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

A. J. PINEO, EDITOR.

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The Acadian Scientist.

DEVOTED TO THE INTERESTS OF EDUCATION AND POPULAR SCIENCE.

VOL. I.

WOLFVILLE, N. S., DECEMBER, 1883.

No. 12.

The Acadian Scientist,

A MONTHLY MAGAZINE,

Devoted to the interests of Education and Popular Science, and designed to assist all classes, but especially the young, to the reverent study of the Works of Nature.

A. J. PINEO, EDITOR AND PROPRIETOR.

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With this number we complete our first volume. One short year ago we undertook the publication of the SCIENTIST, not with the vain expectation of making it a large financial success, but in the ardent hope that by its humble means the interests in which our little journal is published might be in some degree promoted. That our labor has not been altogether in vain we have some reason to believe, and we are hopeful.

During the coming year we intend to improve the SCIENTIST both in size and quality, in as far as possible. Special features will be: Instruction and hints in regard to studying nature and collecting specimens; sketches of travel and descriptions of interesting collecting localities; latest scientific news, etc.

Our friends will please remember that our columns are always open to communications of the right sort.

We take this opportunity to express our gratitude to all who, either by word or deed, have, during the past year, given us encouragement or more tangible assistance in our work. The many kindly letters received from friends whom we have never met show us that our efforts have not been altogether unappreciated.

Quite a large number of subscriptions expire with the present number. We trust that all those who have been with us during the year have been pleased with the SCIENTIST, and will renew their subscriptions at an early date. We do not want to lose one of our first year's subscribers.

The Scientist aims to cultivate among the young a reverent love for the works of nature. How much better that youthful minds should be engaged in the contemplation of what is pure and ennobling rather than of those things that have an opposite tendency. The trashy literature of the day which is abroad in such abundant forms is doing a fearful work in weakening the minds and perverting the tastes of the young. What can be done to mitigate the evil?

Early in next volume will appear an excellent portrait of the late Professor Chas. Fred Hartt, with some reminiscences of his college life in "Acadia," by a classmate, Professor R. V. Jones.

[For the Scientist.]

THE WORLD'S CHEMICAL CONGRESS.

Somewhat more than a century ago the chemical elements determined to organize themselves into an association, the better to become thoroughly acquainted with each other as well as keep abreast of the times, especially in their own department. They could not but recognize and deplore the fact, they said, that seldom without the intervention of man could they be brought together, and when this was the case it was not always possible to preserve the most amicable relations. They determined therefore, without further delay, to establish a new and better order of things, and for this purpose a general meeting of all the chemicals was immediately summoned. The assembly was to convene at the library of Dalhousie College, Halifax, N. S., and I as representative of the Practical Chemistry Class, was cordially invited to be present.

A few minutes before the hour, what a curious spectacle I witnessed! Oxygen, a middle-aged portly looking gentleman, entered the room. He was walking at a pretty lively rate and looked as if on very good terms with himself and all the world. Hydrogen, a young gentleman, next stepped along very lightly. Nitrogen soon followed, quite alone and apparently wishing to monopolize attention. I am told this is his usual habit; he seems to have no associates who really care for him, as it is their belief there is nothing in the man. His qualities are not promising, although he has an interesting family of five who follow closely behind. A word about one or two of these may not be out of place. The eldest is not of much account—like his father exactly. The second is, however, a lively chap and full of innocent fun.

He is always laughing and never happier than when he keeps others in a roar. The next two are not so well liked. (One of them, Hyponitric Acid, may be known by his ruddy color.) But the youngest is the best of all the boys. He is extremely useful and unflinching in the cause of right. There is not one of the richest or proudest of the metals—the very chemical elite in fact—with whom he will not come in contact if necessary, and will even attack the aristocratic Lord Gold himself, on which occasions, with a little help from his friendly neighbor Hydrochloric Acid, he has been known repeatedly to make his enemy disappear before you could say Jack Robinson.

And so they severally came along; it would weary you to tell all that was seen that day. Mrs. Carbon, an old lady with a large diamond ring on her finger, now hobbled up with the aid of a stick. Her two daughters accompanied her, Carbonic Oxide and Carbonic Acid, each in a blue dress of the latest fashion. In many respects these sisters resemble each other; they are both desperate flirts, and with their dancing steps dazzle many a poor man to destruction. The youngest, especially, has been the death of many by means of her treacherous arts.

The metals of whom mention has been made walked, I notice, pretty much by themselves, though they sometimes tried to edge closely to Mr. Oxygen, who, quieting each with his usual affability, seemed willing, if possible, to divide himself up among his friends.

But I must hurry on. The meeting when some forty or fifty persons had arrived, was called to order. Oxygen, owing probably to his important standing in the community, was unanimously voted the chair. One crusty old fellow, Fluorine, seemed to disagree with this, and did, it is true, move in

amendment Hydrogen, which Squire Alcohol (or Spirits of Wine, Esq., as he preferred to be called,) seconded, but as he was partly in liquor this motion was not put. Thus were these two quietly overruled, the antipathy of each to Oxygen being notorious. Hydro-fluoric Acid was made Secretary—he could (sk)etch and write pretty well, making use of a wax tablet that he pulled from his pocket; he performed his work as neatly as you or I could probably have done on paper. Iron was Treasurer. This position of trust he received, being a very useful person, a tenacious friend, and one to be depended upon at all times. No show or boasting about old Iron! Yet how could any one do without him? It being thought advisable to appoint a policeman, Mr. Silver was proposed, but some one fearing that, like his conferees, he might be rarely seen when wanted, and he himself declining the office, Lead acted instead, it being known that he could come down pretty heavy at times, as also his ability to run well might be of service. On a general committee served Chlorine, Potassium, Zinc, Tin and a few others whose names I didn't hear.

