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No. 10

Oct.

ACADIAN SCIENTIST.

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

A. J. PINEO, EDITOR.

SUBSCRIPTION 50 CENTS PER ANNUM.

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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.

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The Acadian Scientist.

Devoted to the Interests of Education and Popular Science.

VOL. I. WOLFVILLE, N. S., OCTOBER, 1883. No. X.

☞ The subscription price is only fifty cents a year. A Post Office Order for that amount costs but two cents.

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IN consideration of contemplated enlargements which will be commenced next month, we are under the necessity of slightly raising our subscription price. We are obliged to do this as, with our present subscription list, the former price would not pay the actual cost of publishing the SCIENTIST in its enlarged form. Those teachers in Nova Scotia who kindly allowed their subscriptions to continue in accordance with a circular letter sent a few months since will be requirrd to pay only 35 cents. If convenient they will please leave that amount with their District Inspectors, in November, or forward by post office order. We are already receiving more postage stamps than we can readily dispose of.

HOW TO SKIN BIRDS.

The ability to skin birds dexterously and well is gained only after considerable careful and patient practice, but can be acquired by almost any one. For the benefit of the young readers of the SCIENTIST who may wish to prepare specimens of this kind, we give a few instructions which will be followed by others.

The first step of course is to procure the bird. If this is shot the mouth as well as any wounds should be stuffed into tow or cotton to prevent the blood from staining the plumage. Before commencing the operation of skinning, have at hand a supply of plaster, and, for preserving the skin, a quantity of arsenic in powder, which is, perhaps, as good as any of the special preparations for the purpose. The following directions for which we are indebted to Maynard's Naturalists' Guide, will apply to all birds, with but few exceptions.

Place the bird upon its back; with the fore-finger and thumb part the feathers on the abdomen, and a bare longitudinal space will be discovered, extending from the breast to the vent. With the scalpel divide the skin in the centre of the breast bone, or sternum and ending at the vent. Now peel the skin off to the right and left and sprinkle plaster upon the exposed abdomen. Force the leg on the right side up inside the skin, at the same time drawing the skin down till the joint appears; cut through this joint and draw the leg out as far as the tarsus or first joint; with the point of the knife sever the tendons on the lower part of the leg, then by a single scraping motion upwards they may all be removed, com-

pletely baring the bone; treat the other leg in a like manner, leaving both turned out as they were skinned. Place the finger under the rump near the tail, then with the scalpel cut through the backbone just in front of the coccygus entirely through the flesh to the skin,—the finger beneath is a guide to prevent cutting the skin. This may be done very quickly after long practice, and there is no danger of severing the skin if proper care be used. Put on a fresh supply of plaster. Now grasp the end of the backbone firmly between the thumb and forefinger, and with the other hand pull the skin down on all sides towards the head, until the joint of the wing, where the last bone, or humerus is joined to the body, appears; sever the bones at this joint, and draw the skin down over the neck and head. When the ears appear, with the thumb nail remove the skin that adheres closely to the skull without breaklng it, pull down to the eyes, then cut the skin off close to the eyelids, taking care not to cut or injure them, but be sure and cut close enough to remore the nictating membrane, as it will otherwise cause trouble. Skin well down to the base of the bill. Remove the eye with the point of the knife by trusting it down at the side between the eye and the socket, then with a motion upward it can be removed without breaking; cut off enough of the back part of the skull to remove the brains easily. Proceed to skin the wings; draw them out until the forearm appears, to which the secondaries are attached; with the thumb nail detach them by pressing downward forcibly. Remove the muscles and tendons—as explained on the leg—to the joint, where the forearm joins the humerus, then divide, removing the humerus entirely.

