United States toward Chili during the recent revolution was proper, was so ably sustained by Mr. Garwood on the affirmative and Mr. Graff on the negative that it was doubtless the patriotic spirit of the judges that allowed them to decide unanimously in favor of the affirmative.

The residence of Mr. A. J. Zahniser, Washington, Pa., was the scene of a quiet wedding. On Christmas eve at 5 o'clock beneath the enchanting branches of the holly and mistletoe bough, Mr. W. D. Brightwell and Miss Marguerite Zahniser heard pronounced the solemn words that made them man and wife. On the following morn-

ing they left for their new home in Fayette City, where they took Christmas dinner. We send our heartiest congratulations to the groom for having so charming a bride, and we wish them a long and very beautiful married life.

The meeting of Jan. 9, was opened by an anthem by the choir. Soon after this was followed by the merry sleighing song, entitled, "Jingle Bells." Clio has long been noted for her excellent music and she is still keeping up the reputation. Mr. H. T. Baker, in a very interesting essay for the benefit of our new members, gave a bit of history of some of our members. He represented each one as "a fair, divided excellence" and allowed not one of the world's heroes to surpass them in the record they had made. Our "sergeant" was ranked with the "Father of his country" and declared to have in his possession the little hatchet that "tried to make George tell a lie" and this he uses for cutting apple trees, opening apple barrels, etc.

Miss Ada Jenkins is teaching in Salem, Ohio.

Mrs. Noss and Miss Downer visited Washington City during the Christmas vacation.

Dr. Noss spent his holidays in Maryland with his father, who was ill, and not at the Greensburg institute, as he had intended.

Mr. C. L. Smith, '91, is not the "C. L. Smith," whose name appeared in an undesirable way, recently, in the Fayette county papers. Our C. L. Smith is all right, of course, and is doing good work in the schools of Bridgeport.

Philomathean Galaxy.

MAUDE McLAIN, Editor.

MOTTO—Non Palma Sine Pulvere.

Miss Powell, a former student, visited in California during the holidays.

Miss Harriet Applegate, '91, spent a portion of her vacation with friends in town.

Mr. Carroll and Miss Morton are among the list of former students that grace Philo's hall.

Each member is entitled to a copy of the revised constitution. The books are very neat, and well arranged.

The extemporaneous class grows more interesting every meeting. The subjects are well chosen, and many good speeches are given.

Miss Jennie Boyd, of Elizabeth, was the guest of friends at the Normal a few weeks ago. Miss Boyd expects to enter school again in the spring.

We are glad to hear that Mr. Corneille is recovering from a severe attack of pneumonia, and we hope soon to see his genial countenance back in Philo.

Letters coming from Miss Hattie Westbay are full of encouragement and good wishes for Philo. Miss Westbay expects to visit Philo soon; also Miss Edith McKown, of Coraopolis.

A very beautiful tableau was given on the opening night, entitled "The Wise and Foolish Virgins," in which nine young ladies took part. These tableaux add much to the already good programmes.

Philo is never behind in any

Miss Minnie Day, to Mr. Devers, of Washington. Our best wishes go with the happy pair.

Philo closed a very successful term Saturday, Dec. 18. A very excellent valedictory was delivered by Miss Mary Phillips. The work of the past term has been earnest, but more so will be the term opened Saturday, Jan. 9, '92. Miss Barnes gave a good salutatory, bidding welcome to Philo's new and old, as only Miss Barnes can do.

Eleven new members, beside five or six old members, joined the ranks of Philo Jan. 9, '92. To you, new members, we give a hearty welcome, and to the old members it is needless to say how much they are welcome, for they already know so well of Philo's loyalty. Our best wishes go with you in the term's work.

The debate on the opening night was one of the best we have heard. The question was: Resolved, That the action of the United States against Chili was unjust. The affirmative side of the question was taken by Mr. Colebank, and the negative by Mr. Carter. Both sides showed careful and earnest preparation. The question was decided in favor of the negative.

Miss Nannie Hornbake, '90, was a visitor at morning chapel recently.

Miss Avie Chester has resigned her position at Elco on account of ill health.

The seventh grade of the Model school now occupies the E room

Boston Brown Bread.

(Continued from 16th Page.)
toward the box office Saturday morning at 10 o'clock.

But who can forestall the diplomacy of the American? Is there a very popular lecturer? Kennan for example. Then he pays a messenger \$1, \$2, \$3, to go early and stand for hours in order to be among the first when the doors open, and so sure of securing a ticket.