The following constitution was then adopted, additions to be made by a two-third vote of members:—

1. This meeting shall be called the "World's Chemical Congress."
2. Its object shall be to benefit science and promote kindly feeling between ourselves.
3. A Convention shall be summoned, to take place once in a century (hereafter on the anniversary of the birth of our esteemed chairman), in the city that shall, during that time, do most to advance the cause of science.
4. Convention to meet alternately with closed doors. When the public accept our invitation to be present, they will be expected, individually or through delegations, to respond willingly and at once to any suggestions that we, as a body politic, may, for the good of the whole, propose.

(Here, I confess, I uttered a sound for I could not help wondering what work in this direction might even now be assigned me.)

The chairman then rose and addressed the meeting. He thanked them for the honor done him, said that he was glad to see so many present especially from among the younger members, as also some that lived, as many knew, at a great distance. He was quite aware it must have been difficult to so many to have put in appearance on so short notice, and the fact that they had done so argued well for the future interest they would take in the cause. He urged them all to proclaim boldly their (chemical) principles everywhere; they were members of a great and glorious Brotherhood, though in its comparative infancy; one that had in fact often rent the globe—(here a whole host of young combustibles led by the Sulphides and Chlorates started involuntarily to their feet)—and one that, with their united force, or even that of one alone, could wholly destroy it—(here Nitro-glycerine, taking the compliment to himself, so loudly applauded and gave such signs of excitement that he had to be publicly reprimanded by the policeman, who knowing him to be a dangerous and notorious personage, threatened to lead him into "durance vile" if he couldn't keep quiet. This for a time made him subside). Mr. Hydrogen, the Government M. P., was then called upon to speak. He alluded to the friendly relations that subsisted between the chairman and himself. They never ("well, hardly ever") clashed, but had always united for the promotion of the public weal. (Hear!) Did a city require water for drinking purposes? It was they that had laid their heads together until the refreshing fluid flowed in abundance. Had artificial light been required? Again they

had done what they could to assist. It was by his almost unaided efforts (he mentioned this modestly) that for years the æronaut had been enabled to cleave the atmosphere, and he could adduce other instances to prove his use to the community were it necessary. In conclusion, he would earnestly beg each member present to make it a point of doing at least some one thing by which his fellows might be benefitted. During the cheering that followed the door suddenly opened, and Drs. Antimony and Arsenic entered. These gentlemen were well-known physicians, of great celebrity. They expressed their regrets at not being able to have been present at the hour named, as they had been detained by a bad poisoning case that had just happened in Paris, (at this their pale-faced assistant White, of Egg, looked whiter than usual, probably in recollection of the late sad accident, and even Litmus changed color.) Thereupon the Chairman suggested the propriety of a specimen sketch of testing for poisons being given, with diagrams, to which the surgeons kindly assented; and in a short time made the matter so plain that one or two young rascals present were heard to wish that some one might be found to experiment upon. Quick silver, on hearing this, testified his willingness to procure a fit and proper person, having had experience in the like before, and being nimble-footed, began at once to run. This was going too far, and the meeting was again called to order.

To vary proceedings, a song was now called for. Hydrogen willingly responded, and by the aid of instruments and appliances of glass succeeded in a few moments in making a succession of agreeable sounds which were generally well received, though a few young ladies affected to be very much amused. Lord Gold asked permission to intro-

duce a young friend of his, which request having been granted by the committee on introductions, Thallium, a young marquis who had spent his life abroad, was presented to the audience and requested to favour the meeting. On rising His Excellency said, *inter alia*, that he never remembered being in this country before, but on the occasion of this visit he was so pre-possessed in its favour that he hoped that he should be able to spend much of his time in it in future. His Excellency was therefore heartily applauded and cordially welcomed to the platform.

The Congress was not without its laughable incidents too. I remember noticing particularly a young man, who looked as if he couldn't keep still a moment. He was wonderfully excited. Occupying perhaps the coldest part of the room, he yet seemed to complain everlastingly of the heat, and if he heard the slightest thing that differed from his own sentiments he flared up till actually I thought he would fire with rage. What a very inflammable young gentleman he was! All at once he suddenly disappeared, amid the laughter of the greater part of the audience. It seems that in one of his caperings he had gone pretty well back upon the window sill where he had been sitting. Someone (I believe it was that mischievous rough old Nitrogen) had slyly given him a little push, tipped him over, and here he was cooling himself in the large water butt just outside of the window. No one seemed sorry, nor did any one run to his assistance, all no doubt feeling that he was now in a very safe place. Overhearing two brother metals talking of him: I learned that his name was Phosphorus, a relation of Farmer Phosphate, of Phosphite Grange, and that when the fit was on him he was a most dangerous character.

The entertainment committee now

stepped forward and said that they would be happy to shew the members a few experiments. This was well received, though Magnesium, a lad of about ten years, was bold enough to say, "Only give me a chance and I'll do as much in this way as the whole of you!" Aluminium, an Irishman, racyly muttered, "Schist (just) wait till I come forward." Major Nitrate, of Strontian and Colonel Crucible did most of the superintendence, and exhibited beautifully colored flames and performed a number of interesting tricks with Pharaoh serpents, fire-works, &c., while between times they recited songs and told laughable incidents. Many a fair cheek blanched and grew pale as the gallant colonel related anecdotes of the war and the fire that he was often called upon to stand. Mineral Chameleon was also induced to act his part which he did in his usual happy way and with his customary success.

