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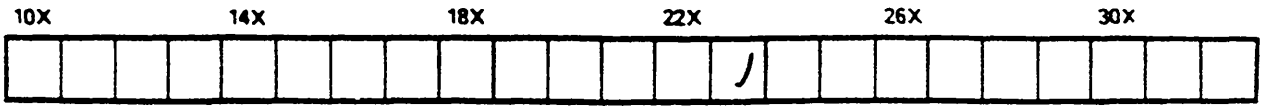

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NOTES OF TRAVEL IN JAPAN.

(By W. Hague Harrington.)

(Delivered January 14th, 1892.)

On Thursday, the 14th of January, Mr. W. Hague Harrington delivered an address on some of the physical and natural history features of Japan as observed by him in his visit to the Sunrise Kingdom during the preceding summer. Hilly and well-wooded land was seen from the *Empress of India* on the 11th August, some three hundred miles northward of Yokohama. The following morning at daylight the Gulf of Tokio was entered, and the run up this capacious bay about thirty miles to Yokohama (Tokio lying at the head several miles beyond) was very charming, the shores on either side being clothed with foliage and with a succession of villages lining the bays at the foot of the hills. Great numbers of junks and fishing craft enlivened the waters, and when the steamer anchored off Yokohama, the water being shallow, she was immediately surrounded by scores of sampans and other craft, with military, police, customs, medical, post-office and other officials, and the scene was very animated and interesting. Mr. Harrington was met by his two brothers (Rev. F. G. Harrington and Rev. C. K. Harrington), who reside in Yokohama, and from his landing to the termination of his visit, ten weeks later, enjoyed every moment and found ever new features of interest To be in a country where the people, dress, customs, dwellings and almost everything observed are so strikingly different from those of America was in itself a guarantee of pleasurable excitement.

An early visit was made to Hakone, the favourite summer resort of many foreigners, and a district of a very beautiful character. The village of Hakone is situated on a lake (nearly four miles long and 2,400 feet above sea level), which apparently lies in the crater of an ancient volcano, and which is surrounded by fine wooded or grass-covered hills. In the vicinity are many hot springs of varied temperature and qualities, while about two miles from the head of the lake is an extensive solfatara or volcanic gorge from which rise steaming vapours. The native name is Ojikoku (Big Hell), and beneath the decomposed surface may be heard the boiling waters. It is necessary to

walk carefully, as the ground is often undermined and lives have been lost here.

Japan exhibits many of these and other forms of volcanic action, and there are several important volcanoes still more or less active. The principal of these is Asama, nearly one hundred miles N. W. of Yokohama. Mr. Harrington and his brother ascended this mountain (8,280 feet high), and found that the present crater lies in the centre of a much larger and older one, the broken rim of which is well marked, although it has been nearly filled up. At the time of their visit the volcano was more than usually active, the vapours filling the crater (said to be one-quarter of a mile in diameter) and rising several hundred feet above it. After the great earthquake of 28th October the mountain was emitting flames and ashes. This mountain, like many of the others, evidences that the craters of remote times were much larger than present ones, and in some cases a series of cones and craters has been built up.

Among the other mountains climbed by Mr. Harrington was the sacred cone of Fuji, which rises to a height of 11,365 feet, with the outline of an inverted fan. Although the slope is not very great, the footing is for much of the way very trying, and toward the summit the climb becomes difficult. Starting from Gotemba at 6.30 a.m., the top was reached about 5.30 p.m., and the night was passed there. This mountain is climbed annually by great numbers of pilgrims during the months of July and August. It has not been in eruption since 1707, but although the crater is partly filled with snow and ice, there are signs that it is not completely extinct, as steam sometimes issues from cracks outside the crater on the east side.