Now open the drawer containing the arsenic, and with a small flat piece of wood cover the skin completely with it; be sure that the cavities from which the brains and eyes were removed are filled. Take up the skin and shake it gently. The arsenic that remains adhering to it is sufficient to preserve it, provided the skin is damp enough; if not, it may be moistened slightly. Now fill the eye-holes with cotton, tie the wing-bones with thread, as near together as the back of the bird was broad, then turn the skin back into its former position. Smooth the feathers of the head and wings with the fingers. With a few strokes of the feather duster, holding the skin up by the bill, remove the plaster and arsenic that may be adhering to the feathers. After smoothing the feathers carefully, place the skin upon its back. With the fingers take up a small roll of hemp or cotton, as large round and as long as the neck of the body that was taken out, and place in the neck of the skin, taking care that the throat is well filled out; then by grasping the neck on each side with the thumb and finger, the hemp or cotton may be held in place, and the tweezers withdrawn. After placing the wings in the same position as the bird would have them when at rest, with the bones of the forearm pushed well into the skin,—so that they may lie down on each side, and not cross each other,—with a needle and thread sew through the skin and the first quill of the primaries by pushing the needle through the skin on the inside and through the quill opposite, but be sure that the wing is in the proper place. If it is too far forward, the feathers of the sides of the breast, that ought to lie smoothly over the bend of the wing, will be forced up and backward. If the wing is placed too far back, there will be a bald spot upon the side of the neck,—caused by the wing-coverts,

which help, in connection with the feathers of the back, to hide the spot, being drawn either down or back too far. If the wing is placed too low, the same spot is seen, only it is elongated and extends along the back between the secondaries and feathers of the back; if too high the feathers of the back will appear pushed up, and will not lie smooth for obvious seasons. When the wing is in the right position, the feathers of the wing-coverts and back will bend nicely and smoothly, and the feathers of the sides of the breast will lie smoothly over the bend of the wing; the ends of the closed quills will lie flat upon the tail or nearly so. Now draw the thread through so that but an inch is visible inside the skin, then push the needle through the skin from the outside just below the quill that it came out through, draw the thread through, and tie to the projecting end, thereby fastening the wing firmly to the side; proceed in this way with the other wing.

Roll up loosely an oblong body of cotton or hemp of the same size as the body taken out, place it in the skin neatly, then draw the edges of the skin together where the incision was made, and sew them once in the centre; tie the ends of the thread together. Take care to put the needle through the edge of the skin so as not to disturb the feathers. Smooth the feathers on the abdomen. Cross the feet up on the tail—which is spread slightly,—then place the skin upon its back, taking care that the feathers are perfectly smooth, and place a little cotton on each side to prevent its getting displaced. This is what is technically termed "a skin."

The largest dimond ever brought to this country is now in Boston to be cut. It weighs 125 carats; the famous Kohinoor weighed 186 before cutting.

(For the SCIENTIST.)

CHEMISTRY.

INTRODUCTION.

We purpose through the columns of the SCIENTIST to give series of lessons on Elementary Chemistry, hoping thereby to assist those who desire a knowledge of the elements but who have not time to devote to the thorough study of the subject.

To the Science of Chemistry the explanation of many natural phenomena must be attributed. The phenomena of respiration, the decay and growth of plants, the causes of rain, hail and earthquakes, can only be explained by the aid of Chemistry.

As an art Chemistry probably is more or less intimately connected with every branch of human industry. To the agriculturalist and manufacturer it is of incalculable value. It is by this science that the farmer learns what is required to make fruitful his barren land and how he can best adapt his land to the growth of any given kind of plants. The manufacturer is constantly employing chemistry in his works. Glass blowing, bleaching, manufacture of soap and almost every kind of medicine depend very largely on the knowledge obtained from chemistry.

Since we can claim for Chemistry first place among the most important sciences, we should be able to define what Chemistry is, but the nearest to a definition that can be given of this science is that it investigates the composition and properties of bodies, either by analysis or synthesis, that by the separation of compounds into their simple elements or the recomposition of the simple elements into compounds. The first question which the chemist seeks to ascertain concerning every substance is does it consist of one kind or of several kinds of

matter and the processes by which this fact is discovered are many. Heat is the most important of all the agents employed. Electricity is another very important agent. Again chemical affinity, as is termed the affinity which one substance has for another, is made use of when heat and electricity fail. By means of these and some other agents such as light, pressure and concussion the chemist is enabled to distinguish, not only simple from compound bodies but also to separate every compound into its elements. Before we can enter upon the subject of inorganic chemistry proper, some of the terms used in chemical works must be glanced at. This will be taken up in the next issue of the SCIENTIST.

