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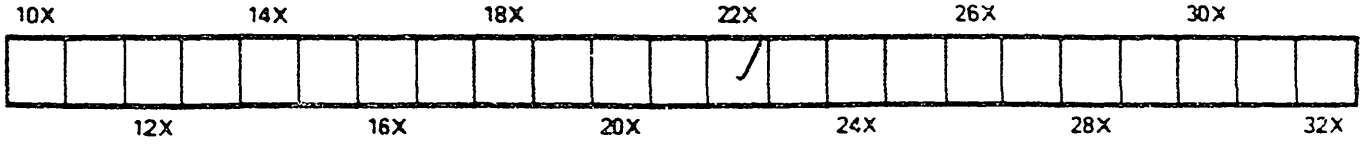

No. 7. July.

ACADIAN SCIENTIST.

Devoted to the Interests of Acadian Science Club. Teachers and Naturalists.

A. J. PINEO, EDITOR.

SUBSCRIPTION 35 CENTS PER ANNUM.

The Acadian Science Club.

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This Society aims to awaken and foster a more general interest in Scientific knowledge, to induce young men and young women to engage in systematic study at home, and to afford its members the means for mutual assistance in the pleasing and enobling study of Nature's works. All efforts used to make the connection of students with the Club pleasant and profitable.

A Course of Study has been arranged extending over three years and including the following subjects: Physiology, Geology, Botany, Natural Philosophy, Astronomy, Chemistry, Zoology and Mineralogy.

The members report quarterly. Yearly examinations are held at the Students' homes, and at the end of the course certificates are given showing standing, etc. Course of Study and full information sent upon application to the Secretary.

SCIENCE.

An Illustrated Journal.

Published Weekly at Cambridge, Mass., U. S. A., by

MOSES KING.

AN OPEN LETTER.

To the Educated People of all Countries:

A few months ago the announcement was made that a company of eminent scientific men was formed for the purpose of establishing in this country a scientific journal of the highest character. The journal proposed was to be called "Science," which well indicates its scope and purpose. It was to be illustrated, and to appear weekly on Fridays It was to be of convenient size for reading in the library or in travelling conveyances It was to be printed handsomely and accurately, and to be of suitable shape to bind into easily handled volumes. Its contents were to be in extreme contrast with the majority of publications of the day. Every line was to be written by a thoroughly competent person, who was to be paid for his work. Not a word was to be inserted that had been influenced by any other cause than pure merit. Not a single "puff" or any kind of notice of any thing was to be printed for money-making purposes. Not an advertisement was ever to be inserted in any but the avowedly advertising pages; and no advertisement was to be inserted on any page if the editor thought best to decline it.

The company chose for its officers and directors: *President*, Daniel C. Gilman, the president of the Johns Hopkins University; *Vice-President*, Alex. Graham Bell, the inventor of the Telephone; Othniel C. Marsh, the president of the National Academy of Sciences; Gardiner G. Hubbard, long identified with the postal telegraph movement; and Samuel H. Scudder, the president of the Boston Society of Natural History.

It was proposed to offer to the public a journal which would, during the year, contain fifteen hundred pages of text, and to ask merely a subscription of $5.00; making, in fact, the cheapest scientific publication ever offered. Its contents were to give, in intelligible language, the scientific progress in every department of science in all parts of the world. And, although the requirements of scientific writing in some cases require technical language, every intelligent person can find in every issue a fair proportion of the contents wholly intelligible to him, and all of it of great interest and peculiar value.

It seems, therefore, that the enterprise is worthy of the active and positive encouragement of the educated people of all countries; and as the larger the paper's circulation, the larger will be its sphere of usefulness, we ask of you, first, to subscribe for yourself, and then to try to persuade others also to subscribe. In a short time a very handsome volume will be published, containing a *classified list of subscribers* to this new "Science." If you are not a subscriber already, we should be pleased to receive your subscription at once.

MOSES KING, Publisher,
Harvard Square,
Cambridge, Mass., U.S.A.

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The Acadian Scientist.

Published in the Interests of the Acadian Science Club.