Japan at first sight appears to be a very fertile country, but closer examination shows that tillable land forms the smaller part of the Empire, and that much of the land cultivated is of a very poor quality, being largely composed of volcanic tufa and debris. According to recent authorities, it was found that 37% (not including Yezo, which is slimly populated), is classed as desert, including volcanoes, solfataras, scoriæ covered plains, etc. Mountain forests cover 23%, so that these two divisions include about two-thirds of the country. Cultivated forests cover 18%, and are an evidence of the attention paid to forestry,

the Japanese in this respect being much in advance of Americans. Along the sand dunes of the coast Mr. Harrington observed the extensive planting of pines, showing specimens from a few inches upward, while older forests showed by the regularity of the trees that they were planted by man. Farming lands proper occupy 15% of the country, and are classed as Ta and Hata, the rice fields and the dry fields. To these may be added 5% of land under other forms of cultivation, such as fruit and nut trees, etc., making in all 20%, or one fifth of the land devoted to agriculture of all kinds.

From this area, careful and systematic tillage furnishes food for the large population of 40 000,000, besides a considerable quantity for export. Wherever water can be obtained, rice is the staple crop, and the plains and valleys are carefully levelled and irrigated, so that they may be kept wet during the growth of the rice. When Mr. Harrington arrived, the young rice covered the plains with a beautiful verdure, and before his departure the harvesting was well advanced. The annual yield in favourable years is about 200,000,000 bushels. No fences are needed, and as the farmers chiefly live in villages on the edges of the rice plains, these present a wide expanse of vegetation.

Along the ridges which bound the rice plats are generally planted beans, which are also extensively grown in the dry-fields, and form a large element of the food. They are generally known as Soy-beans, because certain varieties are used in making the sauce of that name (Shoyu), so much used as a relish. Of other crops, the mulberry was described as largely grown in some districts where the silk worms are bred, an industry employing a large part of the population. In other districts, tea was a chief product, and the plantations of these shrubs were described as being very attractive in appearance. The cotton which in some districts is very largely grown, and for the spinning of which several large mills were seen, is a smaller plant apparently than that cultivated in America.

Mr. Harrington regretted that his knowledge of geology was not sufficient for the full appreciation of the phenomena which, in a land where the forces of nature are so actively in operation, must be of a most instructive character. The Hakone district exhibits both well wooded hills, and others covered with a very vigorous tall grass, a

species of Eulalia, several feet in height, and in the north, as at Nikko, the country is mountainous and wooded. At Nagano (in the Shinshiu district) he had seen hills of chalk or plaster and described how hot had been the road cut along the face of those hills. In the south the ranges of hills were largely barren, sometimes formed apparently of coarse diluvial drift and conglomerate, at others largely of sand.

The rivers from the mountains frequently do great damage in the plains when suddenly swollen by the rains, or melting snows, and large sums of money are spent yearly on embankments and improvements in the channels. On some of the plains the rivers have been raised by the silt deposited by their waters, and the continual heightening of the embankments, until (as at Lake Biwa) the railway across the plain goes under the beds of the rivers by tunnels. When unusual floods, or earthquakes occur the embankments may be burst and much loss of property and life result.

The flora and fauna of the empire were described by Mr. Harrington as very rich in interesting species, and he had often thought how the botanists especially of the Field-Naturalists' Club, would have revelled in the scenes presented. Trees were very numerous, of great variety of foliage and often of very large size. Of conifers the most striking had been seen at Nikko, where the famous temples and tombs in honour of the first and third Shoguns, are embowered in magnificent groves, and the avenues and courts are lined with gigantic specimens, with trunks four, five, six or even up to eight feet in diameter. These trees are about 250 years old, showing that the growth of this species is rapid. At one of the shrines at Nikko stands a beautiful Koya-maki, or umbrella pine (*Sciadopitys verticillata*), now several feet in diameter, which is said to have been a pot plant belonging to Iyeyasu, the first Shogun. The old highways of Japan were generally lined with fine trees forming veritable avenues, thronged by the travelling multitudes. Such an avenue of Cryptomerias (*C. japonica*) leads up to the sacred groves of Nikko, the last six miles being especially imposing.

