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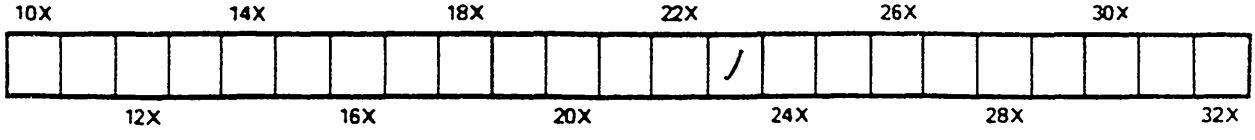

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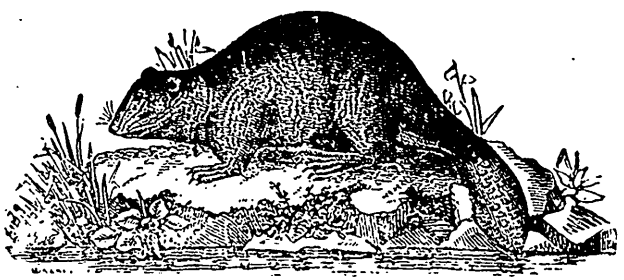

THE BEAVER (*Castor Canadensis*, Kuhl).

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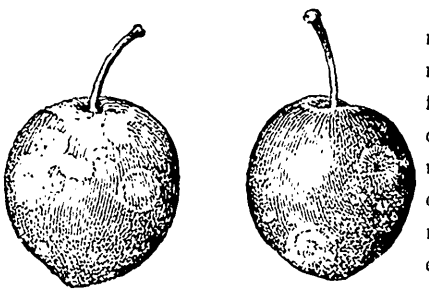
A DESTRUCTIVE DISEASE AFFECTING NATIVE PLUMS.

Cladosporium carpophilum, (v. Thümen.)

By John Craig.



(*Cladosporium carpophilum.*)

During the past two years many complaints have been received from farmers and fruit growers in regard to a disease which has caused their red plums to shrivel and drop quite suddenly when almost mature. In many sections during the past season the crop has been an entire failure. As the disease appears to be spreading, it would seem that in the near future very active measures should be instituted to check its increase.

Prof. L. H. Pammel, of the Iowa Agricultural College, who has given the disease special study, has kindly supplied me with the following facts, which I quote in his own words:—

"My first acquaintance with this disease as affecting our cultivated plums was in 1889.[1] The disease having appeared very destructive to certain plums since that time, and the fungus has been on the increase.

This spotting is caused by a parasitic fungus, *Cladosporium carpophilum*, which is abundant on peaches, especially on the later varieties. So injurious is it to certain varieties that Dr. Smith[2] finds that it not only injures the appearance of the fruit somewhat, but when very abundant the flavour also. I have heard growers in Texas speak of it as nothing serious, but to my mind there is no question that it greatly lessens the crop, and also causes a cracking of the fruit as Dr. Smith finds, making it especially subject to the attacks of *Monilia fructigena*. Several other species of *Cladosporium* are troublesome, the *C. cucumerinum*, Ell. and Arth. is troublesome to cucumbers. Several species

1. Meeting of Iowa Academy of Sciences, Sept. 5, 1890.
2. Journal of Mycology, Vol. V., p. 32.

are troublesome to grapes. The *C. viticolum*[3] occurs on *Vitis labrusca*, and *V. vinifera*. A species was common in New York, in Clinton,[4] according to Mr. Fairchild. *C. roesleri*, Catl. on the European cultivated grape (*Vitis vinifera*) in Europe.[5] The Apple Scab (*Fusicladium dendriticum*) is a fungus closely related to the plum fungus,[6] and without doubt will seriously threaten plum culture.

The spots are visible in half ripe plums as small pale greenish or yellowish patches not larger than a pin head. They increase in size, becoming in some cases half an inch across. Some of the older spots may become confluent, forming one large more or less radiating patch. Patches may be formed in nearly mature plums. In old specimens which have been kept moist for some time the spot becomes darker in colour, almost black, more irregular and raised.