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☞ The subscription price is only thirty-five cents a year. Canadian or United States stamps taken; denominations of 1 cent or 3 cents preferred.

GOOD WORDS.

We are receiving so many expressions of approval and good wishes from friends of education and progress everywhere that we feel inclined to publish a few of them for the encouragement of those who are seeking to fulfil the aims of the "Acadian Science Club" and the ACADIAN SCIENTIST, and of all who are in sympathy with them in their work. We have space for only a few representative letters.

From David Allison, L. L. D., Supt. of Education for Nova Scotia:

"I am in hearty sympathy with your movements in the direction of introducing elementary science in schools. * * * I shall be prepared to speak a good word for the SCIENTIST."

From Theodore H. Rand, L.L.D., Supt. of Education for New Brunswick:

"I very cordially approve of your effort to interest teachers in science through your publication and shall be glad to commend it to those engaged in school work."

From Wm. D. McKenzie, M.D., Inspector of Schools, Parrsboro, N.S.

"I am anxious for every grade B. teacher in my district to become a member of the Science Club."

From Geo. U. Hay, Esq., Botanist, St. John, New Brunswick:

"I am heartily in sympathy with the objects as set forth in the SCIENTIST and will cheerfully aid in helping it along. * * * After the month of August I shall feel more at liberty to meet your wishes in regard to writing for the SCIENTIST.

From Philip Cox, A.B., Inspector of Schools, Newcastle, New Brunswick:

"I heartily approve of the efforts of the Science Club in seeking to sow the elementary seeds of natural science among our teachers, and thereby giving more directness and method to every-day instruction in the schools. The great difficulty in the way of rendering the teaching of these subjects of much educative value is a want of system—an absence of proper knowledge of classification, sequence, etc., by our teachers—and for these reasons much time is wasted in seeking to teach classes what is not properly understood by the instructors themselves. The subscription price seems but nominal—bearing no relation to the intrinsic value of the work. * * * If you secure the approval of our Chief Supt. of Education I will do all I can to circulate your publication within my district as I believe it will supply a want very much felt."

From J. B. Winn, Esq., Supt. City Public Schools, Austin, Texas:

"I am in receipt of the first number of the ACADIAN SCIENTIST. I am pleased with its plans and purposes. The motive of the 'Club' is the noblest of the noble—'to encourage young men and women who are not able at present, from any cause, to enjoy the advantages of an academic or collegiate training, to undertake and continue a systematic course of study at home.' The plan is a novel one; and I have no doubt will meet with abundant success."

From D. P. Wetmore, Esq, Inspector of Schools, Clifton, N. B.:

"I am much interested in the Club and will do all I can to increase its membership among the teachers here. * * * Would like to enroll myself a member of the Club.

[For the SCIENTIST.]

COLLECTING LAND SHELLS.

The apparatus required by the collector is exceedingly simple. He will need a box for larger specimens, several small bottles of alcohol for the smaller ones, and a pair of forceps with a weak spring. The latter can be easily made by simply doubling a strip of tin cut to the right size and shape. Thus equipped the collector is prepared for active work. He should search long and carefully in damp places, especially in swamps, but should not neglect localities that are comparatively dry. In damp woods, about springs, under rotten leaves, chips, and rubbish heaps, and around old garden walls he will find specimens in greater or less abundance. Damp boards laid around at night in gardens and yards will usually furnish more or less specimens in the morning. Sections that have a dry sandy soil, seem to be comparatively unfavorable to the existence of land shells. Sandy hills and plains and pine barrens will yield the collector but little encouragement, while moist woods and an alluvial soil will usually furnish an abundance of specimens. Sometimes hundreds of specimens of some minute species will be found congregated under a bit of bark or fallen tree in some moist situation, only waiting for the collector to transfer them to his alcohol bottle. A walk upon a damp morning through some rush-bog or swampy locality will usually reveal large numbers clinging to the rushes and grass-stalks or crawling slowly about.

As fast as the animals are taken they should be consigned to their proper place, the small ones to be dropped into the alcohol and the larger one into the box brought for the purpose.