It is a favourite habit of the Japanese to train out on supports the branches of one of the species of pines, until the extent of their spread is wonderful. Such a tree was seen at the Kurodani monastery (Kyoto), upon which, the priests relate, Nazarie hung his armour when, about

800 years ago, he abandoned the military for the monastic life. The most famous, however, of such trees is that at Karasaki on the shore of Lake Biwa, which is of great unknown age, and hence very sacred. The trunk has a circumference of 37 feet and gives off nearly 400 branches, the spread of which from east to west is 240 feet and from north to south 288 feet. There are many varieties of cedar, cypress, pine and fir, and the residences of foreigners in Yokahama are much beautified by well trimmed hedges and shrubberies.

Next to the conifers, the traveller's attention is arrested by the abundance of glossy leaved trees and shrubs, which present in summer a bright vigorous foliage, and which are chiefly evergreens. The camellias grow to considerable size, and blooming late in the year are a feature of the winter scenery. The cinnamons are represented by several species, the most important being *C. camphora*, which is widely distributed and of great economic value, as it grows to a large size, and yields wood very valuable for cabinet and box making, in addition to the camphor obtained by distillation. A camphor tree seen near a temple on the path from Hakone to Atami was found to have a circumference of of fifty feet. It was centrally split and decayed, but was a majestic tree, and the priests stated its age to be some eight hundred years.

Keyaki (*Zelkowa keaki*) was another large tree, yielding very valuable timber in demand for many purposes. At a new temple being built at Kyoto fine sticks of this wood had been seen, about four feet square, and the pillars supporting the roofs were of the same material. When new, the Japanese buildings exhibit very well the different beautiful woods used in their construction, but, not being varnished nor painted, all outside work soon becomes dingy from the effects of the weather.

A very remarkable tree is the Icho, a member of the Taxaceæ or yew family, the scientific name being *Salisburia adiantifolia*, the specific name derived from the great resemblance of its leaves to those of the maiden-hair fern. It is a large tree of handsome growth and in autumn the leaves turn of a fine golden colour. It has probably been introduced into Japan, as the trees are usually near the temples. Good specimens were seen in Kyoto, etc., but the largest was at the Hachi-

man temple at Kamakura, which is claimed to be over a thousand years old, and of which the trunk has a circumference of twenty feet. The fruit is about the size of a damson, and the nut-like kernels are used as food. This tree is also called *Ginko biloba*, the word *gin* signifying gold in Japanese, The Japanese yew (Taxus cuspidata) is a fine tree, and furnishes a much valued and beautiful wood.

Among the many interesting trees observed were several varieties of oak; fine walnuts, magnolias (the wood of *M. hypoleuca* being very close-grained and valuable); maples of various species and very pretty foliage, much prized for the autumn tints, which, however, do not equal those of Canadian maples; birches, like our white birch, upon the mountains; and a wonderful variety of other fine trees.

A remarkable feature of the forests is the great abundance of strong climbing plants, which festoon the trees, and frequently entirely hide them. Of these the Fuji (*Wisteria chinensis*) is the most striking species and winds its thick coils high around the lofty trunks, or even, when support is absent, about itself. This fine vine is much admired and forms a fine screen for verandahs and summer-houses, and when the immense clusters of bloom are pendent from it the effect is very fine. Curious trees are Stuartia and Lagerstrœmia, which have red smooth trunks, and in Japanese are called Sarusuberi (from Saru a monkey and suberu to slide), because the trunks are so slippery.

Of fruit trees the principal are peach, plum, pear and persimmon. Peaches are by no means equal to American ones; plums are large and of good appearance, but the flavour is not so good as might therefrom be expected. Of pears enormous numbers are grown, and many of these are of large size and very pleasing colour, often a rich golden hue. They are much esteemed by the natives, but foreigners accustomed to other varieties find them very insipid, although when one is thirsty their juicy flesh is very refreshing. The persimmon, or kaki, is very largely grown and appears to be the favourite fruit of the Japanese. The fruit ripens late in the year, and until perfectly ripe are dreadfully astringent. When ripened fully, however, they are very good, especially those in which the flesh becomes a soft juicy pulp that has to be eaten with a spoon. Many of these fruits are dried and pressed like figs for winter use. The Japanese oranges are said to be

very good, but were not ripe when Mr. Harrington left. In the southern provinces the Pompelo or Shaddock (*Citrus decumana*) is abundant, the fruit being very large and the pulp very agreeable. Pomegranates are very handsome in flower and fruit, but the latter does not offer much except the acid pulp around the seeds.