Microscopic examination of the affected portions of the plum shows a nearly colourless mycelium creeping over the surface or vegetating between the cuticle and the remainder of the epidermal cells. In the darker portions occur the septate hyphæ, these occasionally come through the cracks in the cuticle. In older material a dense stroma of short brown hyphæ appears between the cuticle and cellulose layers of the epidermal cells. The small spores are oval in shape, pointed at the end and usually two-celled, and are borne at the end of the conidiophore, or laterally. They germinate readily when placed in water.

The chief injury caused by this fungus is the cracking of the plums, allowing *Monilia fructigena* a chance to work. The injury, however, does not extend much beyond the point of attack and only a small number of the plum cells become brown. The fungus, no doubt, also, checks the development of the plum, and in the severer cases it causes a shrivelling of the fruit. The fungus seems to occur on all

3. Soraner Pflanzen Krankheiten, Vol. II., p. 401.

4. Jour. of Mycology, Vol. VI., p 99. Scribner, Diseases of the grape vine. Bull. 2, Dept. of Agricul., Rep. 1886, p. 3. Galloway, Jour. of Mycology, Vol. V, p. 93.

5. Soraner Pflanzen Krankheiten, Vol. I., p. 401.

6. See Bailey. The cultivated native plums and cherries, Bull. 38, Cornell University, Agrl. Experiment Station, p. 54. Pammel, Jour. of Mycology, Vol. VII., p. 99.

kinds of the American plums. Here at Ames I have noted it on the following species and varieties: Pattowattamie (*Prunus angustifolia*), Miner (*Prunus hortulana*, var. *Mineri*), Maquoketa, DeSoto, Rollingstone, Speer, Chippeway, Black Hawk, Hen Plum (*Prunus Americana*), Sloe Plum (*Prunus spinosa*). Mr. F. C. Stewart reports this fungus at Greenfield, Iowa, on wild and cultivated plums, in some cases it ruined half the crop. I have also seen it very common on wild plums at Cedar Rapids, Iowa, and Mr. Stewart also found it at Marshalltown, Iowa. Mr. Geo. W. Sturtz reports it at Plainview, Nebraska, and Mr. John Wragg at Nankee, Iowa, and my friend, Prof. Craig, of Ottawa, Canada, writes me that it was common in Minnesota on cultivated Cheney, DeSoto, Rollingstone and Speer; That it also occurs on the common Wild Plum and cultivated varieties in Canada; also in Virginia on *P. Americana*. It did not appear at the Experimental Farm, Ottawa, in 1891. From this it will be seen that this fungus has become widely distributed and destructive. The disease is certainly on the increase. It did not appear to any extent this year here at Ames, except upon a few chickasaw and sloe plums. As plums fruited but little, I have not seen it attacking *Prunus domestica* at Ames. The *Cladosporium* has become a serious enemy to cherries, first noticed in 1891 when it destroyed from 2 to 10 per cent. of the crop. First appearance is marked by a pale coloured spot not larger than a pin head, which increases in size, and finally is olive green in colour. As in plums a crack is frequently found extending across the patch. The cherries are also badly shrivelled in many cases, somewhat bitter and sour. We noticed the following varieties affected in 1891: Cerise Ostheim, Spate Amarelle, Shadow Amarelle, and Wagner, and in 1892, although the cherry crop was small, the disease appeared on many cherries; my assistant Mr. Stewart has furnished me with the following list: Lutooka, Shadow Amarelle, Schatten Amarelle, Spate Amarelle. It will be noticed that this list only contains Russian varieties. Most of the cherries grown on the college grounds are Russian. Early Richmond growing not far from the college was not affected by the disease; it may have appeared in other places, but I have not heard of any, or at least specimens were not sent to me. Experiments with fungicides would have been made this

season, but the plum and cherry crop was almost a failure and hence no experiments could be made.

As this fungus works very much as Apple Scab there is no reason why the fungicides for that disease should not prove effective. But treatment should begin soon after the petals have fallen, and should be continued till nearly the ripening period."