The investigation committee here reported that application to join the Congress had been sought by the organic elements. This body set forth that they were virtually of the same stock as the other, though differing in some things and often separated, and on the principle of union being strength they felt they could be much more effective if united. They contended that a natural benefit might in this way be expected to result. The document was of considerable length and duly signed in proper form, Dowager Starch, Lady Chloroform, Mrs. Ether, and Miss Acetic Acid (a sour old maid) heading the list Revds Dr. Glucose and Glycerene, and Revds. Messrs. Chloral and Morphine had also signed their names. It was decided to grant the request and admit them all—their sisters and their cousins and their aunts, a numerous fraternity, and with a decided similarity in name—with the exception of Strychnine, Prussic and

Oxalic Acids. The former was a butcher, a cowardly cruel fellow; the other two ill-fated wretches, according to the statements on oath of Drs. Analysis and Microscope, phrenologists of some sixty years, and who, from long experience and close observation, could *test* pretty well. Further, it was shown that politically they were rabid Nihilists, wishing nothing to exist and always trying to destroy human organizations. Old Mr. Copper a ship-builder, here rose and said that, as the evening was pretty well advanced, he would respectfully move that the other members be requested to be prepared to do their part by way of entertainment at next meeting, young Nickel, a jeweler seconding the motion, which was at once carried. Names being solicited, Hon. Bismuth, M. P., an old member, volunteered a speech; Calcium to perform a variety of *sublime* experiments; Lawyer Blowpipe, in a puffy, vigorous style, promised to exhibit the latest improvements in glass blowing; Sodium and Potassium, each an essay, prefaced by a short biographical sketch, while the useful and witty Sodium Chloride volunteered a composition of his own which he had carefully prepared. Ammonium mumbled something, it was hard to know what, but as he lived in dissipation it was thought best not to depend on him. Among the ladies, Mrs. Cobalt promised to exhibit some curious specimens of writing, and Miss Chromium her choice collection of paintings. A debate by four or five of the younger members was also provided for.

Arrangements, too, were made for the celebrated artist, Nitrate of Silver, to be present at the next session and photograph the congress at its early sitting.

The Secretary read an apology for absence from Earl Platinum, than whom none has greater weight and

importance. The Earl telegraphing from South America, begged to forward his best wishes for the interests of their cause.

Sheriff Sulphur in a flowery speech proposed, and Farmer Silicion (a *Grit*) seconded, that the thanks of the meeting be tendered to the following parties:

1. The editor of the *Chemical World* for his gratuitous services.

2. The several travelling companies for their favors, being especially grateful that Judges Nitrogen-Terchloride and Fulmonite of Mercury, both of them shaky old gentlemen of a peculiarly choleric temper, had been carried along in safety, and

3. Mr. Oxygen, for the genial and able manner in which he has discharged throughout the duties of the chair.

I need not tell you that these motions passed unanimously.

The chairman in rising according to custom, to make the farewell speech, said he begged to thank the meeting for the confidence they had reposed in him, as well as for their cordial vote of thanks. He testified to the good order and harmonious feeling that had prevailed throughout (*hear!*), though a few young molecules and atoms had run about a little, one or two surly chaps, as Chlorine, Bromine, Phosphoretted Hydrogen and Hydrosulphuric Acid, had with their usual disagreeableness endeavored more than once to interrupt proceedings in their own peculiarly offensive manner. He begged that the conduct of the latter however more especially might be overlooked, as he was the most useful and important working agent the society had.

In conclusion, he stated that they would be asked to meet again (D. V.) a century hence, place and time to be definitely stated through the publication committee at a later date. After

singing together the national anthem, dedicated to their patroness, the Goddess of Science, the members quietly and sadly dispersed. I regret not being able to give all the words of the hymn. I could only catch a few lines, Red Oxide of Mercury nearly precipitating me to the ground in his haste to get away, and my thoughts being with those who had been my companions, but who even now were rapidly departing. Perhaps by next session, in year of grace 19—, some other friend of science may be more fortunate and be able to furnish the world with the complete anthem. The lines I remember were something like these:

“May each to other e'er prove true,
Do all the good that he can do,
And as the countless ages run,
Prove God and science ever one.”

A. W. HERDMAN.

Jan., 1900.

AMONG THE CRYPTOGRAMS.

NO. I.

USNEA BARBATA.

This is the forest primeval, the murmuring
pines and hemlocks,
Bearded with moss, and in garment green,
indistinct in the twilight
Stand like druids of eld, with voices sad and
prophetic,
Stand like harpers hoar, with beards that rest
on their bosoms.

Longfellow's Evangeline.

Off for the woods this afternoon.
The wind sings from the South and
the sky is dim. It is the lull before the
winter storm. On snow shoes or in
long boots, no matter; but fortune will
favour the former, when the adventurer
attempts to explore the botanical
glories of a wintry flora. We are now,
then, in the temple of Nature. Our
carpet is a cushion of the finest,
whitest, purest crystals of snow—each
powdery flake a marvel of beauty, a
gem of exquisite design. Yet beneath
our feet they lie in such massed pro-

fusion as if they cost the laboratory of Nature nothing. Around us stand living pillars rising from mother earth, slowly, cell on cell, a woody foam taking architectural form, throwing out above us from their aspiring capitals, volutes more elegant and profuse than Gothic or Corinthian art ever imitated. Each has its entablature, a cap of snowy white, whiter than Parian marble. And these fluted columns of huge hemlock, pine and ash, these smoother pillars of beech, spruce and young maple, and the silvery-papered birch, beautiful in themselves, are frescoed over and draped with yet more dainty and more lovely forms which make the haunts of the fawns more fascinating still. Every beam and bough is decked with moss or lichen—with embossed pads of *Orthotricum*, or the fringing *Neckera*, the flowing *Usnea*, the frizzly *Ramalina*, the draping *Sticta* the painted and sculptured *Graphideas*, *Lecideas* and *Le canoras*.