Although the time of Mr. Harrington's visit was not the period of flowering for many plants, he saw, especially in the mountains, some fine species in bloom. Of these may be especially mentioned the lotus, which grows luxuriantly in the temple ponds, and often in moats or ditches, lifting its large leaves and beautiful flowers high above the water. On the Hakone hills the grand white lily (*Lilium auratum*) grows in abundance, and the root bulbs of this and of other fine species are largely gathered for food. Near the foot of Asama had been observed a beautiful yellow lily on a stalk some three feet high, and in the *hara* (dry plain) below Fuji many examples of fine tiger-lilies occurred. Other smaller lilies, and other closely related forms had frequently been seen, showing how extensively these beautiful plants are distributed.

A very conspicuous species in the early part of October, from Kobe to Yokohama, was one about 1½ to 2½ feet high, with a fleshy stem and no leaves. Each stem bore several bright cardinal or scarlet blossoms of a lily-like form, but with the petals narrow and twisted. This plant grew in abundance along the irrigation ditches or in any uncultivated spot, and its bright colour sometimes showed in large vivid patches. Of flowering shrubs *Hydrangea paniculata* was a good example, as it was seen in large masses along the mountain paths, and showed at once its relationship to the cultivated form, although in nature flowering in the fashion of our Canadian *Viburnum lantanoides*.

Of the varied flora perhaps no plant is so attractive in appearance as the giant of the grasses, the bamboo, which is also as useful as it is beautiful. Fine groves were seen, especially in the south, where the stems rise forty or fifty feet, and have a diameter of three to six inches. The uses of these stems are innumerable, and it would be difficult for the people to get along without them. Upon the mountains the underbrush often consisted almost solely of a dwarf species, forming an almost impenetrable scrub.

But little time remained to say anything of the fauna, although this had been found of the greatest interest. As was to be expected, very few mammals were seen in their native haunts, the exceptions being a large black squirrel and weasels. In the northern portion of the country, however, especially in Yezo, there are many deer, bears, etc., and at Nikko the fur shops exhibited great quantities of pelts, largely martens, with otter, badger, fox, monkey, etc. The monkey, Saru (*Inuus speciosus*), is one of the most interesting species, inhabiting a large portion of the country even well northward, and is said in some places to be rather a serious pest of the farmers, It was frequently observed in captivity at the temples, theatres, etc. In the beautiful parks surrounding the temples at Nara are numbers of tame deer which feed out of the visitor's hand, and assemble at the call of a trumpet. The stags are handsome animals of brownish colour, the fawns and does lighter and spotted. Great numbers of hairpins, chopsticks and other trifles are manufactured from the horns. This town was also a great producer of ink, enormous numbers of tablets having been seen.

Next to agriculture, the fisheries of the kingdom are of the greatest importance, and the immense fleets of boats engaged in this industry afford beautiful pictures all along the coasts; many hundreds of them may at all times (except in heavy gales) be seen reaping their harvest from the capacious waters of Tokio Bay. Fish and vegetables form almost the entire food of the inhabitants, and of the former a great variety is fortunately found, it being stated by some authorities that about 700 species frequent the Japanese waters. Many of these are very valuable for food, including some forty species of the mackerel group, of varying size and quality, some of them very good.

A favourite fish is the Tai, a beautiful deep red gold-bream (*Chrysopus cardinalis*), the delicate flesh of which is most delicious. It is frequently served up raw in delicate flakes, and is very palatable in this fashion. The Japanese are, however, very skillful in cooking fish, and the traveller enjoys this part of his diet.

Herrings occur abundantly, and some species are much used in the manufacture of fertilizers for the rice fields, for in Japan the art of manuring is well understood, and every available material is made use of and nothing allowed to be wasted. The odour arising from this

fish-guano is far from pleasant, as was experienced by Mr. Harrington at Bakan, where the steamer up the Inland Sea had a large quantity of sacks of it on board.