The following rules of action, taken from Tryon's Conchology, are pertinent and should be carefully studied and observed :—

1. Never rest satisfied until you have found the best examples of a species which your time and opportunities will allow.

2. Never collect imperfect or immature specimens, unless they exhibit some character making such a step desirable.

3. Having found a station which produces the finest specimens, study it carefully, that you may the more easily recognise such surroundings again.

4. If specimens are abundant collect plenty, and the work on that species will be done at once, save as you meet with desirable varieties.

5. Remember that if your specimens are good and clean it will always give you an advantage in exchanges as soon as correspondents begin to recognise this fact. Never pick up a poor specimen with the remark, "This will do for exchange" if a good one can possibly be had.

Having collected the specimens the next step is to prepare them for the cabinet. The smaller shells after remaining in the alcohol for a few days may be taken out, washed and dried and consigned to the proper receptacles. In the case of the larger ones after cleaning thoroughly the outside of the shell, using a soft brush if necessary, proceed to remove the animal. Place the specimen for a minute or less in hot water, then with a pin or bent wire attempt to remove the contents of the shell. If the animal does not come out readily give him another bath, which will usually be effectual. The vacated shells should then be washed again in clean water and the interior syringed out thoroughly. They should then be laid on a clean board or paper, mouth downward, to dry.

It now remains to discover the name of the species and arrange the speci-

mens in the cabinet. As this last matter can be left till the collecting season is over, hints in regard to it will be reserved for a late number of the SCIENTIST. Those not able to name their specimens by means of the resources at hand, may send duplicates to the director of the department of zoology who will gladly render any possible assistance. The specimens should be carefully wrapped in cotton wool and packed in a strong paper or wooden box, a duplicate number being attached to each species. The prepay ment of postage at the rate of one cent per quarter pound will usually carry the box to its destination.

[For the SCIENTIST.]

THE NORTH STAR AND THE DIPPER.

Situated nearly directly north from us, and, in the latitude of Nova Scotia, about 45° above the horizon, or half-way from the horizon to the zenith, is the noted star, called Polaris, Cynosure, or North Polar Star. Polaris though only 2½ in the scale of brightness is easily recognised, as the surrounding field is barren in stars of this magnitude. It can also be readily found from the "pointers" in the Dipper. Polaris is situated about a degree and a half from the true pole of the heavens on the side opposite the Dipper, and is hence *directly* north twice in 24 hours. This happens when the Dipper is directly below or directly above the North Star. Polaris is gradually approaching the north pole of the heavens and in A. D. 2095 will be within half a degree of it. The distance will then be increased for a period of 13000 years till it will become 49°. This is due to the revolution of the celestial pole about the pole of the ecliptic every 26000 years.

The most conspicuous group of stars in the northern heavens is that portion of the Constellation, Ursa Major, (The Great Bear), called the Wain, Plough or Dipper. These seven bright stars, five of them being of the 2nd magnitude and two of them of the 3rd, are easily recognized by their outline giving the appearance of a dipper or ladle with three stars in the handle and four in the bowl. As these stars are often referred to it will be convenient to know them individually.

When the Dipper is near the horizon, the handle is on the left hand side. Beginning now with the bowl or on the right hand side we distinguish the different stars by the letters of the Greek alphabet followed by the genitive case of the Latin name of the Constellation. We have thus for our seven stars the names, Alpha Ursæ Majoris, Beta Ursæ Majoris, Gamma, Delta Epsilon, Zeta and Eta Ursæ Majoris. In addition, these stars have individual names that have been handed down from remote times. Taking them in the same order, they are called, Dubhe, Merak, Phad, Megrez, Aliotte, Mizar, and Benetnasch, the latter being in the end of the handle.

As this group of stars is visible every clear night, and can be advantageously used in discovering other stars, the names, positions and relative distances of the members of the cluster should be thoroughly mastered.