Pluck from that branch above us, that "old man's beard"—the beardy *Usnea*, the "Beard Moss" of the poets, the "Id. Moss" of Shakspeare, the "Beardy Tree Moss" of every one. In this excursion, let us give it our whole attention. Close our eyes to the rest, and look at it alone. If every trip we take to the woods gives us the pleasure of making one thoroughly good acquaintance with some one species, in addition to our recreation, we shall soon, and all unconsciously, have a store of physical vigor, and intellectual knowledge laid up which will insure both health and pleasure for many a year to come. Well, this *grey beard* clings to the branches of trees of various kinds. It seems, however to prefer the evergreens; firs, spruces, pines and hemlocks are favorites. In some localities it is much more abundant than in others, the

trees appearing to be covered nearly as with a fleece. It is found in all parts of the world. Although popularly and poetically spoken of as a moss, it is nevertheless not a moss. It is a lichen, (general pronounced *li' ken*, with the vowel sound of i, and the accent on the first syllable). This name was first used in the present acceptation by Tournefort in his "Institutiones Rei Herbariæ," about 1700, A. D. It is probably derived from the Greek *Leichen*, an *excrescence* or *wart*, from the resemblance of some groups of this class of plants. A lichen differs from a moss in not having a stem with green leaves growing therefrom. Its structure is entirely cellular, that is, composed of small, more or less spherical microscopic cells. These cells do not form tough fibres running through the plant as is the case in the wood and leaves of trees, grasses, &c. These fibres are characteristic of what are called *vascular* plants. Before giving an exact definition of what constitutes a lichen, we must examine several common ones; then the definition can be understood and remembered. The name of this lichen is *Usnea barbata* (Us'-ne-a bar-ba'-ta). The first is the name of the genus, the second of the species. The Latin name *Usnea* is said to be derived from an Arabic word *Usnee*, meaning a lichen. *Barbata* is the Latin adjective for *bearded*. A free translation of the scientific name would therefore give us *Beard-Lichen*. The body of a lichen is called its *thallus*. The thallus in this species is *filamentous*, that is thread-like. It is covered by a thin bark layer, which often cracks, showing the central thread of white pith like tissue. The color of the thallus is green or straw-colored. When young it is often erect and bushy, but when old it becomes long and pendulous, like the beards of the

"Harpers hoar." the "beards that rest on their bosoms." This plant like all other lichens, never flowers, yet it has what corresponds to seeds but which in non flowering plants are called *Spores*. These spores are produced in little disc-like expansions at the ends of the branchlets. These discs are called *apothecia* (singular, apothecium) from a Greek word *apotheke*, a repository. In these repositories the spores are developed, numerous but microscopic. This impalpable dust is made up of myriads of beautiful shapely spores, which when mature the winds waft to other trees, to root and grow into the beautiful Beard Lichen, when they meet with suitable conditions.

There are several varieties of this lichen which were once considered to form as many species. Our species of *Usnea barbata* of which we have at least two or three varieties, is very common in India. It is also found in Ceylon; also on Chimborazo and in Chili, in South America, in Australia, Van Dieman's Land and Zealand, and throughout Europe as far north as Lapland. In Arctic and Antarctic regions it is displaced by another species, *Usnea malaxantha*. Not only has it been found growing on trees, but on stones and on the ground. Some specimens have been found attaining two feet in length. One variety called popularly in England the "Necklace Moss," has an almost innumerable number of little bulbs on its delicate filaments.

The practical applications of *U. barbata* are not important, but they are both numerous and varied. In some parts of the world it is eaten by wild animals, or is collected as winter fodder for domestic animals. It has been used to yield an orange dye in Pennsylvania, and the great German naturalist Humboldt mentions it as

being used for dyeing in South America. It is often used in Nova Scotia for ornamental purposes in flower boxes, and for packing. In medicine it has been used as an astringent tonic, and diuretic; and in some places has been a very popular remedy in whooping coughs; but it is not official. It has also been used as the basis of some hair powders and perfumes. After being reduced to powder, it has also been used for various other purposes, none of which it has remarkably well served, it would appear, as its use has not been generally followed.

Now, let us take the best specimen we can find, to be pressed for our botanical scrap-book, herbarium or what not. With it should be placed its botanical *name*, *place* and *date* of collection. Every specimen should have the place and date recorded with it, otherwise it loses its value to a great extent as a scientific specimen, for obvious reasons. Whatever is collected should be thus marked, be its name known or unknown at the time. If your botanical scrap-book be intended only for artistic purposes or for amusement, your specimens will be all the more interesting by having the locality and time associated with them

A SUBMARINE OBSERVATORY.

THE International Exhibition at Nice is reserving some wonders for the foreigners who may propose to pass a portion of the winter of 1883 84 upon the borders of the Mediterranean. One of these wonders is a balloon, which its inventor, M. Toselli, calls "the observatory under the sea." It is made of steel and bronze, to enable it to resist the pressure which the water produces at a depth of one hundred and twenty meters. This "observatory under the sea" has a height of eight meters, and is divided into three

compartments. The upper apartment is reserved for the commander, to enable him to direct and to watch the working of the observatory, and to give to the passengers the explanations necessary as to the depth of the descent and what they will see in the depths of the sea. The second apartment, in the centre, is comfortably furnished for passengers to the number of eight, who are placed so that they can see a long distance from the vessel, and examine at their ease the bottom of the sea, with its fishes, its plants, and its rocks. The obscurity being almost complete at seventy meters of depth, the observatory will be provided with a powerful electric sun, which sheds light to a great distance in lighting these depths. The passengers have at their disposal a telephone, which allows them to converse with their friends who have stopped on the steamboat which transports the voyagers to such places as are known to be the most curious in the neighborhood. Beneath the passengers, an apartment is reserved for the machinery, which is constructed on natural principles; that is to say, like the bladder of a fish, becoming heavier or lighter at command, so as to enable the vessel to sink or rise at the wish of the operator.—*Popular Science News.*

PROTECTIVE COLORING AMONG ANIMALS.

Among even the higher animals protective coloring is common. A lion's hue matches the sand, as a tiger's stripes imitate very closely the foliage and trees amid which it crouches.

The camel's coat is sandy like its desert; and the rabbits offer as plain examples as any of color harmony.

The polar bear is white, like the arctic fox in winter dress; and the nocturnal rats and moles are dressed in

shades the opposite of the ghost-like hues that become so conspicuous at night. But descending to still lower grades of life, we may discover examples of this "mimicry," not only of surroundings, but also of lifeless or inorganic objects, and of, it may be, plant structures as well, on the part of animals.

The so-called "stick-insects" or "walking twigs" present us with the most perfect reproduction of dried twigs. More extraordinary still are the "leaf insects." The wings in the "leaf-insects" exactly imitate leaves.

The venation or the arrangement of the veins in the leaf is clearly seen, and in one form even the chest and legs of the animal assume leaf-like characters.