In addition to the remedies recommended by Prof. Pammel I would suggest the use of a weak solution of copper sulphate, say 1 oz. in 25 gallons of water.

I shall be glad to receive any additional data regarding the progress and life-history of this fungus. It is of special importance to fruit growers in the Ottawa Valley where we are debarred by climatic conditions from growing many of the *Prunus domestica* family of plums bearing fruit of finer quality but less vigorous and hardy in constitution.

It may be mentioned that this is a new disease and although it has received considerable attention from economic botanists during the last three or four years was only described by Felix von Thümen in 1887.

———:o:———

ORNITHOLOGY.

EDITED BY A. G. KINGSTON.

SNOW BIRDS.—The first Snow birds of the season were seen on the 24th October, when a large flock of about 200 alighted on the Experimental Farm. Another flock was noticed by Mr. John Craig at St. Hubert, Que., on the 22nd October.—J. F.

NATIVE SONG BIRDS.—Mr. Charles Hughes, who has been spending the summer at Wakefield, in the Laurentian Hills has been studying our native song birds. He has promised to send us soon some notes on between 20 and 30 species which he has observed. He kept many of them round his house by feeding them with seeds of different kinds. For this purpose he sowed a large quantity of Sunflower, Millet, Hemp, and Canary-seed, and the pleasing result has been that many kinds seldom seen, have stayed around his residence through-

out the summer. Mr. Hughes has also made collections of insects and other natural history objects.—C. E. D. Chubbuck.

HUDSONIAN CHICKADEE (*Parus Hudsonicus*).—A specimen of this rather rare northern bird was seen in an orchard in Ottawa East on the 23rd October.—W. A. D. Lees.

———:o:———

ENTOMOLOGY.

EDITED BY W. HAGUE HARRINGTON.

CALOSOMA SCRUTATOR AT OTTAWA.—A single wing-case of this magnificent beetle, not previously recorded from Ottawa, was found by Mr. Andrew Halkett upon Parliament Hill. Judging from the fresh appearance of the fragment, the specimen had been recently killed. This species is frequently found in Western Ontario and is sometimes washed up along the shores of Lake Ontario in large numbers, but the only other record from this part of Canada is a single specimen taken by Mr. J. D. Evans at Sudbury, Ont.— J. F.

———:o:———

BOTANY.

EDITED BY WILLIAM SCOTT.

AUTUMN TINTS.—The foliage this year about Ottawa lacks the usual variety and brilliancy of tints usually seen. Cold weather without frost seemed to hasten the process of decay without bringing out the glowing colours.

On this subject of colours some trees seem independent of weather in the matter of autumnal clothing. *Acer Ginnala*, a dwarf maple from the valley of the Amur River has been as glowing as ever in its garb of bright red, looking in the distance like a ball of fire.

The Red Oak, too, with its rich crimson plumes is always reliable. A row of these, in the Experimental Farm nursery, along side of the yellow gold of the Cut-leaved Birch, presents an effect very pleasing to the eye. Cut-leaved Sumach (*Rhus glabra*, var. *laciniata*) at this time in point of colouring is identical with the sturdy oak, but presents a great

contrast in the delicacy of its outline. Scarcely less conspicuous but of a different shade of red are the bushes of the beautiful dwarf Barberry (*Berberis Thunbergi*) and the different Dog-woods (*Cornus*).

The Purple-leaved Plum still holds its summer garb like the oak and will retain it until severe frost loosens its grasp. The foliage is of a deep maroon-purple. Many shrubs and herbaceous plants when touched by frost take on a purplish shade, this is sometimes very bright on the Red and Silver Maples and the White Ash. In the Smoke Tree (*Rhus cotinus*) the leaves appear to have been delicately washed with rose madder while the Scented Sumach (*Rhus Canadensis*) varies from pale yellow to bright scarlet or purplish bronze.