Dubhe and Merak are called "the pointers." They are 5° apart and a line running through them and continued 28¾° will reach the north pole. Merak and Phad are 8° apart, and 4½° from Phad is Megrez at the junction of the handle with the bowl. 5½° from Megrez is Aliotte and 4½° from Aliotte is Mizar and 7° from Mizar is Benetnasch.

These distances are given that the student may accustom himself to judging celestial spaces.

To find *Arcturus* from the Dipper we must pass a line through Mizar and Benetetnash extending it about 30°. This line will pass just above a very bright star of the first magnitude which is Acturus—the the Bear watcher—so named from its nearness to the Great Bear.

Cupdella may be found by passing a line through Megrez and Dubhe and extending it about 45° and *Regulus* can be got by passing a line through Dubhe and Merak and another through Megrez and Phad. These two lines when extended will cut; and just beyond their section will be found Regulus in the handle of the sickle.

A. E. COLDWELL.

(For the SCIENTIST.)

LECTURES ON MINEROLOGY.

NO. 1.—BLOWPIPE ANALYSIS.

The blowpipe furnishes a simple yet effectual means of testing the character and composition of many substances, especially minerals.

A steady and continuous blast from the blowpipe will be necessary in order to produce good results in these experiments. It often requires considerable practice and patience to produce this. The cheeks should be used as a bellows, being filled from the lungs, while breathing goes on regularly through the nose.

The small brass blowpipe, such as used by jewelers, will answer the purpose of the mineralogist.

The flame produced by the blowpipe consists of two cones, the outer pale yellow, the tip of which contains an excess of oxygen and will change to an oxide any oxidizable substance, so is called the *oxidizing flame*; and the inner blue flame which is called the *reducing flame* because of the free carbon it contains which enables it to reduce, or deprive of oxygen most metallic oxides. By a slight variation of the blowpipe in the flame a strong oxidizing or reducing effect may be produced.

The *Oxidizing Flame* (O. F.) can be produced by placing the tip of the blowpipe just within the flame and blowing steadily. The substance to be tested should be held just beyond the blue cone.

The *Reducing Flame* (R. F.) may be produced by placing the blowpipe just outside the flame and blowing gently. The flame is bright yellow. The substance under examination must be wholly enveloped in the flame.

The best burning fluid for blowpipe lamps is alcohol mixed with one-tenth its volume of oil of turpentine. A good reducing flame cannot be obtained with alcohol alone. The old-fashioned fluid lamp holding about an ounce, having a metallic cap, makes a good lamp.

Charcoal is the best support to use in most reducing operations. The best kind of charcoal is that made of soft wood, and should be free from cracks and knots. It should be cut in transverse sections about half an inch thick, and cavities the size of half-a-pea cut in the end for holding the substance.

Experiment 1.—Place a small fragment of lead in a cavity of the coal and heat in the O. F. The C. is coated with lead oxide (P b O.) which when hot has a ——— color; on cooling it changes to.

Experiment 2.—Treat in the same way a piece of zinc. The C. is coated with the oxide (Z n O.) Notice its color when hot and when cold.

Experiment 3.—Heat a small quantity of P b O. (litharge) on the C. in the R. F. until the oxygen is all removed.

Fluxes aid in the reduction of metallic oxide.

Experiment 4.—Mix a little copper oxide with an equal quantity of sodium carbonate (soda) moisten with water and place in a cavity of C. Heat in the R. F. till a bead of copper is seen.

Try similar tests on tin, antimony, bismuth and arsenic, also their oxides, or other components, noticing carefully the appearance of each. When you have become familiar with these try the same tests on various ores containing these metals.

Students who find it difficult to obtain the chemicals for the above experiments, can obtain them from the author.

S. K. HITCHINGS.

NOTES.