[For the Science Club]

NATURAL PHILOSOPHY.

The members of the Acadian Science Club are now studying Physics or Natural Philosophy. These terms have often been used interchangeably, though the latter is perhaps the more comprehensive. They both mean the Science of Nature, or of Natural objects, comprehending thus in their fullest meaning the study and knowledge of the material world. In their usual acceptation, they are, however, not so inclusive as this; Physical Science being divided into Physics proper and Chemistry, while the large border region between the two belongs to the domain of Chemical Physics. In its limited application, then, this study aims to elucidate the laws of matter, to describe its Physical properties and to connect all the various phenomena continually occurring around us with these laws and properties. The principal agencies recognised in the various kinds of work seen in nature are gravity, heat, light, electricity and magnetism, and the student of Physics is expected to make himself acquainted with the various manifestations of these wonderful forces. This is an exceedingly desirable kind of knowledge for all who aspire to be in any way teachers or leaders of thought. The great object of education is to awaken mind, develop a spirit of inquiry and investigation that shall not rest content with merely observing what transpires in the world, but shall seek to trace events to their causes, and to discover in the complex phenomena of the universe the orderly working of law.

The teachers in our public schools should certainly embrace every opportunity of familiarizing themselves with this important department of science. They cannot hope to successfully meet the demands of the times without an elementary acquaintance with *force* and *matter* as exhibited by various forms of energy with which they daily come in contact. Many of our teachers have doubtless had but limited advantages for acquiring knowledge of this subject, and it was to meet this, and similar needs that the Acadian Science Club was instituted. The text-book prescribed in Physics is an admirable one—clear in its arrangements and attractive in its treatment. The person who has mastered this book will have a good elementary knowledge of Physics.

Experiments are an important aid to the mastery of this subject. The simpler an experiment is, provided it illustrates a principle, the more satisfactory it is; and by the exercise of a little ingenuity, comparatively inexpensive apparatus may be made to illustrate all the leading properties and laws of matter. Many simple but excellent experiments are suggested in the course of the the work now used by the members of the club, and it is to be hoped that they will all be successfully performed. No teacher wi l regret the time and thought given to this interesting subject.

A. E. C.

[First year students begin this month the study of Physics. The preceding is an introductory paper re-printed from the report of last year. Professer Eaton, the Director of this department, has been spending the summer vacation in Europe in travel and study. On his return the above paper will doutless be followed by others on the subject.— Ed.]

One man in Texas owns 700,000 acres inclosed by 250 miles of fence. He has 40,000 head of cattle.

[For the SCIENTIST]

AN AMATEUR CONCHOLOGIST IN FLORIDA.

During the month of September we stopped a few days with an old collector on the Atlantic beach near Mayport, Fla. Our host has one of the finest conchological collections we have ever had the pleasure of examining. He has for sale or exchange most of the species in the appended catalogue.

Our specialty is shells, but we could not resist the temptation to enrich our cabinet from the abundance of marine animals and plants found on the South Beach.

We gathered many species of shells, urchins, sea-stars, sponges, corals, sharks' eggs, conch eggs, crabs, sea beans and algæ on the beach; searched the sea weed for tiny species, and were liberally rewarded for our pains; we dug into the black mud and discovered the hiding places of the delicate Pholas; we waded into the miry salt marshes, at low tide, and found Cyrenas and huge Modiolas buried in the mud, and Littorinas, Melampuses and Cerithiums clinging to the reeds; and our search among the natural oyster beds at the mouth of the St. John's was not unrewarded.