Mollusca are also largely used for food, especially cephalopods, haliotis, and the larger shell fish, of which immense numbers are taken for home consumption and export to China.

A visit had been made to Enoshima, where a large trade is done in shells and other marine productions, and many articles manufactured from shells, corals, etc. Specimens of the celebrated glass-rope sponge (*Hyalonema Sieboldii*) can always be obtained in this interesting place, and form favourite souvenirs for visitors.

The waters of Japan contain great numbers of crustaceans, the most remarkable of which is *Macrocheirus Kæmpferi*, called by the fishermen Taka-ashi (long legs) the limbs extending ten or more feet from tip to tip. A very large specimen was seen in the Ueno Museum, Tokio. A curious little crab found down in the Inland Sea has on its back a striking resemblance to a human face, and has connected with it interesting legends. At Yokohama and elsewhere small crabs may be seen running about the roadways, and scuttling into their burrows in the damp ditches. At Chofu a larger and more handsomely marked species abounded so much that, despite its agility and wariness, many were killed on the road by passing jinrickshas.

Of reptiles the most frequently observed were two species of lizards, one of which has the hinder part of the body and the tail of a very bright greenish blue. In Hakone lake a red-bellied newt was very abundant in shallow water. Other species of newts also occur, and, like the lizards, are caught in large numbers and dried for medicinal purposes. A curious little Gekko (*Pterodactylus Yamori*) frequents houses, subsisting upon insects and hiding by day in crevices. Snakes of several species abound, but only one poisonous species is found, viz., *Trigonocephalus Blomhoffi*, which is considered to be a good nerve strengthener when skinned and cooked. Small green tree-toads were common, and one specimen was seen of a very large toad with whitish belly, white blotches along the sides and reddish markings on the head.

In the ponds and tanks which frequently adjoin temples may be

often seen great numbers of turtles (a species of Emys) which are fed by the visitors with small fish, lizards, etc., purchased for a few *rin* from the attendants. The turtle is a very frequent object in Japanese art work, and is often represented as if with spreading plumose tail. This is apparently meant to represent old individuals in which the shell is often covered with confervæ that stream out behind as the animal swims along.

Birds also furnish abundant themes for the Japanese artist, who knows so well how to depict them in lifelike attitudes, and with the greatest fidelity to nature. In the cities great numbers of a large kite, the Tombi (*Milvus govinda*), may always be seen circling slowly round, and acting the part of useful scavengers, without fear of man. In Yokohama they were very numerous about the harbour, seeking their food from land and water, and resting in the rigging of the ships. Ravens are also abundant, and with the sparrows are very troublesome. The latter (*Passer montanus*) swarms in the rice-fields in spite of scare-crows, nets, traps and rattles, and much resembles in appearance and destructiveness the English sparrows. The most interesting birds are perhaps the storks and cranes, of which several fine species abound. They are protected and hence may be seen more frequently than might be expected. Tsuru is the name applied to the cranes, but each species has likewise a special name, as the Tancho (*Grus leucauchen*), a noble white bird with a red crown, black neck and tail. There are three species of silver heron, Sagi, very beautiful birds, seen upon the mud flats near Tokio, at Hiroshima and elsewhere.

In the moats surrounding the castle at Tokio were seen great numbers of ducks, which of course are never molested, and swim about in all the beauty of their various plumages. Jays, thrushes, finches, wagtails, doves and many others were observed, including pheasants, of which two species are common, and in some districts so numerous that great numbers are killed.

* Insects were very numerous and about 600 species had been collected, about half of which were beetles. There was no time to discuss

* A paper had already been read by Mr. Harrington before the Entomological Society of Ontario upon the Japanese Insects and is being printed in the annual report of the society.

these collections or the many fine insects observed, but reference was made to the abundance of large wasps, and to the Semi or Cicada, whose noise is so obtrusive during the hot weather, and which is captured by the children with slender bamboos tipped with rice glue.