Bronze prevails to a large extent in the autumn foliage. Raspberries and Strawberries are frequently very beautiful and the Wild Roses are rendered most attractive objects. The heavy rich foliage of the Japanese *Rosa rugosa* is much improved by this autumn bronzing and as it holds its leaves and handsome fruit for a long time it is a useful shrub for ornamental grounds.

Particularly beautiful is the crimson and gold autumn foliage of *Pyrus arbutifolia*, and although less vivid in colouring the golden yellow of the various poplars and hard maples add much to the glory of the autumn landscape.—John Craig, Ottawa.

Impotency of Hybrids.—The fact that many varieties of the Rogers and other hybrid grapes are dependent on cross fertilization was clearly brought out, owing to the peculiar state of the atmosphere during the blossoming period this year. A humid atmosphere with frequent showers prevented in a large degree intercrossing by wind or insects, and consequently we find a number of varieties comparatively unfruitful, which in favourable seasons are uniformly productive.—John Craig, Ottawa.

Anthracnose or Bird's-eye-rot (*Sphaceloma ampelinum*) is creeping into vineyards in the vicinity of Ottawa and may prove very destructive in the future. All diseased wood, leaves and fruit should be burned this autumn and the canes and trellises sprayed with a solution of iron sulphate one pound to 25 gallons.—John Craig, Ottawa.

FUSICLADIUM ON CHERRY.—It is feared, judging from the indications of last season, that the disease known as "Apple Scab" or "spot" (*Fusicladium dendriticum*, Fckl.), which has thus far principally affected the Apple and Pear, is likely also to prove dangerous to the Cherry. A single variety only was affected in the Experimental Farm orchard this year, but so severely as to cause the loss of the entire crop. Gruner Glas (?) the variety attacked, is one of Prof. Budd's importations from Eastern Europe. Two trees of this variety were growing vigorously and were heavily laden with fruit which was nearly mature when the disease was first noticed. Specimens were sent to Mr. D. G. Fairchild, Assistant Vegetable Pathologist, at Washington, D. C., who identified the disease as the true *Fusicladium* of the Apple. The foliage was also attacked but less severely than the fruit —J. Craig, Ottawa.

A FERN NEW TO CANADA.—An addition to our Canadian Ferns in the shape of *Asplenium ruta-muraria*, L., has been made this year by Dr. P. J. Scott, of Southampton, Ont., who discovered it growing plentifully on the rocks of Flower Pot Island, about four miles from Tobermorey, a small place near Cape Houd in the north of Bruce Co., Ont. The specimens sent me for determination are very fine and typical. The nearest before known stations for this interesting species were in Vermont and Michigan, U. S.—T. J. W. Burgess, Montreal.

INTRODUCED PLANTS.—The three North Western plants *Helianthus rigidus*, *Lepachys columnaris*, and *Grindelia squarrosa*, which were reported last season by the Botanical Section as having been found near Eddy's old mill-yards at Birchton, were again noted in the same locality a few weeks ago. It does not seem probable that the two first named will prosper in their new home, as no vigorous specimens were met with; but *Grindelia squarrosa* has evidently struck a very congenial habitat. The number of plants of this species has greatly multiplied since last year while its territory is very considerably enlarged. Many stout thrifty specimens were noticed even on a well-beaten road. An interesting feature of this plant is its profuse resinous-viscid coating.

Several fine specimens of the Walking leaf fern (*Comptosorus rhizophyllus*) were gathered at old Chelsea on Oct 15th. The past season seems to have been very favourable to its growth as it was found

in greater profusion than usual, nearly every shady nook of the calcareous rocks abounding with it. In our region the best specimens are to be had in the late autumn and members of the Club who are interested should seek it without delay.

Last year a large colony of Moth Mullein (*Verbascum blattaria*) was discovered in on old pasture near Mechanicsville, but no trace of it could be seen this summer. The plant is rather scarce in the vicinity of Ottawa, and although it has been found at various points near the city during the past few years, it seems not to persist with any degree of certainty in any one place.