One day we spent in the forest. Under sticks and boards we found Helix and Succinia; among the leaves and grass a very few of the beautiful yellow Glandina truncata (Acitina glans) a very rare species.

We had the good fortune to find eight living specimens of that rare, beautiful shell, Bulimulus dormani, which we were told, is found only on the under side of cottage palm leaves; and we have never heard of their having been found elsewhere.

The other four members of our party only succeeded in finding three.

We visited an old Indian mound built of alternate layers of oyster shells and painted earth; it is some 15 feet in height and 100 in circumference. We found a few pieces of Indian bones, shell beads, pottery, and red ochre left by those who had despoiled it of its contents.

We bid adieu to Mayport feeling that we had enlarged our cabinet and our knowledge, and increased our happiness by our brief sojourn at that delightful place.

The following is a list of the shells we have found at Mayport as far as they have been identified. We have quite a number of species not yet identified.

LAND.

Succinia campestris, Say, Glandina truncata, Gmel; Bulimulus dormoni, Binney, Helix Carpenteriana, Bland, Helix Hopetonensis, Shutt.

MARINE.

Spirula peroni, Lam, Strombus pugilis, L. Murex parvum, Gmel, M. brandaris, (both rare) Fasciolaria, Lam, F. tulipa, Lam. (rare) Sycotypus (Pyrula) perversus, L., S. carica, Gmel, S. canaiculata, L. Fasus———, Nassa trivittata, Say, N. obsoleta, Say, Dolium galea, L. Oliva reticularis, Lam, Olivella ———, Natica duplicata, Say, Sigaretus perspectivus, Say, Cerithium scalariformis, Say, Scolaria coronata, L. Littornia irrorata, Say, Crepidula forniceta, L., C. unguiformis, Lam, Terebra rudis, Gray. Eupleura candata, Say, Melampus coffeus, L. Bolanus ebernus, Sv, (Acrustaceon) Ostrea Virginica, Gmel, O. equestris, Say, Anomia glabra, Verrill, Pecten irradians, Lam, Avicula Atlantica, Lam, Perna ephippium, Somerby, Pinna seminuda, Lam, Pinna muricata, Modiola plicatula, Lam, Arca transversa, Say, Arca poderosa, Say, A. Americana, Gray, A. incongrua, Say, Cardium magnum, Born, Lucina dentata, Wood, Cyrena Caroliniensis Lam, Chione (Venus) cingenda, Dillm, Donia Discus, L. Mactra similis, Say, Ræta canaliculata, Say, Tellina alternata, Say, Donax variabiles, Say, Mya arenaria, L. Pholas, (two species) Solecurtus gibbus, Tryon.

M. A. MITCHELL.

A small collection of minerals—seventeen specimens—has been sent to each member of the Club who reported for the quarter ending June 30th. It was presumed that all who did not so report had given up the study either temporarily or permanently. A. J. P.

THE ACADIAN SCIENCE CLUB.

The attention of the readers of the SCIENTIST is directed to the prospectus of the *Science Club*, appearing on the first page of cover. This institution was originated in the hope that by its means a more general popular interest might be awakened in the study of nature and science and that those unable to pursue these studies under more favorable circumstances might be encouraged and materially assisted in the daily observation and private study of the wonders of the natural world which an all-wise and all-good Creator has placed around us in such profusion for study and admiration. While the Club is designed to reach all classes of individuals who may be able to derive benefit therefrom it was organised especially to meet the wants of the Public School Teacher in consideration of the large influence exerted by this class and of the good results which must follow a more general introduction of the objective teaching of elementary science into the public schools. Some remarks made in a letter recently received from Dr. J. E. White, an enthusiastic naturalist and member of the Toronto Natural History Society, are so pertinent here that we cannot forbear publishing them. The Doctor says:

"I have just had the pleasure of perusing the ACADIAN SCIENTIST from its January number to the present, and cannot resist the temptation of writing you my sincere admiration of you and your fellow-laborers in the Club.