How long we have talked, and scarcely one slice of this great loaf is touched! We hope indeed that like Mrs. Dearborn's Indian River Omelette, passed around at the close of the demonstration lecture in the Boston Cooking School yesterday, this one bite may make you long for more. But, alas! who can argue with a Review that has just so much space and perhaps no relish for Boston delicacies! Sincerely,

ELMA RUFF.

Shirley Mancha is attending Mt. Union college.

Dr. C. W. Yarnell has removed from Garwood to Lucyville.

Mrs. Josephine Shepler Miller, '81, is spending the winter in San Francisco.

Devotional exercises at chapel were conducted by Rev. C. W. Miller Dec. 15th.

Odell S. Chalfant, '86, after passing a very creditable examination, was admitted to the Washington county bar on Monday, Dec. 21.

Among our chapel visitors during the last week of the fall term were O. S. Chalfant, '86; Etta Lilly, '91, and A. T. Morgan, '91.

The new term opened on Jan. 4th, with a largely increased attendance, a new class formed, a new teacher, and a new stock of resolutions

Language.

With the names of ten objects in the school room, use each in a good sentence orally. Have the better ones written. Special attention should be given to punctuation.

The value of such an exercise depends entirely upon the character of the sentence obtained. Have pupils give a crude analysis, separating these sentences into entire subjects and predicates first. Following this work should come words denoting quality, as size, color, number, etc. At this stage of language study, definitions are not of vital importance.

Pupils should be taught right here to make good paragraphs of their work in compositions. Read a short story or poem, and have them make a statement or two about it, keeping the leading thoughts in their order—first orally and then in writing.

Talk—Animals of the "Rodent" Kind.

For discussion: Has gold or coal been of the greater benefit to mankind?

Is country life to be preferred to city life?

Composition and conversation.
Salem witchcraft.

Bright days and dark days in the life of Columbus.

A journey from Panama through the heart of South America to Cape Horn, thence along the coast to the Amazon River, thence up the river and across to the Pacific.

A journey from Quebec to the City of Mexico via the Mississippi Valley; thence to Newfoundland via Cuba and the Atlantic coast.

Helps in Synthesis.

1. All elements take the form of words, phrases or clauses. A compound element consists of two or more joined by co-ordinate conjunction.

2. A phrase is a preposition and its object or an infinitive. A phrase

may be the subject, the predicate, the adjective element, adverbial element, or the objective element. [Inseparable phrases are treated as words.]

3. A sentence is a combination of a subject, and predicate.

4. A clause is a sentence that forms a part of another sentence. It may be joined to another sentence by a co-ordinate conjunction, thus helping to form a compound sentence. It may be the subject, the predicate, the adjective element, the adverbial element, or the objective element, thus helping to form a complex sentence.

5. What ever limits a noun or pronoun is an adjective element.

6. What ever limits a transitive verb, denoting what or whom, is an objective element.

7. All other elements that limit verbs, and all that limit adjectives and adverbs, are adverbial elements.

Suggestive Questions.

READING.

1. What is good reading?
2. Particularize some of the important results you aim to secure.

3. How do you secure a ready and correct pronunciation of words?

4. How do you lead your pupils to a clear comprehension of the thought of the lesson?

5. Do you have exercises in silent reading?

6. To what extent do you consider the authors quoted in the reader?

7. How do you teach the meaning of words?

8. What value do you attach to correct reading?

9. From what authors have your children learned quotations? What poems have they learned?

10. What exercises, aside from the reader, have you given, to test the ability to read ably?

From the ruins of Pompeii it appears glass windows existed before 79.

The Objective Case.

MAY ALEXANDRA FRASER.

To develop the idea of compound, double and direct and indirect objects. The pupils have studied simple objects, and the lesson begins with a review.

"In what ways may a noun or pronoun be in the objective case?"

"A noun or pronoun may be in the objective case as the object of a transitive verb in the active voice, or of a preposition."

Miss Blank draws a bracket on the board, labelling it "Object of trans. verb," and calls for illustrations, arranging them rapidly in the bracket as they are given: "Sells eggs," "buys potatoes," "reads books," "makes bread," "writes spelling."

"What kind of verbs are these?"

"They are transitive verbs."

"In what case are the nouns?"

"They are in the objective case."

"How?"

"Objects of transitive verbs."

"In what other way may nouns and pronouns be in the objective case?" "As objects of prepositions."

"Give examples."