Euphorbia marginata, an annual indigenous to the North Western States, was introduced into the Ottawa district from Dakota some years ago. A few seeds sown in a garden near the city two years ago, produced vigorous plants, which cast their seed in the autumn, and gave rise this year to a numerous colony of sturdy offspring, with every indication of survival of the species. The showy white-margined floral leaves render the foliage rather attractive. It is known among the Dakota Indians as "Snow-on-the-mountain."

A beautiful albino form of *Verbena hastata* (Blue Vervain) was collected recently near St. Patrick's Bridge. There is much to be learned yet about these interesting variations of nature, and if all members of the Club who happen on such specimens would carefully note the surroundings, and grow the plant for future observation, more light might soon be thrown on the matter.—R. H. Cowley.

Albino Liatris.—Some four years ago the Rev. W. A. Burman, at that time working as a missionary amongst the Sioux Indians at Griswold, Manitoba, sent to the Botanic Garden at the Central Experimental Farm, a root of *Liatris scariosa*, which bore pure white flowers. This plant is now growing vigorously, and bears every year several beautiful spikes of pure white flowers. Several plants, however, which have been grown from its seed, flowered for the first time this season, and all of them bore flowers of the ordinary reddish-purple colour of the species. The original plant was grown in a group containing four roots of the ordinary form. Next year it will be separated and seeds again planted, and it will be interesting to find if the white form can be

perpetuated. Seeds of this year's seedlings will also be sown, and these, perhaps, may give white offspring. As in some animals, a second cross may be necessary to produce change from a long established form.—J. F.

MACKENZIE RIVER NOTES.—During the summer just past Miss Elizabeth Taylor, daughter of the United States Consul at Winnipeg, (who has been well known to Canadians since more than twenty years ago as "Saskatchewan Taylor," owing to his persistent and wise advocacy of that region as the great wheat field of the future), made a trip by the Hudson Bay Company's steamer from Athabasca Landing on the Athabasca River, ninety miles north of Edmonton to Peel River in the delta of the Mackenzie River and far north of the Arctic Circle. The total length of the trip was about 1,500 miles and in a generally northward direction.

Although the trip was not make primarily in the interests of Botany; but rather to sketch and photograph the wondrous scenes on the mighty Mackenzie, yet, like her father's daughter Miss Taylor could not let such an opportunity pass of adding her quota to our knowledge of the northern land which her father has done so much to bring before the world. The botanical results of her trip were submitted to the writer for identification and a complete set consisting of 170 species of remarkably well preserved specimens was presented to the Museum of the Geological Survey Department.

An examination of the specimens proved conclusively that the warm currents of air that are known to occur in the Peace River country pass down the Mackenzie and account for the occurrence of a flora north of the Arctic Circle that seems in no way different from that which is to be found 1,000 miles to the South. Northern exposures give true arctic species; but these evidently are not the prominent flora of the Mackenzie delta as they are almost wholly absent from the collection. Another feature of interest in this collection is the gathering of specimens in exactly the same localities where Sir John Richardson obtained them 70 years ago and the sight of them side by side with his record of their occurence shows how little we have added to the botanical knowledge of the far north in recent years.

Besides many interesting species that are well known to us, Miss Taylor brought specimens of two plants from Peel River in the Mackenzie delta which may eventually throw some light on the origin of the northern flora. One is a species of Birch which is evidently a good sized tree and which is either identical with a Siberian species (*Betula microphylla*) or is new to science. Ripe fruit of the species was procured and seed has been handed to Mr. Fletcher to be grown in the Botanic Garden of the Experimental Farm, and thus in time, I trust, we shall know exactly what it is. The other species is an Umbelliferous plant related to the genus Ligusticum which may also be new.

This collection is of much interest and demonstrates clearly what good scientific results may be obtained by an observant traveller with a little trouble if only there be a wish to make the most of such opportunities as may arise.—JOHN MACOUN, Ottawa.

———:o:———

CONCHOLOGY.