When such an insect rests amid foliage, the value of such a close resemblance to its plant surroundings, as a means of protection, can be readily understood.—*Wilson.*

PATAGONIAN PICTURES.

The wild scenery is something wonderful, and when the sun shines on the snow-covered mountains it is indeed a pretty sight. In some of the ravines you see large drifts of snow that have been carried there by the wind, and into which I should imagine it would not be at all pleasant to fall. The air here, of course, is very cold, but it is a dry, healthy breeze and very bracing. At one o'clock, mid-day, we reached our anchoring place for the night, as we could not make the next harbor by daylight, and in the darkness it would be impossible to enter. About two o'clock we received a visit from some of the Patagonian Indians. They came off from the shore in a queer-looking canoe made out of three pieces of board, one at the bottom and one on each side. These were sewn together with fibers, and admitted considerable water.

With the exception of some skins they had tied loosely around their bodies they were devoid of clothing, and before they had been alongside many minutes they had not even the skins to cover themselves with. They had sold them all for biscuits, tobacco and boxes of matches. After remaining on board about an hour they returned to the shore, all but one being entirely naked. The exceptional one who did not return to the shore in a nude state owed it to the fact that the second steward had found on board an old bottle-green dress that had been left by some female passenger on the way out from Europe. With this the Indian was duly attired, it being tied on and around him by the sailors with seizings. Later on we had a visit from some more of them, this time accompanied by a female. The skins they brought off were those of the otter. One Indian had what had been a very valuable sealskin, but then too old and dirty for use.

It is strange how those creatures manage to exist in this severely inclement climate, where it freezes nearly all the year round. They use no more clothing than that afforded them by nature, and their huts are nothing but a few sticks tied together, with a few skins and leaves thrown over the top of them, and their canoes are always half full of water. The weapons used are bows, arrows and spears. They eat the flesh of the animals they kill in the chase, and sometimes they catch fish, but their principal article of food is mussels, of which there are millions around there. They have nothing in the shape of corn, wheat or cereals of any kind, as none grow anywhere nearer here than twelve hundred miles away. The climate is too cold for any but hardy shrubs. They will not touch liquor of any kind. They are in appearance something like the Indians one

meets in the altos in Guatemala, but are a smaller and shorter race, and very much degenerated. I should imagine them to be the very lowest specimen of humanity existing, and only one link short in the chain to connect them with the monkey tribe. One of them, apparently a better humored fellow than his companions, sat upon the rail and sang a song. They sit, or rather squat, as a monkey does, and this fellow at short intervals would yell out. "*Ama, ama, ama,*" crying out quickly, and much after the monkey style. As night drew on they all went off to the shore, and we saw them no more.—*San Francisco Chronicle.*

THINGS FOR TEACHERS TO REMEMBER.

Remember, 1st, that in teaching as well as in any other business, you must have a good deal of capital invested to obtain large proceeds.

2d. Remember that your capital is your health, your education, your library, your determination to brighten and improve yourself, and your power to teach others.

3d. Remember that every good business man seeks to enlarge his business each year, by constantly investing more capital.

4th. Remember that good business men watch the market; they mark what others are doing, note how they do it, and take papers and journals that give specific information. You will be very short-sighted if you do not imitate their example.

5th. Business men often meet and consult—they have exchanges, boards of trade, hold fairs, etc. Teachers who do not pursue a similar line of conduct have themselves to blame when they fail.

6th. Remember that your work is

a business in many respects, and must be conducted on business principles, that it does not consist in keeping your pupils still, and getting replies to questions, many of which you could not answer yourself.

7th. Remember that your work, if done aright, will make you a competent man or woman; it will, like any business, give you a better judgment, more information, and a wider range of thought

8th. Remember that you ought to be more deeply interested in it every day, as every business man is in his business.—*Ex.*

NEWS AND NOTES.

It is estimated that not less than four hundred million of meteors reach the earth daily.

It is said that an American Company is now negotiating for the purchase of the Mexican volcano Popocatepetl, for the purpose of mining sulphur from the crater.

It is stated that at a depth of 680 feet the borings have produced a continuous flow of oil in the wells at Belliveau, Albert County, N. B., also that the oil is remarkably pure.

President John Taylor, the official head of the Mormon Church, is preparing an elaborate statement of the political and social attitude of the Latter-day Saints, for the January number of the *North American Review*.

Development at the gold mines, near Bridgewater, N. S., has been productive of encouraging results. One lode has increased from 8 inches in width on the surface to 15 inches at a depth of 80 feet, and the quartz is said to carry an unusual quantity of gold.

The British Association for the Advancement of Science will meet in the rooms of McGill University and neighbouring colleges in Montreal, on the week beginning August 27, 1884. Dr. Dawson, in a recent note from London, states that the meeting is likely to be attended by a large number of the scientists of Great Britain, and will undoubtedly be the most important and interesting convention of the world yet held in Canada.

The last observations indicate that we are distant from the sun about 92,700,000 miles. These are the figures obtained from the observations of the last Venus transit.

An interesting relic of pre-historic time has just been unearthed in England in the shape of a canoe. The boat is of oak, and there are evidences that it was hollowed by means of the stone ax and of fire. It was found at a depth of nine feet, and in a good state of preservation.

Surveys of the isthmus of Tehautepee, for the proposed ship railway, are just completed. The total length of the proposed line from Minatitton on the Gulf side to Salina Cruz on the Pacific is 153 miles. It is expected that an English company will shortly be formed for carrying out the proposed project.

The largest trees in the world grow in Australia, over a large area near the sources of the Watts River. All the trees are said to average from 250 to 300 feet in height. One fallen specimen, by actual measurement with a tape, showed a length of 435 feet from its roots to where it had been broken by the fall, and as the diameter at that point was three feet the total length could not have been less than 500 feet. At a distance of five feet from the ground the diameter was 18 feet.