Another bracket is drawn, labelled "Object of prep.," and Miss Blank writes as the children talk: "Across the street," "under the bridge," "on the table," "in pocket," "behind the barn."

"In what case are these nouns?" "They are in the objective case, object of prepositions."

"How may nouns be in the objective case?"

"Nouns and pronouns may be in the objective case, object of transitive verbs in the active voice, or of prepositions." This repetition may seem superfluous, but it is not, except to the few particularly quick-witted members of the class; even to these it is helpful, and to most children, absolutely necessary to a comprehension of the subject. The most brilliant explanation of a lesson will fail to bring satisfactory results, unless followed by *drill*. Many a bright young teacher has lost courage at finding that the point which she thought she made so cleverly last

week, has disappeared like mist before the sun, from the minds of all but the comforting half dozen. She prepared that lesson carefully, conscientiously, successfully, as far as preparation goes; it was a good lesson, the point could not have been better made, and yet, where is it gone? It is like putting the point of a tack into the wall where you want it to remain, and forgetting to give the blow to drive it in. Don't forget the blow and if there is any doubt about one being enough give two. There is no danger of the intellectual tack going in *too far*.

Miss Blank continues:

"Suppose, children, instead of simply selling eggs, he sells eggs and butter, buys potatoes and cabbages, reads books and papers, what kind of objective elements are these?"

"I think they are compound elements." (These children have had compound objective, adverbial and objective elements.)

"Yes, and we call them compound objects. What is a compound element, Ella?"

"A compound element consists of two or more elements joined by a co-ordinate connective."

"Right; and a compound *object* consists of two or more *objects* joined by a co-ordinate connective. You may think of transitive verbs having compound objects, to place in this bracket." Many are given and Miss B. goes on:

"Now, a verb may have two objects, which we cannot call compound. I will write an example of this kind of object on the board; see if you can tell me why it is not compound. She writes 'elected him governor.' Margaret (dear child, the days are a shade less bright when she is absent) says, 'I think it is because there is no connective to join the words.'

"That is it exactly. What must compound elements *always* have?"

"They must have a co-ordinate connective to join the simple parts."

"Yes. We cannot call this a compound object, and it isn't simple, so we call it a *double* object. There is one thing that you will notice about a double object, the

words always mean the same person. Double objects generally follow the verbs choose, elect, appoint, nominate, etc. You may think of double objects as I write: "Elected him president," "chose him captain," "appointed her teacher." We might put in the name of the person instead of the pronoun; 'elected Mr. Jones mayor' etc."

"There is still another kind of object which consists of more than one word; I wonder who can tell me in what way it differs from the double object,—here is an example: 'They sent her a dress.'"

"'Her' and 'dress' do not mean the same."

"That is so; and they did not send *her*, they only sent the dress; they sent it *to* her. We call 'dress' the direct object of the verb sent, and 'her' the indirect object, though it is really the object of the preposition 'to' understood. In analyzing we always supply the preposition, and call the phrase an adverbial element. Now I want you to give me verbs having direct and indirect objects." As they are given the faulty ones are explained away and the best are placed upon the board; after a recapitulation of the three new kinds of objects, their characteristics and differences, the pupils are directed to make brackets, similarly labelled, on their slates, and write five new illustrations in each. Those upon the board remain for a day or two and then the illustrations are erased and the children are required to fill them with no guide except the label on each. At the end of the lesson the board looks like this:—

Object of trans. verb { sells eggs
buys potatoes
reads books
makes bread
writes spelling

Object of prep. { across the street
under bridge
on table
in pocket
behind barn

Compound object { eats bread and cake
likes candy and nuts
sells corn and hay
writes grammar and history
plays ball and marbles

Double object { appointed him general
chose Mr. Reed speaker
appointed John captain
elected him senator
nominated her secretary

Direct and ind. obj. { gave him a present
sent the children books
buy her a cloak
sell him a horse
wrote me a letter.

Curiosities About Gold.

Gold is so very tenacious that a piece of it drawn into wire one-twentieth of an inch in diameter will sustain a weight of 500 pounds without breaking.

Its malleability is so great that a single grain may be divided into 2,000,000 parts and a cubic inch into 9,523,809, 523 parts, each of which may be distinctly seen by the naked eye. A grain and a half of gold may be beaten into leaves of one inch square, which, if intersected by parallel lines drawn at right angles to each other and distance only the one-hundredth part of an inch, will produce 25,000,000 little squares, each of which may be distinctly seen without the aid of a glass.