You are in a fair way of consummating what has been for years my greatest desire, viz: the cultivation of the habit and faculty of observation in the youth of our county of the wondrous works of nature. I verily believe your plan of enlisting the active co-operation of the common school teachers is the one which will yield the best practical results. By individual efforts I have succeeded in helping a few of our youth along but I have often thought could I only gain the admission of the study of nature in her varied phases into the High or Common Schools, it would give such a change to the ordinary thought of the pattern schoolboy, that he would not be recognised. The insatiable curiosity of youth concerning the mysteries of nature, would then in a measure be gratified, and who is there will not say they are greater and better, for a peep into what now is a miserable blank."

The frequent receipt of communications of a similar tone shows us that our movement has the sympathy of a large number of prominent educators and scientists. It would therefore seem to commend itself to the favorable consideration of all friends of education and progress. It is hoped that every one to whose notice this may come will use his influence in advancing the interests of the Club. We feel free to ask for such co-operation from the fact that the Society subserves no private interests. Those who have the matter in charge receive no tangible recompense for time and labor devoted to it, but give such freely, only hoping that their work will be largely appreciated and that much good will result.

A. J, PINEO, Sec'y A. S. C.

If a man is not to become a specialist and nothing more, he must have received, before entering upon his professional training, a culture which will have developed and strengthened tastes and powers capable of resisting the influence of the technical school.—*Engineering and Mining Journal.*

THE FIRST ELECTRIC TELEGRAPH.

The idea of the practical application of the electric telegraph to the transmission of message s was first suggested by an anonymous correspondent of the *Scots Magazine*, in a letter dated Renfrew, Feb. 1, 1753, signed C. M., and entitled "An Expeditious Method of Conveying Intelligence." After very considerable trouble, Sir David Brewster identified the writer as Charles Morrison, a native of Greenock, who was bred a surgeon, and experimented so largely in science that he was regarded in Renfrew as a wizard, and eventually found it convenient to leave that town and settle in Virginia, where he died. Mr. Morrison sent an account of his experiments to Sir Hans Sloane, the President of the Royal Society, in addition to publishing them anonymously as stated above. The letter set forth a scheme by which a number of wires, equal to the letters of the alphabet, should be extended horizontally, parallel to one another, and about one inch apart, between two places. At every twenty yards they were to be carried on glass supports, and at each end they were to project six inches beyond the last support, and have sufficient strength and elasticity to recover their situation after having been brought into contact with an electric gun barrel placed at right angles to the length about an inch below them. Close by the last supporting glass a ball was to be suspended from each wire, and at about a sixth or an eighth of an inch below the balls the letters of the alphabet were to be placed on bits of paper, or any substance light enough to rise to the electrified ball, and so contrived that each might resume its proper place when dropped.

With an apparatus thus constructed the conversation with the distant end of the wires was carried on by depressing successively the ends of the wires corresponding to the letters of the words, until they made contact with the electric gun barrel, when immediately the same characters would rise to the electrified balls at the far station. Another method consisted in the substitution of bells in place of the letters; these were sounded by the electric spark breaking against them. According to another plan, the wires could be kept constantly charged and the signal sent by discharging them. Mr. Morrison's experiments did not extend over circuits longer than forty yards, but he had every confidence that the range of action could be greatly lengthened if due care were given to the insulation of the wires.—*Engineering.*

NEWS AND NOTES.

"Adamscobite" is a mineral of peculiar structure, and so hard that it will cut steel without losing i s edge. It is found as yet only in the State of Missouri.

Atterbury &Co., of Pittsburg, Pa., have made a new departure in the use of glass, a patent having recently been granted to them for the manufactory of glass shingles.

"I hope that my children at least, if not myself, will see the day when ignorance of the primary laws and facts of Science will be looked on as a defect only second to ignorance of the primary laws of Religion and Morality."—*Rev. Charles Kingsley.*

A party of Italian scientists have just returned from an expedition to the South Pacific, having proved to their own satisfaction that a race of giants once existed in Patagonia. In wandering over Terra del Fuego they found human bones of marvelously large size.