Discoveries of ancient ruins of an interesting character have recently been made at Senora, Mexico. There is a pyramid with a base of 1,350 feet, and rising to the height of 750 feet, with a winding carriage road, said to be twenty three miles long, reaching to the summit. No less interesting is a small mountain a short distance away. About half way up the side of this is a formation of a soft variety of gypsum, in which were cut by pre-historic people hundreds of rooms from 6 x 10 to 16 x 18 feet in dimensions. These dwellings are cut in the solid rock with the utmost accuracy, and the walls are ornamented with hieroglyphics and representations of human beings.

And nature, the old nurse, took

The child upon her knee,

Saying: "Here is a story-book

Thy father has written for thee."

Longfellow:

GEOGRAPHY.

Shanghai is already China's chief commercial emporium, and is destined, it is thought, to become eventually its greatest city.

The highest peak in Nevada is Mount Jefferson Davis. Its altitude is 13,075 feet.

The German element in the United States is estimated at 9,000,000.

Born Parisians are always in a minority in that city, numbering, according to the latest figures, about thirty-two per cent of the population. Belgians, Germans, Italians, Swiss, English, Dutch and Americans make up the majority.

The Russian Empire consists of thirty different races of people. Life there is not individual, but collective. There are but two cities, Moscow and St. Petersburg; the remaining towns are viewed but as accidents. In other countries the urban population constitutes one-third of the whole, in Russia but one tenth. St. Petersburg and Moscow are the only cities, perhaps, in the world whose inhabitants are part peasants. The work-people in the factories of these cities are engaged on the condition that they will be allowed vacation to sow their fields and reap their harvests.

LITERARY NOTES.

The *Western Book and News Co.*, of this town, have published a remarkably cheap Atlas of the World - 16 colored maps for 10 cents, which includes postage. Teachers should send for a sample copy.

No intelligent reader can fail to be interested in the contents of the *North American Review* for December. The question of the telegraph has the place of honor in the number, Gardiner G. Hubbard pointing out the great advantages that would result from the proposed "Government Control of the Telegraph," and showing from the experience of several European countries the benefits to be derived from the incorporation of the telegraphic with the postal service. Prof. J. Laurence Laughlin, of Harvard University, shows the "Evils of the Sub-Treasury System," in its absorbing and withholding from circulation the specie that is constantly needed to insure stability in the world of finance. "The Day of Judgment," by Gail

Hamilton, is a caustic review of the less amiable moral traits of Thomas Carlyle. Henry George writes of "Overproduction," an idea which he declares to be preposterous, unless more wealth is produced than is wanted. Gen. W. B. Franklin sets forth the views of naval and military experts as to what is absolutely needed in the way of organization, forts, ships and war material, to insure the "National Defense." An article on "Railroad and Public Time," by Prof. Leonard Waldo, of the Yale College Observatory, explains the system of uniform time standards now being produced into the railroad service of the United States. Finally, there is a discussion on the question of "Morality without Religion," by F. A. Kider and Prof. A. A. Hodge, of Princeton College. Published at 30 Lafayette Place, New York, and for sale by booksellers generally.

THE ACADIAN SCIENCE CLUB.

This society is designed to subserve no private interests. It is an educational movement inaugurated by a number of persons identified with educational work, and its sole aims are to awaken a deeper popular interest in scientific subjects and to aid in the dissemination of scientific knowledge. The gentlemen who act as directors of this association willingly devote their time and attention to the work, in as far as their professional duties will allow, and bespeak the co-operation of all who are in any way interested in the cause of popular education.

It is the controlling motive of the Acadian Science Club to encourage young men and young women who are not at present able, from whatever cause, to enjoy the advantages of an Academic or Collegiate training, to undertake and continue a systematic course of study at home. Very many such are naturally of literary tastes and devote more or less time to reading and study of a desultory kind, and in an immethodical manner. Such will see the obvious advantage of having a course of study arranged for

them and the benefits that must result from their union with a large society of which all the members are engaged in similar work for the same ends. Our membership consists largely of this class.

But we wish that we could reach and help out of their folly another and larger class—we mean the novel readers—those whose chief intellectual pabulum is the distorted, pernicious literature of a sensational character which is abroad in so many forms that few escape having the healthful development of their God-given powers of mind retarded thereby. If we could reach this class—could persuade them to fling aside the vile trash that is poisoning their minds and turn to the great book of Nature, which Longfellow so beautifully terms the “Manuscripts of God,”—could lead them to see that there is more of interest and romance in Nature’s works than in the sickly sentimentalities of the latest novel, but of a kind that ministers only to intellectual growth, not mental dissipation, we should feel that our labor had indeed not been in vain, but that we had accomplished a noble work.

“Want of time” is an objection frequently presented by many, chiefly from those engaged in manual labor, but who could not, by exercising a systematic economy in respect of that which is of such priceless value, secure to the improvement of his mind the small amount of time required each day for the accomplishing of the work of the A. S. C? The habit of study once formed, the hour devoted to it after the day’s labor in the workshop, on the farm, or behind the counter, would be looked upon as a pleasing recreation, while the fact of having some definite subject with which to employ the mind during the hours of toil, would lighten labor and add a new interest to life. We could name

individuals who, in addition to arduous physical labor, still find time for study and even original work in one or more departments of natural history.

The Acadian Science Club is rapidly becoming a large fraternity of such as wish to engage in the delightful study of Nature. Brought into sympathy with each other by their union in a common cause, the members become of mutual assistance, and by their combined and individual influence will, we trust, lead others to see a little more of beauty and wisdom in the fair creations of God as they exist around us in the natural world.

The secretary is glad to be able to state that a new department—that of entomology—has just been added to the list of subjects comprised in the curriculum of the A. S. C. It is a matter also of congratulation that the gentleman whose name appears as director of that department has magnanimously consented to fulfil the duties of that office. Dr. J. E. White is a gentleman not unknown to fame, and has already done much to advance the interests of science in his own Province. An enthusiastic and influential member of the Natural History Society of Toronto, he has recently, under the direction of that worthy institution, and in company with Dr. Brodie, also a zealous Naturalist, compiled and published a check list and a label list of the insects of the Dominion of Canada. These works, the value of which can be appreciated by only the entomological student, through their accuracy and completeness, bear evidence of much labor and a large knowledge of this interesting department of natural history on the part of the compilers. A deeper interest must attach itself to the work of our Society from the addition of Dr. White to the directorial staff.