The surface of any given quantity of gold, according to the best authorities, may be extended by the hammer 310,184 times. The thickness of the metal thus extended appears to be more than 566,020th of an inch. Eight ounces of this wonderful metal would gild a silver wire of sufficient length to extend entirely around the globe.—St. Louis Republic.

The entire coast line of the globe is 136,000 miles.

Current Events.

The outcome of the recent troubles in Brazil has afforded very general satisfaction to all friends of Republican institutions. The attempt of De Fonseca to imperialize the country placed "government of the people and by the people" on trial before the world. The prompt defeat of the imperial scheme without bloodshed or any serious disorder shows that the people have become attached to constitutional methods, and may be relied upon to maintain the republic against all odds. Such evidence of the progress of liberal principles and popular enlightenment may well encourage the friends of self-government everywhere.

The rebellion in China seems to be growing serious. There is apparently a widespread movement looking to the overthrow of the existing Manchu dynasty, which was established over two centuries ago as a result of successful foreign invasion. The natives have never ceased to resent the imposition of this dynasty, and the present revolutionary feeling has its source in this antagonism to the foreign element in Chinese politics. The rebels have achieved some notable successes, and there appears to be some general alarm at Peking and elsewhere. Recent accounts show that great atrocities have been committed by the insurgents upon Christian missionaries and their converts.

Two sailing ships recently lay in the Mersey that had left Liverpool, England, on the same day last year, and after voyages of nearly 30,000 miles for each returned to port at Liverpool almost side by side. They left on October 5 for Astoria, Oregon, and arrived there on March 1 and 2, having been in company with each other for a large portion of the voyage. They were in sight for forty days. Both captains had their wives on board, and during the forty days of proximity one of the captains and his wife enjoyed a Sunday dinner on the other ves-

sel, the compliment being returned on the following Sunday by the other captain. Both vessels left Astoria on April 8, but this time one sailed for Dunkirk and the other for Havre. They left these ports at nearly the same time, and entered the Mersey within hailing distance after a voyage of 342 days.

The most northerly railroad in the world now building, runs from Lulea, a small town on the Gulf of Bothnia to Eldegaar, within the Arctic Circle. It will be ready for use next summer.

Duluth, the Zenith City, at the head of our great inland seas, is removing more wheat from the great grain fields of the West than any other on the Lakes.

Minneapolis is likely to verify the statement of a leading New York daily, that, "it is destined to become the third city in the country." Fifteen railroads enter it from every direction. Its manufactures for 1890 reached the enormous sum of \$90,000,000. Its saw mills cut 360,000,000 feet of lumber. Its banking capital exceeded \$9,000,000. Its clearances reached \$302,000,000. Its jobbing trade in 1890 amounted to \$200,000,000. Its assessed valuation on a forty per cent. basis was \$138,181,672.

A party of explorers have recently discovered an immense forest of India-rubber trees in the valley of the Orinoco.

Post-offices were first established in France in 1464. The first English post-office was opened in 1581, the first German office in 1641.

At the Chicago flower show, the golden rod was selected as the national flower.

The Boston Public Library now contains more than 5,000,000 volumes.

Over 25,000 letters are posted yearly in England without addresses.

In London there are half a million houses and nearly a thousand miles of streets.

The density of population in England is close on 480 to the square mile.

In Strasburg girls are taught at the public expense to mend the clothes of their families.

The great treasury vault at Washington covers more than a quarter of an acre, and is twelve feet deep. Recently there was \$90,000,000 in silver stored there, an amount that weighed 4,000 tons and would load 175 freight cars.

The silk industry shows that a single cocoon from a well-fed silk worm will often produce a continuous fiber more than 1,000 yards long.

It is estimated that Texas farmers are \$60,000,000 richer than last year.

Within sixty-two years Mexico has had fifty-four presidents, one regency and one empire and nearly every change of government has been effected by violence.

A needle passes through eighty operations in its manufacture.

The year 1849 was the square of 43; we had not a square year, so to call it, before then since 1764, and the next will not occur until 1936.

One pound weight of cork will support in the water a man weighing 140 pounds.

Another earthquake is reported from Japan. In the prefectures of Achy and Gifu, it is said 4,000 were killed outright and as many more seriously hurt. There are said to be 200,000 people homeless through the destruction of buildings.

The telephone line between Manitou and Pike's Peak has just been completed, a distance of about nine miles. It is the highest telephone line in the world. The peak is 14,115 feet in height, while the village of Manitou is 6563 feet above the sea.

It is said that between the Island of Madagascar and the coast of India there are 16,000 islands, only 600 of which are inhabited.