LIMNÆA STAGNALIS.—A beautiful living albino of this species was found in Chilcott's Lake, Masham, in August. The animal did not appear to differ from those in the numerous other specimens of the same species which occurred in the same locality; the shell, however, was as white as a pearl and of beautiful lustre. Erosion of the epidermis and exposure to the sun tend to whiten the shells of all our snails; but the epidermis of this example is perfect. Its whiteness results no doubt from disease of those peculiar glands whose function it is, in the shell-bearing mullusca, to extract an infinite number of beautiful pigments and deposit them in that combination of variety and regularity at which all have marvelled who have ever observed a cabinet of shells, where

"Not a shell
"But shows some trace in freckle, streak or stain,
"Of His unrivaled pencil."

HELIX DENTIFERA.—This rare shell was taken a few years ago on Mr. Craig's farm near Casselman. It appears to have reached at that point the north-eastern limit of its distribution in Canada. There is a

record of its occurence in Muskoka, but it is probably erroneous. In the immediate vicinity *H. dentifera* has never been found. In the Province of Quebec, it has an extensive range from Montreal as far east at least as the Island of Orleans and southward to Knowlton, in the Eastern Townships, whence it extends into New Hampshire, Vermont and New York. Near the brow of the shaly cliffs of the Island of Orleans, opposite Montmorency Falls, seven fine specimens were taken in an hour in August, 1891. They do not differ from the Casselman shells except in being thinner. The occurence of *H. dentifera* at places so near to each other as Casselman and Montreal, indicates that the shell may be found at intervening points. If the Club would run an excursion to Alexandria next summer, the conchological branch would probably attend in a body.—F. R. Latchford.

———:o:———

ZOOLOGY.

SALVELINUS OQUASSA in the Ottawa District.—A beautiful living specimen of what I take to be a male Oquassa or Blue backed Trout, sometimes called the "Rangeley Lake Trout", *Salvelinus Oquassa*, Girard (sp.) can now be seen living in one of the aquaria at the Fisheries Exhibition on O'Connor Street in this city. This specimen, which has been referred to me for identification, was recently obtained by Mr. Vernon C. Nicholson at Lac de Marbre, in the Township of Wakefield, Province of Quebec, who last year noticed the difference between it and *Salvelinus fontinalis*, Mitchell (sp.), the ordinary Brook Trout of the district. He killed at that time several specimens of *S. Oquassa* in the above named lake. In another lake quite close to Lac de Marbre the ordinary Brook Trout abounds; but so far as Mr. Nicholson observed the two species do not occur together.

The specimen has been identified with *S. Oquassa* from external characters only, and its hyoid bone has not been examined, but if correctly determined, the occurrence of this species in the Province of Quebec is of especial interest, as heretofore it has only been recorded from Maine.

According to Jordan & Gilbert, * the hyoid bone in *S. Oquassa*

* Synops. Fishes N. America. Smithson. Miscell. Coll., vol. xxiv (1883), p. 318.

has a "narrow, median band of teeth," which, however, are "sometimes lost," but in the common Brook Trout (*Salvelinus fontinalis*) the hyoid teeth are wanting. The following is a copy of Jordan & Gilbert's specific description of *S. Oquassa* :

"Body elongate, considerably compressed, less elevated than in the other species of this genus, the dorsal outline regularly but not strongly curved. Head quite small, the maxillary short and moderately broad, scarcely extending to the posterior margin of the eye. Eye large, 3½ in head. Jaws about equal. Scales small, those along the lateral line somewhat enlarged. Pectoral and ventral fins not elongate; opercles without concentric striæ. Coloration dark blue, the red spots small and round, much smaller than the pupil, usually confined to the sides of the body; sides with traces of dark bars; lower fins variegated, as in *S. fontinalis*. Head, 5; depth, 5. D. 10; A. 9. Lat. l. 230; gillrakers about 6 + 11. Length, 12 inches. Smallest and handsomest of our trout, as yet known only from the Rangeley Lakes in Western Maine."—J. F. WHITEAVES.

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EDITORIAL NOTES.

WINTER SOIREES.—The first meeting of the Winter Course will be held early in December in the Normal School Lecture Room when Dr. George M. Dawson, C.M.G., F.R.S., &c., will deliver his Presidential address. The full programme for the Course of Winter lectures will be given in our December issue.