CORRESPONDENCE.

The members of the Club are informed that the course of study in Insect Life will commence in the January number of the *Scientist*. As collecting will not commence before May to any extent, the time until then will be taken up by preparatory papers giving instructions for collecting, mounting, preserving, kind and size of cases, mode of exchanging, etc. These will be followed by a series of papers extending over the time of the Course, in which time the subject ought to be in a manner completed. Occasional notes of interest to entomologists will appear, or possibly an entomological corner may be set apart for notes and queries. The members will kindly recollect that the pleasure of replying to these questions and helping them on is the chief motive in undertaking this department, and they must not hesitate to ask. Address—

J. E. WHITE,
Toronto, Ont.

THE BURIED FERN.

NEAR the edge of a forest years ago,
There grew a dainty fern, green and slender,
Vining delicate and fibre tender.
Waved by the gentle breezes to and fro;
The mosses, velvet green, grew around it,
The daylight's brightest beam sought and
found it,
The night brought its gems of dew and
crowned it,
The foot of man had never been that way,
Earth there was young and in solitude lay.

The earth grew cold. One day a thoughtful
man,
Searching for Nature's secrets far and wide,
From a deep fissure in a deep hillside,
Withdrew a stone over which there ran,
Fairy pencilings of quaint design,
Of pinnae, veins and fibres clear and fine,
Lo! here the fern again in every line.
How strange it is that I may read to-day,
On this stone, of what has passed away.

THE question of how insects are able to walk on vertical glass surfaces has been studied anew by Dr. Dewitz. He examined with the microscope the feet of flies when walking on glass, and found that the hairs of the feet emit a transparent fluid by means of which they are enabled to adhere to the glass.

In cases where the hairs were absent he saw the fluid exude from pores in the foot. In some of the beetles he studied the structure of the glands furnishing this secretion and found them unicellular, each communicating with a hair and furnished with a minute nerve.

EXCHANGE DEPARTMENT.

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

For Land or F. W. Shells, named or un-named, from the Maritime Provinces, will exchange fine Unios and Limnæa. Correspondence invited. F. R. LATCHFORD.
Ottawa, Ont.

Look over your old letters and send to me the old issues of postage stamps of Nova Scotia, New Brunswick, P. E. Island, Newfoundland, Canada, and revenue stamps. Highest price given in stamp exchange or cash.
H. N. JOHNSON,
Coeymans, N. Y., U. S. A.

A fine collection of minerals, large size, worth \$100, to exchange for a second-hand job printing press, with accompaniments. Correspondence invited.
A. J. PINÉO,
Wolfville, N. S.

God writes the Gospel, not in the Bible alone, but on trees and flowers, on the clouds and stars.—*Luther*.

The heart that is soonest awake to the flowers
Is always the first to be touched.
Moore.

THE ACADIAN SCIENCE CLUB.

An International Corresponding Association.

OFFICERS:

President—A. E. Coldwell, A.M., Instructor in Natural Science, Acadia College, Wolfville, N.S.

Directors:

Physiology—C. W. Roscoe, A.M., Inspector of Schools, Wolfville, N.S.

Geology—Alexander McKay, Esq., Supervisor of Halifax City Schools, Dartmouth, N.S.

Botany—A. H. McKay, A.B., B.Sc., Principal Pictou Academy, Pictou, N.S.

Astronomy—Prof. A. E. Coldwell, A.M., Wolfville, N.S.

Chemistry—J. F. Godfrey, Esq., Wolfville, N.S.

Zoology—A. J. Pineo, A.B., Principal Wolfville High School, Wolfville, N.S.

Entomology—J. E. White, M.B., Toronto, Ont.

Mineralogy—S. K. Hitchings, B.Sc., State Assayer and Principal High School, Biddeford, Maine.

Natural Philosophy—Prof. F. H. Eaton, A.M., Provincial Normal School, Truro, A. J. Denton, A.B., Halifax, N.S.; W. P. Shaffner, A.B., Kentville, N.S.; W. W. Saunders, Esq., Bridgetown, N.S.; F. H. Schofill, A.B., Winnipeg, Manitoba.

OBJECTS

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 ennobling study of Nature's works.

METHODS.

A course of study has been arranged extending over three years, and including the various departments of Natural History. This is to be pursued by means of prescribed text-books or their equivalents, and by the aid of notes and lectures, each as shall from time to time be published and made

accessible. Members are also invited to correspond with the directors in regard to their work when any information or advice is desired.

The formation of local clubs is strongly recommended as a means of adding interest and value to the work. This should be practicable in any community where there are three or more members.

Students report quarterly, and at the end of each year receive examination papers to be answered at their homes. The questions however will be of such a nature that by means of the replies the directors will be able to determine whether or not the students shall have gained an intelligent knowledge of the subjects studied. At the end of the third year an essay is prepared by the student on some scientific subject. The student who successfully completes the course of study and presents his thesis receives a certificate and is recognized as a Life Member of the Society.

COURSE OF STUDY.

FIRST YEAR.

Jan. Feb. March. *Physiology*.—"Fourteen Weeks in Physiology." Steele.

April. May, June, Sept. *Botany*.—"How Plants Grow." Gray.

Oct. Nov. Dec. *Natural Philosophy*.—"Fourteen Weeks in Physics." Steele.

SECOND YEAR.

Jan. Feb. March. April. *Chemistry*.—"Fourteen Weeks in Chemistry." Steele.

May, June, Sept., Oct. Nov., Dec. *Zoology* and *Mineralogy*, on alternate weeks. "Zoology." Macalister. Lectures on Mineralogy in the *Scientist*.

A small collection of minerals will be sent to each student member.

THIRD YEAR.