In The Women's Colleges.

Last month was an epoch in the history of Scottish women, and all the supporters of the higher education of women will rejoice that an ordinance has been passed by the Universities Commission making provision for the teaching and graduation of women in all the universities in Scotland. The women may be taught either in mixed classes, in the ordinary way, or distinct classes may be instituted for them under lectures specially recognized by the University Court. No professor whose commission dates from before the approval of the ordinance is to be required without his consent to conduct classes to which women are admitted with the men. Twenty-five years have elapsed since the question of the university education of women was first started in Scotland, and many of those most deeply interested in it have died like the Israelites who started from Egypt, before seeing the land of promise.

Japan has a new high school which differs somewhat from the ordinary in that the adjective "high" refers not to the degree of education, but the social status of its students. It is called the Peeresses' school, and has been founded at Tokio to allow the ladies of the Japanese nobility to acquire a better education than has been possible on account of the rigid castle regulations of the country. A Japanese lady educated in this country is its principal.

Co-educational colleges have been favored of late with most liberal endowments. Boston University receives from the will of Lovicy D. Paddock the sum of \$30,000 for the aid of worthy young women and men struggling for an education, and the University of Kansas has come into possession of a bequest of \$91,683 from the estate of the late William B. Spooner of Boston.

It is a suggestive fact that while out-of-town public school students are admirably equipped to pass

the examinations of Barnard College, no graduate of the New York public schools can meet the requirements of matriculation at Barnard. The winner of the free competitive scholarship for the best entrance examination last year was a Jersey City girl, graduate of the public high school.

Wellesley College has a political club, and political debates are part of the junior rhetorical course.

The Women's College of Baltimore is to have two new buildings, one for general college instruction, the other for dormitories. Their cost will be \$150,000.

The trustees of the co-educational University of Chicago made recently the largest book purchase on record, a collection of 350,000 books, many of them rare volumes that can not be duplicated. This gives the new college, even before its opening, a library larger than Yale's and lacking but few volumes of equalling Harvard's. When Chicago goes in for education she breaks the record.

Relics of Columbus' Expedition.

When F. A. Ober, the special Commissioner to the West Indies, was in Santo Domingo his attention was called to a large cannon lying half buried in sand on the bank of the Ozama River. It lay beneath the bluff on which stands the Castle Homenaje, the oldest castle now standing in America. When Don Diego Coloa, the son of Columbus, was sent out with his titled wife, Marie de Toledo, to govern the island of Santo Domingo he began the erection of a grand palace (the ruins of which may still be seen on the right bank of the Ozama) which gradually assumed the appearance and proportions of a fortress, rather than a gubernatorial residence.

The city authorities, fearful that Don Diego would seek to entrench himself in his castle and defy the king of Spain, mounted some cannon in a fortification hastily erected and warned Don Diego that he was subject to their commands.

The fortress finally fell to ruin, and the cannon, one by one, tumbled over the bank; and now, after laying 380 years beneath the walls of ancient Santo Domingo, this piece of rusty ordnance will be taken to Chicago, perhaps to send forth a salute to the memory of the great Columbus, whose son it was once used to threaten.—*Chicago Herald.*

The Months of the Year.

Write the months and their abbreviations from memory:

January, Jan. The first month of the year; named from Janus, the Roman god of the sun, to whom it was sacred.

February, Feb. Named from a Roman Festival.

March, Mar. The month of Mars or god of war.

April, Apr. Named from a Latin word, meaning to open, the month in which the earth opens for new fruit.

May. Named in honor of the Goddess Maia.

June. Month sacred to the goddess Juno.

July, Jul. Named in honor of Julius Cæsar, who was born in this month.

August, Aug. Named in honor of Cæsar Augustus.

September, Sept. From *Septem*, the Latin for seven. The seventh month of the Roman year, which began with March.

October, Oct. From *Octo*, the Latin for eight.

November, Nov. From *Novem*, the Latin numeral nine.

December, Dec. From *Decem*, the Latin numeral for ten.

A Remarkable Railroad.

Probably the most remarkable railroad in the world is that running from Gloggintz to Lounering, near Vienna. It is only twenty-five miles in length, but cost \$9,000,000. It begins at an elevation of 1,400 feet and has its terminus at 13,000 feet. It has fifteen double viaducts, seventeen tunnels and crosses itself nine times.

Arithmetic.

A Half Year's Work In Numbers.

BY SUPT. G. W. MCGINNESS.