The address having occupied an hour and a half it was moved by Mr. Kingston, seconded by Mr. Lees, "that the reading of the Ornithological Report be deferred until the next soiree." Carried.

At the request of the members Mr. Harrington attired himself in a Japanese costume, explaining, however, that fine feathers do not make fine birds, and that he was afraid the clothes would not make him look like a Japanese, or show to advantage their graceful qualities.

———:o:———

CORRESPONDENCE.

THE JAPANESE GLASS-ROPE SPONGE.

To the Editor of the Ottawa Naturalist.

DEAR SIR,—In anticipation of any report you may make of my "talk" upon Japan will you permit me to briefly supplement the reference then made to the exhibited specimens of *Hyalonema Sieboldii* I find that some of those present received the impression that this interesting form is an artificial "plant" instead of a *natural* curiosity. The specimens shown, of which one was complete and the other stripped of the sponge proper, were obtained at Enoshima, where they may be had in abundance, of varying sizes and degrees of perfection. The trifling price at which they are sold would at once negative the idea that they are manufactured, even were the object of such manufacture apparent. They are obtained by dredging, in about 200 fathoms, on reefs situated near the mouth of the Gulf of Tokio. During my stay in Yokohama I read in a volume of the transactions of the Asiatic Society of Japan a very interesting paper on these sponges, and the only point on which the author asked for further investigation was the relationship borne to the sponge by the polyps surrounding the stalk. Various theories have been held by naturalists as to the growth of these

sponges but they were based upon imperfect specimens. The first specimens examined consisted merely of the stems with the sponge scraped off, and were supposed to be the skeletons of the parasitic polyps (Palythoa). Later it was supposed that the stalk grew upward from the sponge. As more perfect specimens were obtained, and closely allied species were obtained in other seas, the true method of growth was determined. I have no time to refer to authorities, but will quote from the brief account of Prof. Hyatt in the Standard Natural History:

"The sponge itself is * * * of a light brown colour, and friable when dry. The top is usually occupied with a number of cloacal apertures surrounding a central prominence which is in reality the end of the stem. The stem is spun by the tissues, as a supporting column, of elongated spicules bound together and growing in a spiral as the animal progresses upwards. The lower end of the stem becomes frayed out, and sinks into the mud as the animal grows, but constant additions to the upper end compensate for this and form a column which sometimes reaches a foot in length.

W. HAGUE HARRINGTON.

Ottawa, Jan. 15, 1892.

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REPORT OF THE ENTOMOLOGICAL BRANCH FOR 1891.

(Read March 12th, 1891.)

To the Council of the Ottawa Field-Naturalists' Club.

GENTLEMEN.—The leaders are pleased to announce an increased interest in this branch. Several of the younger members have collected regularly throughout the season, and have been remarkably successful in obtaining rare and valuable species.

In this connection special mention may be made of Mr. Willibert Simpson, Mr. Reginald Bradley and Masters Tommy and Beverley McLaughlin. The joint collection made by the last named took the prize at the Central Canada Exhibition. With reference to this association and the prizes that have been offered at the annual exhibitions, the leaders trust that greater efforts will be made to exhibit larger

collections and thus keep up the interest of the public in this important branch of study.

A large part of the collections of Messrs. C. P. Bate, W. Simpson and R. Bradley was made at Kingsmere in the Chelsea mountains. Amongst the beetles collected were some not previously recorded as having been taken in this locality, e.g., *Myas cyanescens*, 2 specimens Mr. Bradley, *Encyclops cæruleus* and *Xylotrechus sagittarius* Mr. Bate. Mr. Simpson took a fine female of *Pityobius anguinus*, another specimen, a male, was taken by Mr Fleteher and Mr. Harrington bred a female from a larva found in a decaying log in Beechwood in May, showing that this insect, one of the finest and largest of our Elaters is not so rare here as previously supposed. *Saperda calcarata* the large poplar borer was found in injurious numbers by Messrs. Simpson and Bradley at Kingsmere. They have now a barrelful of infested poplar stems containing many of the larvæ.