Jan. Feb. March. *Astronomy*. Primer, Lockyer. Also, "Wonders of the Heavens." Flammarion.

April, May, June, Sept. *Geology*—"Geological Story Briefly Told." Dana.
 Oct. Nov. Dec. *Preparation of Essay*.

READING COURSE.

The following works, all published in the *Library of Science*—a cheap and valuable series—are recommended for supplemental reading.

FIRST YEAR.

Light Science for Leisure Hours—Proctor.
 Conservation of Energy—Stewart. Lessons in Electricity—Tyndal.

SECOND YEAR.

Lectures on Evolution—Huxley. Scientific Sophisms—Wainwright. Life in Nature—Hinton.

THIRD YEAR.

Romance of Astronomy—Muller. Town Geology—Kingsley. Geological Sketches (2 vols.)—Geikie.

Each member must pursue the Course of Study, but it is optional whether he will take the Reading Course or not. It is advisable however that he should do so, if possible, as it is designed to give him a broader view of the subjects studied than he would obtain from the text-books alone. If it shall seem to be advisable, advanced courses will be marked out in special lines for the benefit of such graduate members as may wish to continue their studies under the direction of the Club.

While no definite daily task is assigned, it is earnestly recommended that the student devote to the work a regular portion of his time each day. It is thought that, for the average student, one hour a day will be ample for the accomplishing of the prescribed work. Many, however, may wish to devote to it more than this, The student should study with specimens before him. As many as possible of them he should collect for himself and

afterward add to his collection by exchanging with other members or by purchasing.

Any one finding himself unable to complete to his satisfaction the work of any year, within the year in which he begins said work, may lay it over till a subsequent year and resume it without extra charge, providing he shall signify to the Secretary his intention of doing so before December 1st of the year in which he shall begin the work. In this way the student may, if it is advisable, spread the work over six years.

To meet the necessary expenses of the Club, student members are required to pay the small annual fee of 50 cents. All surplus funds will be returned to the members in the form of prizes or specimens. No fees are required from life members.

Anyone desiring to unite with the Club may receive a certificate of membership by sending to the Secretary the first year's fee of 50 cents.

BOOKS.

To accommodate members the Secretary has made arrangements with the publishers of the prescribed books so that these can be furnished at wholesale rates. The prices are: Steele's "Fourteen Weeks" series, \$1.00 each; How Plants Grow, 95 cents; Macalister's Zoology, \$1.05; Astronomy Primer, 28 cents; Wonders of the Heavens, 13 cents; Geological Story Briefly Told, \$1.40; Library of Science, 13 cents per volume. Books will be sent post-paid at these prices to *members of the Club* in Canada or United States. Those ordering from other parts of the Postal Union must add 5 per cent.

N. B.—The directors earnestly request all interested in the objects of this Association to co-operate with them in extending the influence of the society.

THE CENTURY!

PROGRAMME FOR 1883-84.

The programme for the fourteenth year of this magazine, and the third under the new name, is if anything more interesting and popular than ever. With every season THE CENTURY shows a decided gain in circulation. The new volume begins with November, and, when possible, subscriptions should begin with that issue. The following are some of the features of the coming year:—

A NEW NOVEL BY GEORGE W. CABLE, author of "Old Creole Days," etc., entitled "Dr. Sevier," a story of New Orleans, life, the time being the eve of the late Civil War.

"LIFE IN THE THIRTEEN COLONIES," by EDWARD EGLESTON, separate illustrated papers on subjects connected with the early history of this country.

THREE STORIES BY HENRY JAMES, of varying lengths, to appear through the year.

THE NEW ASTRONOMY, untechnical articles, by Prof. S. P. LANGLEY, describing the most interesting of recent discoveries in the sun and stars

A NOVELETTE BY H. H. BOYSEN, author of "Gunnar," etc. A vivid and sparkling story.

THE NEW ERA IN AMERICAN ARCHITECTURE, a series of papers descriptive of the best work of American architects in Public Buildings, City and Country Houses, etc. To be profusely illustrated.

A NOVELETTE BY ROBERT GRANT, author of "Confessions of a Frivolous Girl," etc., entitled "An Average Man"—a story of New York.

THE BREAD-WINNERS, one of the most remarkable novels of the day, to be completed in January.

CHRISTIANITY AND WEALTH, with other essays, by the author of "The Christian League of Connecticut," etc., on the application of Christian morals to the present phases of modern life.

COASTING ABOUT THE GULF OF ST. LAWRENCE, a series of entertaining articles, profusely illustrated.

SCENES FROM THE NOVELISTS, HAWTHORNE, GEORGE ELIOT, and CABLE, with authentic drawings.

ON THE TRACK OF ULYSSES, the record of a yacht-cruise in the Mediterranean, identifying the route of Ulysses on his return from the Trojan war.

"GARFIELD IN ENGLAND," extracts from his private journal kept during a trip to Europe in 1867.

"THE SILVERADO SQUATTERS," by ROBERT LOUIS STEVENSON, author of "New Arabian Nights."

There will be papers on outdoor England by JOHN BURROUGHS and others, a beautifully illustrated series on Dante, a number of papers by the eminent French novelist ALPHONSE DAUDET, articles on art and archaeology, by CHARLES DUDLEY WARNER and others, illus-

trated papers on sport and adventure, short stories by the leading writers, essays on timely subjects, etc., etc.

Subscription price, \$4 00 a year, single numbers sold everywhere at 35 cents each. All dealers receive subscriptions, or remittance may be made direct to the publishers by postal or express order, registered letter, bank check, or draft.

SPECIAL OFFERS.

To enable new subscribers to begin with the first volume under THE CENTURY name, we make the following special offers:

New subscribers beginning with November, 1883, may obtain the magazine for one year from date, and the twenty-four previous numbers, unbound for \$8 00. Regular price for the three years, \$12.00.

Or, if preferred, a subscription and the twenty-four numbers BOUND IN FOUR ELEGANT VOLUMES will be furnished for \$10. Regular price, \$16.

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