CREATING A STIR.—A great coming event is the publication of a wonderful almanac to be called the *Star* Almanac, published by the Montreal *Star*, It is said to be a marvellous work, four hundred pages, with coloured maps.

TORONTO "SATURDAY NIGHT'S" XMAS NUMBER, 1892.—Another literary treat is promised in the Christmas number of *Saturday Night. The Newsdealer, Publisher and Stationer's Bulletin*, the Canadian correspondent of which has seen advance copies of all that is promised, says that "It will doubtless be the most beautiful publication ever a tempted in America and compares more than favourably with *Figaro* and the most expensive Old Country Christmas numbers."

BOOK NOTICES.

CATALOGUE OF CANADIAN PLANTS. PART VI, MUSCI, pp. 295. By JOHN MACOUN, M.A., F.L.S, F.R.S.C., Montreal, 1892.

In the preceding parts, I. to V., of this very valuable work Prof. Macoun has enumerated the various species and varieties of flowering plants, ferns, and fern-allies, native and alien, to be found within the Dominion of Canada and Newfoundland, and has given very fully the geographical distribution of each so far as this is known. The total number of flowering plants, ferns and fern-allies therein recorded being 3,209 species with numerous varieties. Of these 2,340 are Exogens, 771 are Endogens and 98 are Acrogens, added to which is a list of 165 Hepaticæ or scale mosses. The part under review which treats of the Musci or real Mosses is a phenomenal work, one that has probably never been excelled. The commencement of this great undertaking more than a quarter of a century ago, must have been surrounded with difficulties that could only be overcome by great courage and determination. Still, the author has persevered and after 31 years of unremitting labour he is able to present to the scientific world a record of which he and his fellow countrymen have a right to feel proud. To go into minuter details of so voluminous a work would require more space than can be allowed, so that a mere summary can be given. In the present part, Prof. Macoun records 1,070 species and varieties as the total Moss Flora of Canada, so far as this is at present known, giving a much larger record for Canada alone than is given by Lesquereux and James in their valuable "Manual of the Mosses of North America," which included not only the United States, but also Canada; their record being 1,020 species and varieties. But of the 1,070 species and varieties given by Prof. Macoun, 400 are not recorded in "The Manual," so that the author has raised the Moss Flora of America from 1,020 to over 1,420 species and varieties. And what is even more remarkable is this, that of the 400 additional moss plants 200 are new to science,—have never before been recorded,—hence it may be said with truth that Professor Macoun's work has created an epoch in the Bryology of North America. But what stamps this work with even

greater value, is this, that Prof. Macoun has not depended, for the determination of his plants, on his own unaided judgment, but has submitted them for confirmation to some of our greatest bryological specialists, such as Profs. Lesquereux and James, Mr. Coe. E. Austin, and Drs. Kindberg, Carl Mueller, Venturi and Warnstoff, thus making assurance more assured. Increased value is given to the work by the full and able descriptions of the new species, and by the many personal notes of the author on those little points of difference that indicate close observation and which are so very helpful to the student. The author is to be congratulated on the thoroughness of his work. The work he had set himself to do was expressed in the first sentence of the preface to Part I.: "The purpose of this work is to place in the hands of Canadian botanists, in a connected form, the knowledge so far obtained, of the extent and distribution of the Flora of Canada." This has been carried out even beyond the author's first expectation, and he has presented to the botanists, not only of Canada, but of the world, a work that will command their respect and admiration, a work that must form the basis of all future floras of Canada, and the author will be esteemed as one who did his work ably and well, carrying out to the fullest the Preacher's precept, "Whatsoever thy hand findeth to do, do it with thy might."

J. E. BAGNALL,
A. L. S.

A TEXT-BOOK OF AGRICULTURAL ENTOMOLOGY, by Eleanor A. Ormerod, F. R. Met. Soc., &c. Small 8vo, pp. 238. Second Edition, London, 1892.