The latest submarine explorations made on board "Le Travailleur" have brought to light an extremely curious fact, which none of the scientists, who have hitherto endeavored to guess what might be the nature of life in the sombre depths of the ocean, have ever thought of. These abysses are not only peopled by foraminifera and infusoria, as has been supposed but numerous species of fish analagous to those which inhabit the surface of the water are there found, possessing very curious anatomical peculiarities and novel organs. These organs are transparent plates covered by the skin and filled with a liquid capable of becoming luminous under the influence of the encephalon. It hence results that these vertebrata, which inhabit regions where the sun never penetrates, and where, consequently, eternal darkness reigns, possess a kind of dark-lantern which they can light at will, It should be added that one peculiarity has long been taken cognizance of, which is that a majority of the zoophytes which carpet the bottom of the sea are naturally phosphorescent.—*Ex.*

News from Mr. Stanley, dating to the middle of December, states that he has started for Vivi, the first of seven stations established by the International African Society. At Vivi preparations are making for the construction of a railway line to the landing place on the river. Bolobo, the last station established, is seven nundred miles from the mouth of the Congo. The seven stations already seem to have become centres of civilization, and are making their influence felt upon the surrounding tribes. Cattle have been introduced at Vivi, cabbage and lettuce are thriving at Leopoldsville, and three small steamers are launched. Fears are entertained lest through the claims of the Portuguese government obstructions to the freedom of way and commerce may arise. Several Swedish officers have recently left Europe to join Mr. Stanley.—*American Naturalist.*

Prof. Palmieri announces the existence in the lava of Vesuvius of a substance giving the spectrum line of "helium," an element hitherto recognised only in the sun.

A man who weighs 150 pounds on the earth, if transported to Jupiter, would strike the ground with a ponderous tread of 45,000 pounds, or twenty-two and a half tons! A hickory-nut falling from a bough would crash through him like a Minie ball. Water would weigh fifteen times as much as quicksilver. A moderate wave would sliver to atoms the strongest iron-clad.

The motive of science was the extension of man on all sides into nature, until his hands should touch the stars, his eyes see through the earth, his ears understand the language of beast and bird and the sense of the wind; and through his sympathy heaven and earth should talk with him.—*Emerson.*

The pearl fisheries of La Paz, Lower California, have been very productive the past season: one pearl found last season weighed 75 carats and sold on the spot for $14,000. A second one which weighed 47 carats is valued at $5,000.

So far from science being irreligious, as many think, it is the neglect of science that is irreligious—it is the refusal to study the surrounding creation that is irreligious. —*Herbert Spencer.*

A New Method of Finding the Mean Density of the Earth.

A new and ingenious method of determining the mean density of the earth has been devised and applied by Professor Von Jolly, of Munich. On the top of the tower seventy-three feet high was placed a pair of scales, to each plate of the instrument a wire was attached, which passing through a zinc tube, reached within less than four feet of the earth. To the lower end of each wire an another plate was attached, and under one of these was placed a globe of lead one metre in diameter. Bodies placed first in the upper scales, and then in the lower, had a measurably greater weight in the latter. Again, bodies weighed more or less in the lower scale, according as the leaden globe was present or absent. The difference of these weights furnished the data for determining the ratio of the earth's density to that of lead. Mr. Von Jolly's experiment gave a mean density of 5.692, the density of water being unity. This slightly exceeds the value obtained by Mr. Bailey.—*International Journal.*

New and Remarkable Chemical Experiments.

The liquefaction of oxygen gas and nitrogen, the freezing of alcohol and sulphide of carbon, are the latest achievements of chemical science. This news comes to us from the laboratory of M. Wroblewski, in Cracow, Poland, who has given some interesting particulars in a dispatch to M. Debray, published lately in *Comptes Rendus*. By the use of liquefied ethylene, M. Wroblewski and K. Olszewski obtained the remarkably low temperature of—136° C., equal to —212·8° F. Oxygen gas subjected to about this temperature, and compressed under a pressure or about 25 atmosphere, of 375 pounds to the square inch, was readily liquefied in glass tubes, and formed a colorless and transparent liquid, very mobile, and resembling carbonic acid.

Nitrogen was also liquefied, forming a colorless liquid.

Alcohol was solidified at 130·5 C. or —202·9° F., forming a white body. Sulphide of carbon froze at about—116° C. or—176·8° F.