The leaders regret exceedingly the loss this branch has sustained, by the return of Rev. G. W. Taylor to British Columbia. Before leaving he had made a critical study of the *Carabidæ* with good results; many of the doubtful species in this difficult order were satisfactorily determined and several additions were made to the Ottawa list, particularly in the genus *Bembidium*. In the early spring diligent search was made for the members of this order and large series of specimens were taken. Amongst those not before recorded were *Cychrus Brevoortii*, *Lachnocrepis parallelus*, *Nebria pallipes*, and *Loricera cærulescens*.

Two interesting occurrences of exotic insects imported with fruits were brought to the notice of the leaders by Mr. C. P. Bate. *Blaps mortisaga*, a California beetle, he had found alive walking across a floor in the city. This, from what we could learn, had probably been introduced in a case of dried fruit. A small scorpion was also found by Mr. M. McVeity in a consignment of pineapples from the West Indies. In taking them out of a barrel he was stung on the hand. The weather was cool and the scorpion was sluggish or he would probably have suffered more severely than he did from the sting. As it was, the wound was extremely painful for several hours.

Some attention has been given to the local Hemiptera, and Mr. Harrington gave an afternoon lecture on this order and submitted a

preliminary list, which will appear in a future number of the OTTAWA NATURALIST. The large families of Aphididæ and Coccidæ, which embrace a large proportion of the species of this order, have not so far been much studied and must for the present be omitted. The study of some families of the Hymenoptera has been so far advanced that the leaders hope soon to begin the publication of the list of this order which was promised in a previous report; but the printing of which has been postponed, owing to the great number of new species constantly turning up and the difficulties attending their accurate determination.

Mr. McLaughlin has collected several new species of dragon-flies, but they are not yet identified.

In the order Lepidoptera several rare species have been collected. A few specimens of *Nisoniades Horatius*, not previously recorded from this locality, were taken at Beechwood by Mr. Fletcher, ovipositing on Aquilegia Canadensis.

A small but interesting collection of moths was taken at the dynamo house of the Electric Light Co. This contained two specimens of *Hepialus argenteomaculatus*, *Sphinx Kalmiæ*, *Smerinthus modestus*, *S geminatus*, *S. excæcatus* and *Tolype velleda*. Two of the large sphinx caterpillars, *Philampelus Achemon* and *Sphinx Chersis*, were injuriously abundant on the Experimental Farm, the former on grape vines and the latter on ashes.

A serious attack on the wheat crop by a small fly (*Oscinis variabilis*) has to be recorded. It is being specially studied by Mr. Fletcher.

T. McLAUGHLIN,
JAMES FLETCHER,
W. H. HARRINGTON,
} *Leaders.*

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SOME NEW MOSSES.

(By Nils. C. Kindberg. Communicated by Mr. J. M. Macoun.)

1. DICRANOWEISIA OBLIQUA, Kindb., n. sp.

Differs from *D. crispula* in the capsule being asymmetric, obliquely curved, substrumose in a dry state, the leaves with an excurrent costa, the perichetial ones being longer acuminate the peristomial teeth longer subulate, cleft above.

On rocks along Asulcan Creek, near the Asulcan Glacier, Selkirk Mountains, B. C., Aug. 7th, 1890 (Macoun).

2. DICRANELLA POLARIS, Kindb., n. sp.

Tufts dusky green not shining, fuscescent below; stem 1-3 mm. in height. Leaves rigid, nearly straight, erect-patent from the ovate-oblong base narrowed to the subulate acumen, which is furnished with 2-3 indistinct teeth; lower marginal cells narrow, upper sub-oblong; costa broad, often ⅔ of the lower part, faintly marked, filling the whole acumen; perichetial leaves larger, entire, broader at the base, with more numerous marginal cells. Capsule asymmetric suboval, finally subclavate, curved, smooth, short-necked, orange; lid with a long oblique beak; peristomial teeth nearly entire, slightly cleft above, orange with paler tips; annulus not distinct; pedicel yellow, 10-12 mm. long. Spores small, about 0.015 mm. Calyptra short dimidiate. Dioecious.