We have much pleasure in announcing the publication, under the above title, of a new and much enlarged edition of Miss Ormerod's Guide to Methods of Insect Life and Means of Prevention of Insect Ravage. During the last decade, owing almost entirely to the efforts of our eminent and highly esteemed corresponding member, the authoress of this work, Economic Entomology has become recognized in England as an important branch of practical agriculture and is now one of the subjects of agricultural instruction, which is being brought

prominently forward under the arrangements of the new County Councils. The above named treatise has been called forth by the demand for a reliable text-book, and it is well that the preparation of a work, the importance of which will year by year become more evident, should have been taken up by such able hands. The text-book is practically a new work and provides the English cultivator and agricultural student with a concise book of reference by means of which he can identify any injurious insect or its attack, which is likely to occur on his crops. We think that too high praise cannot be expressed for the manner Miss Ormerod has fulfilled her self-imposed task. The language is so simple and concise; and yet each detail is so scientifically accurate, that the danger of making mistakes in the identifications seems quite impossible. Miss Ormerod, from her long experience, perseverance, keen observation, and natural aptitude for this special work, has made herself the highest authority on Economic Entomology in Europe; in fact, she holds among the Entomologists of the old world, the same relative place as Prof. C. V. Riley on this continent. Miss Ormerod does not profess to be what is called a scientific entomologist, but we claim that she is scientific in the truest sense, in that she shows in all her writings a determination to have perfect accuracy before everything else; she spares no trouble to attain that end, and her one object is manifestly to discover as soon as possible the complete life-history of any pest she may have under consideration and the most efficient and practical means of checking its injuries to farmers or others.

CASTOROLOGIA, or the History and Traditions of the Canadian Beaver; by Horace T. Martin, F. Z. S., etc., Royal 8vo, pp. 238. Montreal 1892.

The above work has been received, and it certainly is what it professes on its title page to be, "an exhaustive monograph, popularly written." The author must have spent much time in the collection of the numerous facts which he now gives to the public in this most attractive work. It would be hard to find any subject connected with Beaver lore or with the natural history of the animal, which has been omitted. The illustrations, which are profuse and for the most part

from the pencil of the author himself, are excellent. The printing and general make up of the book are very noticeable. One great defect, however, exists:—there is no Index. Other defects, to the editor's mind, are that, in accordance with a prevailing fashion, the paragraphs are too widely leaded, the leaves are not cut and the paper is left uneven at the edges. Although many approve of these latter features, the first certainly breaks the continuity of the subject, and the second makes it difficult to turn the leaves easily for reference.

The very important role that the trade in Beaver-skins has played in the history of Canada is carefully worked out as well as the uses of the Beaver in manufactures. Of greatest interest to the naturalist is of course the life-history of this animal, in which its habits and methods of constructing its wonderful huts, dams and canals, are fully described and the many fabulous statements of travellers and hunters are discussed. The difference between the European Beaver and the Canadian species, first noticed by Cuvier, is pointed out, and the name *Canadensis* for the North American species, which was given to it by Kuhl in 1820, is claimed to be the correct designation.

In treating of allied animals of the same order, we are pleased to notice that Mr. Martin uses the name Musk Beaver, for *Fiber Zibethicus* instead of the more usual, but less accurate term Musk-rat.

The following titles of some of the chapters give some idea of the scope of this very interesting and instructive work:—Mythology and Folk-lore; The more important American Rodents; Life-history; Geographical Distribution; Engineering accomplishments; Importance in Trade and Commerce; Hunting the Beaver; The Beaver in Heraldry.

Under Experiments and Domestication, a full account is given of the Marquis of Bute's effort to establish a colony of Canadian Beavers near Rothesay in Scotland. The author paid a visit to the "enclosure" in July 1889 and made some interesting observations, which he records.

As appendices are given photo-copies of parts of original documents (1721-1726), Samuel Hearne's account of the Beaver, and a description by Dr. Riley of the remarkable beetle parasitic on the Beaver, *Platypsyllus castoris.*

We have much pleasure in recommending this book to our readers.

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.