I am convinced that very much valuable time is worse than wasted upon this most important branch of science, and I desire, in a brief way, to present a course which, if faithfully carried out, will result in a great saving of time and assure greater efficiency on the part of the pupils through their whole course in numbers.

At the beginning of the first year of school life let the pupils learn at once to count ten objects. For this work the teacher should be provided with a numeral frame as well as with other objects. As soon as pupils can count ten, let them learn to count to 20. After this let them count with the teacher a few times to 100. Then let them count with and without the teacher 10, 20, 30, &c; then 11, 21, 31, 41, &c; then 5, 10, 15, &c; then 2, 4, 6, 8, &c, to 100. To learn this perfectly will occupy about two weeks. Then set them to the task of making the figures to 10, in the meantime fixing the facts above by individual and concert work, in reading numbers written by the teacher and counting objects. This should be done by decades, first to 10 then to 20, &c. Do not, at this stage, teach any principles. The child will see the relations and laws that govern and run through the numbers if presented in this way, while, if you stop to explain, you ask him to understand your explanation, which is a more difficult task than the one before him. If 10 is known, 20 will be recognized as two 10's, 30 as three 10's, &c; then 11, 21 and 31 will be readily comprehended.

If you have not tried this method, you will be astonished at the rapid strides your pupils will make. They grasp these ideas rapidly by intuition and the mind develops naturally and readily under them. Do not waste one

moment in explanation. Let pupils count, let them write, let them read. Your talk only hinders. It is best not to use objects too long. Use them only 'till pupils have correct concepts securely fixed in the mind. When a child has learned by counting objects, that 9 and 8 are 17, he is ready to memorize the fact and fix it for all time.

Teachers must not go too slowly or stop to illustrate after the correct concept is once formed. Pupils will learn a dozen facts while some teachers are clearing their throats, collecting their minds, and waiting for thoughts and otherwise getting ready. Remember this is purely memory work and that repetition is the price of success. Place the following combinations on the board where all can see, in the form of a square, and drill, drill, drill, until pupils can name the sums instantly. Lead the pupils (1) to perceive, (2) to express orally, (3) to memorize the facts.

When I was a pupil my teacher required me to express and memorize that which I did not perceive. Nowadays some teachers regard their work complete if they have led the pupils to perceive and express that which they should also memorize. After perception comes expression and then memory, all equally important.

1	5	2	7	6
1	4	2	1	4
3	7	5	8	5
3	3	3	2	2
3	6	4	6	8
1	3	2	1	1
3	9	5	7	4
2	1	5	2	1
1	4	5	6	4
2	4	1	2	3

The teacher points to the numbers, the pupils name only the sums and instantly. Continue this drill 'till all can give these 25 sums in 30 seconds or less. Slow work must not be tolerated. Pupils can, if they are familiar with the facts, pronounce 100

words per minute and should be required to do so here. This matter of speed is of the most vital importance and is insisted upon as an essential part of this system.

Teachers dawdle, talk, work too slowly, and waste valuable time which ought to be utilized by the pupil.

Wake up! Away with preliminaries, and give your pupils vigorous mental drill from the moment the class is called 'till the last moment of the schedule is up. Some teachers waste more time than is utilized. Do not dawdle; if your pupil does not remember a fact, tell him, and see that he tells it back to you again and again 'till it is fixed. Have faith in your own success—believing you can is half the battle. A teacher in the second reader grade said in reply to my interrogatory that she did not have pupils write numbers from dictation because they were too young. I said "You can teach them to write numbers to 1,000 from dictation in twenty minutes." "No" said she "it would take all winter to do that." "Can you spare me ten minutes," I said! "Yes," said she. I stepped to the board, wrote five numbers of three figures each, read one to the class and they at once read the other four. I then placed a figure in thousands place and said "These new figures are to be called thousands." The others are to be read as before. After reading one myself the class read the other four. I then dictated five numbers of four figures each and the class wrote them promptly. This took eight minutes and the poorest in the class wrote from dictation readily thereafter.

A great deal of variety is desirable; hence the teacher must draw upon her inventive faculties. To help out and give variety let pupils be provided with the measures of capacity and by actually handling the measures, learn the table for dry and liquid measure. This will be done as easily here as elsewhere, and will afford variety. The fractions $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$ &c, can as well be learned here as elsewhere by cutting papers, &c., and will

be useful for sake of variety. A child six years old will learn these fractions as readily as one ten years of age and learning them now will have the additional advantage of avoiding confusion when the subject of fractions is taken up as such. To do this work well, it must first be very carefully planned and thought out in the minutest details. Failure here is disastrous.