This species differs from *D. heteromalla* in its smaller size, the rigid leaves, the broad costa (broader than in the European *Meirleria alpina*, Schimp., and resembling it in habit) and the smooth capsule.

St. Lawrence Island, Behring Sea, 15th August, 1891 (J. M. Macoun).

NOTE.—St. Lawrence Island, situated in N. Lat. 63°30', W. Long. 170°, is a barren rocky island covered with a scanty growth of vegetation, principally lichens of a few species. At the date of our visit there snow still filled the ravines and covered the northern slopes.

3. DICRANELLA CERVICULATULA, Kindb., n. sp.

Agrees with *Dicranella cerviculata* in the strumose capsule, the yellow pedicel and the dioecious inflorescence, differs in the leaves not suddenly acuminate, the cells short quadrate, only the inner basal

rectangular, and the costa narrow, well defined and not filling the acumen, only in the perichetial ones distinctly excurrent. The tufts are very dense and compact, dark green, the leaves not spreading, rather sub-erect or patent, the stem about 5 mm., the pedicel 7-8 mm.

Nottingham Island, Hudson Strait, August 24th, 1884 (R. Bell.)

4. BARBULA SUBCUNEIFOLIA, Kindb., n. sp.

Differs from *Barbula cuneifolia* in very much larger subacute leaves, reddish in the older state, costa very stout, elevate and blood-red, larger capsule with more twisted teeth, very twisting and dark-red pedicel; inflorescence probably diœcious.

Mixed with *Pottia Heimii*; St. Matthew Island, Behring sea, August 10th, 1891 (J. M. Macoun.)

NOTE.—St. Matthew Island, 60°30′ N. Lat., 173°30′ W. Long, resembles St. Lawrence Island in general appearance, but there is on it a much greater variety of plants. The interior of the island is hilly and covered with grass.

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MICROSCOPICAL SOIREE.

On Thursday, the 11th of February, at 8 p.m., a microscopical soiree will be held in the Normal School, to which the students of that institution are particularly invited. Four short papers, of not more than ten minutes each, will be read by Messrs. Ferrier, Shutt, Fletcher and Harrington. The subjects discussed will be illustrated by microscopes.

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SUBSCRIPTIONS.

The Club year having nearly expired (the third Tuesday in March being the date of the annual meeting), any members who have not yet paid their subscriptions will oblige by sending them to the Treasurer, Mr. A. G. Kingston, Dept. of Public Works, Ottawa.

SUMMARY

—OF—

Canadian Mining Regulations.

NOTICE.

THE following is a summary of the Regulations with respect to the manner of recording claims for *Mineral Lands*, other than Coal Lands, and the conditions governing the purchase of the same.

Any person may explore vacant Dominion Lands not appropriated or reserved by Government for other purposes, and may search therein, either by surface or subterranean prospecting, for mineral deposits, with a view to obtaining a mining location for the same, but no mining location shall be granted until actual discovery has been made of the vein, lode or deposit of mineral or metal within the limits of the location of claim.

A location for mining, except for *Iron* or *Petroleum*, shall not be more than 1500 feet in length, nor more than 600 feet in breadth. A location for mining *Iron* or *Petroleum* shall not exceed 160 acres in area.

On discovering a mineral deposit any person may obtain a mining location, upon marking out his location on the ground, in accordance with the regulations in that behalf, and filing with the Agent of Dominion Lands for the district, within sixty days from discovery, an affidavit in form prescribed by Mining Regulations, and paying at the same time an office fee of five dollars, which will entitle the person so recording his claim to enter into possession of the location applied for.

At any time before the expiration of five years from the date of recording his claim, the claimant may, upon filing proof with the Local Agent that he has expended $500.00 in actual mining operations on the claim, by paying to the Local Agent therefor $5 per acre cash and a further sum of $50 to cover the cost of survey, obtain a patent for said claim as provided in the said Mining Regulations.

Copies of the Regulations may be obtained upon application to the Department of the Interior.

A. M. BURGESS,
Deputy of the Minister of the Interior.

DEPARTMENT OF THE INTERIOR,
Ottawa, Canada, December 19th, 1887.