These are certainly very interesting and remarkable experiments. Air contains by weight, approximately, 23 parts of oxygen and 77 parts nitrogen. It is common to compress it to a far greater degree than above mentioned. For motive power, in driving compressed air locomotives, a compression of the air to 1,000 pounds to the square inch is in some cases employed. The difficulty heretofore experienced in the liquefaction of oxygen and nitrogen has been to obtain a sufficiently low temperature in conjunction with compression. This obstacle now appears to be removed, and a variety of new and valuable observations concerning the nature of gaseous substances may be expected.—*Scientific American.*

A Bolivian Saurian.

"The Brazilian Minister at La Paz, Bolivia, has remitted to the Minister of Foreign Affairs in Rio photographs of drawings of an extraordinary saurian killed on the Beni after receiving thirty-six balls. By order of the President of Bolivia the dried body, which bad been preserved in Asuncion, was sent to La Paz. It is twelve meters long from snout to point of the tail, which latter is flattened. Besides the anterior head, it has, four meters behind, two small but completely formed heads (?) rising from the back. All three have much resemblance to the head of a dog. The legs are short, and end in formidable claws. The legs, belly, and lower part of the throat, appear defended by a kind of scale armor, and all the back is protected by a still thicker and double cuirass, starting from behind the ears of the anterior head, and continuing to the tail. The neck is long, and the belly large and almost dragging on the ground. Professor Gilveti, who examined the beast, thinks it is not a monster, but a member of a rare or almost lost species, as the Indians in some parts of Bolivia use small earthen vases of identical shape, and probably copied from nature."

Mr. Wm. E. A. Axon, in a note giving the above to the *Journal of Science*, says: "If this account should prove to be accurate, it would form a counterpart to the etching of the mammoth which forms so interesting a memorial of pre-historic art."

We are glad to find among our exchanges the *Kansas City Review of Science and Industry*. Having known this journal for some years we are prepared to speak quite strongly in its favor. Published in the West by a western man it furnishes a good index of western push and enterprise. The table of contents is exceedingly rich and full covering nearly the whole field of natural science, while the readers of the *Review* are kept well informed in regard to the latest discoveries in science and progress of tho times. Every reader of the SCIENTIST should send 25 cents for a sample copy to the editor and publisher, Theo. S. Case, Kansas City, Missouri.

[For the SCIENTIST.]

BOY NATURALISTS.

The true naturalist is born, not bred. No amount of scientific training can supply the patience, power and skill in observing that come instinctively to many a school boy. The boy who will spend his Saturday holidays in bird-nesting, or chasing butterflies (not from a love of wanton destructiveness, but prompted by a commendable curiosity), or who will return from his visit to the sea shore with pockets filled with shells or curious pebbles, is already a field naturalist. At home he will have a collection of bird's eggs, or shells, or insects, or perhaps of all. He will be deeply interested in books of travel and discovery, and all that treat of natural history, or the wonders of physical science. Such boys should be encouraged, rather than have, as is too often the case, their natural tastes and enthusiasm represssed by opposition and ridicule. They should be taught that the works of nature are workmanship of God, and as such are worthy of their life long study; and that time spent thus is not wasted or unprofitably spent, as many seem to think. The "manuscripts of God" are open to all; and like His inspired Word, while they contain truths so deep and vast that the profoundest mind can never fathom them, yet, grand in their simplicity, contain much that even a child may read with delight and understand.

The importance of encouraging the young in the observation and study of natural objects is apparent when we consider that the impulses that prompt to such action, and the habits of mind thereby cultivated are those that are the elements of success in all departments of life, and of happiness in after years. The increased acuteness of the observing faculties, and the development of a nice power of discrimination that result from an earnest study of nature, are conditions of a successful business life, and the efficient discharge in man of all his duties towards his fellow men. The training to all the intricacies of contingent reasoning that is acquired by him who studies patiently the phenomena of Nature is a power that will enable him to grapple with the great problems of life, and trace more clearly in them all the relation of cause and effect.

Then let the young be taught to love and revere nature Let them be encouraged to seek knowledge in the great school in which Hugh Miller studied, and which he loved so well, and they will find, like him, that Nature has many wonders to unfold to those who earnestly and reverently seek to know them.