The main purpose of education is not to promote success in life, but to raise the standard of life itself; and this object can be attained only by those higher studies which call forth the powers of reason, moral feeling, and artistic taste. Even in professional education, our aim ought rather to be usefulness in life than mere success, and we have great distrust of all theories of education that put success in the first place. . . . We believe that education should be of a kind in sympathy with the present age, and that it should by no means neglect to fit its recipient for the struggle of life; but we object to Professor Jevon's theory because it puts worldly success before beauty and truth; and we should be sorry to see such theories find acceptance with American educators.—*Century, Oct.*

LITERARY NOTICES.

We notice with pleasure the appearance of a work the want of which has long been felt by Canadian Entomologists and which will be appreciated by practical workers in this department everywhere. We refer to a *Check List of Insects of the Dominion of Canada* recently complied by W. Brodie, L. D. S. and J. E. White, M. B. under the direction of the Natural History Society of Toronto. The list includes some 5852 species, all of which are reported by some good authority as being Canadian. This is a great advance upon all preceding lists, and brings the work up to date. It is therefore indispensible to all Naturalists who are working and making exchanges in this interesting department. Accompaning the Check List is a corresponding Label List to be used in labeling cabinets. One point of excellence in this particularly noticeable is in the Hymenoptera, where the sex-form is so diverse, special labels being given for the sexes. As the compilers purpose publishing additions and corrections from time to time they particularly desire names and specimens of species not mentioned in the List.

The *North American Review* for October is at hand with an especially interesting table of contents. Prof. W. Boyd Dawkins, shows that "early man in America" was contemporary with the River Drift Hunter or Pleistocene man in Europe and India, using the same rude implements and being similar to them in mode of life. In an interesting paper on "Astronomical Collisions" Prof. C. A. Young shows that the clashing of heavenly bodies is possibe but that owing to the vastness of inter-stellar space such catastrophies must be of rare occurence. In "Gold and Silver as standards of value" it is claimed that these should be coined to preserve uniformity in metallic currency. The Saint Patrick Myth" gives some interesting folk-lore in regard to that somewhat legendary individual. Other articles are: "Some aspeects of Democracy in England," Co-operative Distribution," "Board of Trade Morality," History of the French Revolution" and "Social Forces in the United States."

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SPECIMENS RECEIVED.

BOTANY.

T. F.—1. Dicksonia punctiloula, (Gossamer Fern).
2. Aster carneus, Nees. (Purple Aster).
3. Brunella vulgaris, L., (Heal All), (Common Self Heal), &c.
4. Antennaria margaritacea, R. Brown, (Pearly Everlasting).
5. Aster Miser, L., (Poor Aster).
6. Solidago gigantea, Ait, (Giant Goldenrod).
7. Leontodon autumnale, L., (Fall Dandelion), (August Flower).
8. Achillea Millefolium, (Common Yarrow) (Milfoil).
10. Solidago caesia, L., (Gray Goldenrod),

L. S.—1. Antennaria margaritacea, R. Brown, (Pearly Everlasting).
2. Achillea Millefolium, var. rubrum. (Red Yarrow).
3. Solidago specissa, Ait, (showy Goldenrod).
4. Leucanthemum vulgare, Lam. (Ox-eye Daisy), (Evil Weed).
5. Ranunculus repens, L., (Creeping Buttercup).

A. H. McK.

CONCHOLOGY.

A. G.—1. Purpura lapillus, Linn.
2. Littorina Litorea, Menke,
3. Buccinum undatum Linn. (Whelk).
4. Littorina palliata, Gould.
5. Chiton ruber, Stimp.
6. Tectura tesudinalis, Stimp. (Common Limpet).

A. J. P.

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I have a few others than those mentioned above, while of some of them I have only a limited quantity. I have besides many others from other localities which I shall catalogue soon. I desire to exchange for Minerals, Shells and Fossils from all parts of Canada and the United States. Collectors having such to exchange should send lists. Exchanges should be made by mail or freight not by express,

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