1. Note what you are to do. 2. How you are to do it. 3. What particular part you are to do today. Random work will always fail, and worse than fail, for it will paralyze your pupils' intellectual growth, thus insuring failure forever after.

A little work carefully prepared each day as a part of the complete course for the year, which must be held carefully in mind all the while, is very much more profitable than much work poorly planned and ill taught. In this way teachers will gain the elements of power in teaching, will grow broader and deeper, acquire culture, increased attention, better order and gratifying success.

Having done the above work, which should not occupy more than three months, under skillful teaching, pupils are ready for a similar drill upon the following, which should be learned as before, so that they can give the sums in any order in 30 seconds or less.

6	8	8	7	9
5	8	4	7	3
8	8	9	8	9
7	3	7	6	9
9	6	9	8	7
2	6	5	5	4
9	8	8	7	7
6	9	4	5	6

Having mastered these combinations and counting as indicated, the child should be taught to add columns of figures up to 100, which he should be able to do as fast as he can talk by the end of his fourth month in school. Simply show him how to carry, by setting down the units figure and adding the tens figure to the next column. Do not talk about it. Just do it and leave the why for a

later period. In adding, name only sums.

The work laid out above should not occupy more than four months. I have done it in less time than that in a country school where I had seventeen daily recitations.

The reader will see that these forty-five combinations are practically all that are needed, and pupils ought surely to become skillful in forty-five combinations in eighty days' work.

Railroad Notes.

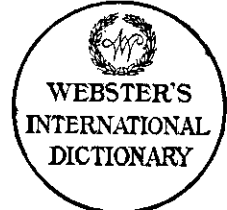
The Morristown and Cumberland Gap Railroad has just been completed. It connects the coal fields of Cumberland Gap with the iron ore districts of North Carolina. It also makes a direct route between Charleston, S. C., and Cincinnati.

The Norfolk and Western today will formally open its new bridge over the Ohio River. This bridge is an important link in the chain which will soon make another outlet from Chicago to the seaboard. The bridge is located east of the mouth of the Big Sandy. The town at the Kentucky end is called Kenova. There will also be opened for traffic forty-five miles of new road from Kenova to Dunlow on the line now under construction to Elkhorn. The entire road will be completed by midsummer, when the line from Chicago to Hampton Roads will be open.

It is said that several of the roads between Chicago and the Missouri River are paying Street's Stable Car Company an unusual mileage for the use of stock cars. The railroad agreements allow the payment of three-quarters of a cent per mile, but some think that two cents per mile is paid, and that the car company then divides with the shippers, thereby effecting a cut rate without coming under the jurisdiction of the Inter-State Commerce law. In addition to this, it is hinted the Street company is trying to exterminate its smaller competitors, in order to get a monopoly.

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It is estimated that 5,000 car loads of oranges will be shipped from California during the coming season.

The telephone has been known in India for thousands of years.

Boston Brown Bread.

BOSTON, MASS., Dec. 3, 1891.

DEAR REVIEW—Where shall we begin? Which slice will you have? For, figuratively speaking, this Boston brown bread is a wonderfully large and mysterious loaf. What magic rings may it not contain as it lies demurely by the side of its platter of sweetened beans every Sabbath morning on our boarding-house table.

A custom? "Aye marry is it; but to our minds, though NOT of the manor born, more honored in the breach than the observance."

What to hear, what to do becomes a perplexing question in Boston, and the literary devotee is as much puzzled as the scientist to know just what selections and specimens will best suit his intellectual and aesthetic palate. One thing is certain; you cannot have everything, you cannot hear everybody, as my large philosophical room-mate observed one evening, between the interludes of Bach's Inventions and Cramer's Etudes.

There is the Symphony orchestra for Friday afternoon, yes, that is down on our tablet permanently. No matter if we are almost squeezed to death in the rush; our remaining senses, at least, will float on the floods of melody that fill Music Hall. And there is Bishop Brooks, when he is in Boston; of course you may be compelled to rise at 7 o'clock, snatch a little bread and cheese, rush over to Trinity and stand three hours on the steps waiting for the doors to open and then hurry pell-mell up to the gallery, only to find every available seat gone, people admitted from the side doors and ahead of you and you are left to congratulate yourself that there is at least standing room. Perhaps it is fortunate that the crowd behind you act as a stay against the swift rushing thought hurled at you from the brain of the great bishop.