The National Park.

In the north western corner of the Territory of Wyoming, bordering on Montana and Idaho, lies a tract of country about fifty-five by sixty-five miles in extend, possessing a greater combination of remarkable features than any other known area of like dimensions under the sun. It contains 3,578 square miles. Its elevation above the sea level is from six thousand to fourteen thousand feet. It lies mainly, but not entirely, on the east side of the main range of the Rocky Mountans. By act of Congress, approved March 1, 1872, this tract was withdrawn forever from sale and set apart as a permanent pleasure-ground for the amusemoet and instruction of the people under the designation of the Yellowstone National Park. The grandeur and variety of its scenery, the salubrity of its summer climate, and the health-giving qualities or its thermal waters will, within few years, make it the Mecca of the tourist, pleasure-seeker, and invalid from all parts of the civilised world. Among its innumerable attractions are some of the grandest cataracts, cascades, canons and mountain summits on the continent. Its spouting geysers in number and magnitude exceed all others known. Its numerous mud springs, salfataras, fumeroles, and beautifully terraced hot springs are beyond description in the magnitude and splendor of their decoration and action. * * * *Educational Weekly.*

LITERARY NOTICES.

Lippincott's Magazine for July is published as a midsummer number, and the table of contents is a highly attractive one, including many contributions that are not only seasonable but worthy of special attention. Thus, "Alpine Dairies," an illustrated paper, besides a delightful picture of pastoral life in the grandest of mountain scenery, gives a full account of the methods and processes by which cheese-making has been brought to full perfection in Switzerland. Another article bearing specially on agricultural questions, but full of interest in regard to the general development of the country, is on "British Land-Owners and American Competitors." "My Asylum Home," by a physician, is a curious revelation of the writer's experiences while the victim of singular hallucinations, with a fair and temperate description of the defects of our insane asylums. Dr. C. J. Stille, late Provost of the University of Pennsylvania, describes the condition of "Women in Ancient Greece and Rome" with reference to the much debated subject of female education. "Moonshine and Marguerites," an illustrated story in five chapters, will be one of the chief attractions of this number to a host of readers. Miss Tincker's serial, "The Jewel in the Lotos," maintains its high interest and the qualities in which it is not surpassed by any recent work of fiction. We class this magazine among our most valued exchanges. $3.00 a year. J. B. Lippincott & Co., 715 and 717 Market St., Philadelphia.

We regard the *Portland Transcript* as one of the best family papers of our acquaintance. In its columns art, poetry, literature, and science are well represented; while to the intelligent reader who from lack of time is unable to digest more extended reports, the weekly summary of political and general news, home and foreign, is worth more than the cost of the paper. An exceedingly interesting feature now observable in this journal from week to week is description of American scenery and localities of historic interest. The stories are short, original, and unexceptionable in tone and quality; while the "Young Folk's Column" must be very interesting to the little ones. This valuable journal contains, besides many other attractive features—but our readers should send to the publishers for a sample copy or $2.00 for a year's subscription. Elwell, Pickard & Co., 44 Exchange St., Portland, Maine.

Hall's Journal of Health should be in every family. It tells how to secure good health and strong vitality and thus prolong life. Replete with valuable articles. $1.00 a year. Single number 10 cts. Editor, E. H. Gibbs, A.M., M.D., New York.

The *Ornithologist and Oologist* is a neat little monthly published by Jos. M Wade, of Boston. Contains notes from active collectors and other matter of value to those interested in birds and their eggs. $1.00 a year.

EXCHANGE DEPARTMENT.

Every subscriber has the privilege of inserting in this department one notice, not exceeding five lines, each year. Beyond that, and for non-subscribers, the charge is 5 cents a line.

FOR SALE.—Second-hand copy "Fourteen Weeks in Physics." Steele. Nearly new. Price 80 cents, postpaid. "Geological Story Briefly Told." Dana. Nearly new. Price $1.10 postpaid. A. J. PINEO,
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