"You see, it would seem," says some one near us, "that his thoughts are so wonderful and come with such rapidity that the words leap like lightning to catch the ideas that hurry like startled things from his lips." Well, we wish he would put some compressed air brakes on his mental machinery is our own silent observation. At least we prefer to sit

rather than stand when we are knocked one minute against the gates of heaven, and the next plunged almost into the depths of Hades, only to find ourselves lifted bodily into mid-air and set down in the midst of a multitude where an elevated white-robed figure with a tender, pathetic upturned face and outstretched arms is crying out at us "Service, service, service to mankind alone is life. Young men, young women, if you would find a soul, throw your heart into the crowd and rush after it. How pathetic, how infinitely pathetic to see men with great longing in their hearts groping after this open secret of life, like an artist at a dumb organ trying in vain to find a responsive key that may unlock the floods of harmony within his own soul."

Nevertheless after we have passed out of Trinity, felt the bracing air of Copley square, and have recovered from the concussion of mind and body sufficiently to know that we were the individuals meant in the sermon, that just now we are very hungry and that there is a violent debate going on between our heart and stomach concerning which has grown the larger since morning, nevertheless, I say, down goes a permanent place for Philip Brooks on our tablet; and so securing a slight mental equilibrium between these two points of music and eloquence we stop to take breath.

Then everybody goes to "The Lowell Lectures." "Boston! The paradise of women!" was the jubilant exclamation of a lady at the breakfast table the other morning. Say, rather, I rejoined, it is the paradise of lectures, and certainly you cannot mean it is the Eden of SINGLE women, for when one remembers that there are 20,000 more wage-earning women in Massachusetts than men—a large number of these single women—that Boston has its proportionate share, the statement looks paradoxical; without indeed these Theosophists and Christian Scientists have invented a new sort of paradise with Adam left out, which would not surprise us at all, for the number of our ideas that emanate from Boston is startling.

Still we believe the statement. Never before have we seen women

more apparently independent and free; never before have we felt so fully the spirit of untrammelled thought and action.

Were you to drop into Channing Hall Monday afternoons at 3 o'clock, where the most difficult questions in social science are discussed by men like Profs. Clark, of Smith College, and Biddings, of Bryn Mawr; Pres. Andrews, of Brown University; Balliet, of Springfield, and Seligman, of Columbia, you would find that by far the larger portion of the audience is women. The same thing is true of Gen. Francis Walker's lectures on Political Economy in the National Historical rooms Monday mornings.

If four or five men are present at Mr. Abba Gould Woolson's Thursday morning lectures on Historic Cities of Spain we begin to question what they want here; and John Storer Cobb, LL. D. seems to have literally frightened by his profundity every man out of the Woman's Educational and Industrial Hall in his 4 o'clock lectures on Landmarks of English Literature.

Some University professors do stray into Dr. W. T. Harris' lectures on Lessons in History Saturdays at 10:30 in the Old South Meeting House, but no doubt the Revolutionary heroes that peer down from the walls give them courage to encounter even here the large audience of women. Then perhaps they want a little of the fresh and finely-thought-out matter of Dr. Harris' lecture as yeast for their own discourses.

Nothing will better show the man and his lectures than a little incident that occurred one morning as I sat gazing at the window in the church through which Warren entered to make his famous speech on the Boston Massacre. 10:30 came and Dr. Harris, a tall, slim, unostentatious-looking gentleman, arose and began his lecture on Oriental Civilization. Very soon a large gentleman sat down on the chair next mine and inquired anxiously: "How long has he been going?" "Only a few minutes," I replied. The lecture over, I ventured to say: "That was a fine philosophical address." "Did you like it?" "Very much." "How profound in matter and how indifferent as to manner the doctor is." "Oh, yes," I said; "he undoubtedly repented the use of a single metaphor by tacking it on to the end of a sentence with the most apologetic air."

But surely Pres. Eliot, of Harvard, attracts our "ignorant brothers," as Mr. Mary Clemens Leavitt, the eight-times-around-the-world missionary, says. Yes, perhaps; but the great number of women that waited at the doors of the Armory last Saturday morning and passed in single file to the box office to receive a ticket—for his is one of the Lowell Free Lecture courses—proves the old Eve-like curiosity and the Adam-like stolidity.

Certainly Augustus Lowell, with his magnificent gift of \$250,000 for these lectures, saw quite into the future of things. No tickets are sold; no representative votes count here. One ticket is the rule to every adult individual who is present when the long line begins to form.

Concluded on 9th Page.