

MARCH, 1910

VOL. XXIII, No. 12

THE OTTAWA NATURALIST

Published by The Ottawa Field-Naturalists' Club.

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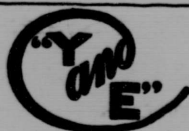
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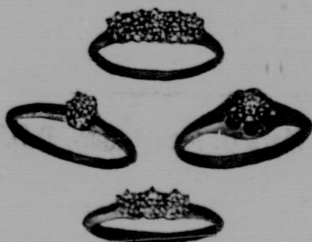
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THE OTTAWA NATURALIST

VOL. XXIII.

OTTAWA, MARCH, 1910

No. 12

SOME WESTERN SPECIES OF ARNICA.

BY EDWARD L. GREENE.

The names and descriptions subjoined are of species of *ARNICA*, apparently undescribed hitherto. Those placed first in the series, it will be seen, are from within the Canadian boundary, while others are from those parts of the Pacific United States which lie contiguous to Canada. It would not be remarkable if any of these should by and by be found also in some one part or another of the extensive and varied Province of British Columbia.

A. SORORIA. Stem solitary, a foot high or more, erect, slender, firm, scarcely leafy, the whole plant with a velvety appearance, but the close pubescence somewhat harsh rather than soft; even the basal leaves not forming a rosette, but opposite, or in threes, narrowly elliptic-lanceolate, 2½ to 3 inches long, including the petiole, this long or short, both faces somewhat plushy-pubescent, margins obscurely and remotely serrate-toothed; proper stem-leaves in 2 remote pairs and much reduced, entire, sessile; heads mostly 2 or 3 on peduncles 3 to 5 inches long; involucre broad-campanulate, of 16 to 20 linear-lanceolate glandular-hirsutulous bracts; ray-corollas deep-yellow, not short, abruptly 3-toothed at the rounded apex; disk-corollas with slender glandular-hirtellous tube twice as long as the somewhat clavellate throat; achenes remarkably short, strigose-hispid; pappus dull-white, scarcely barbellate.

Cascade, British Columbia, 30th June, 1902, J. M. Macoun, No. 64987 of Canad. Geol. Surv. Related to *A. lonchophylla*, Greene, which Mr. Macoun sent from the Athabasca River country, as collected by Mr. Spreadborough in 1898; but this present species has also certain points of seeming contact with *A. pedunculata*, Rydb. of Montana; but this last is a stout comparatively coarse plant, always monocephalous.

A. RUBRICAULIS. Base of stem and its foliage not seen, but plant large, the stem copiously leafy with an ample and thin spreading foliage, the internodes dark red-purple and slightly

clothed with whitish hirsute hairs mostly deflexed; leaves lance-oblong, 5 to 7 inches long, including the winged petiole, but the uppermost pairs quite sessile, all very thin, triple-nerved, remotely and not prominently dentate, nearly glabrous on both faces; heads small, many, somewhat paniced and the panicle leafy-bracted; involucre broadly campanulate, the 16 to 20 bracts lanceolate, obtusish, thin, sparsely hirsute below the middle; rays many, narrow and not long; disk-corollas with soft-villous tube longer than the subcylindric throat; achenes hirtellous with short bristly hairs; pappus brownish, delicate, scaberulous.

Trail, British Columbia, J. M. Macoun, 22nd June, 1902; Geol. Surv. No. 64985. A member of the *A. foliosa* group; evidently very large.

A. STRICTA. Erect from a horizontal rootstock, nearly 2 feet high, sparingly leafy, with a pair of branches from each pair of cauline leaves, these very erect, pedunculiform, nearly parallel with the main stem, all glandular-puberulent; basal leaves few, cuneate-oblong, obtuse, 4 inches long or more, including the indistinctly petiolar base, 3-nerved, very remotely or not at all dentate, the veins and margins scaberulous, otherwise glabrous; heads 9 to 11 each at the end of a long peduncle, those of the branches surpassing the terminal one; involucre campanulate, $\frac{3}{4}$ inch high, of about 12 lanceolate thin glandular, but scarcely hairy bracts; rays 8 or 10, long, deep-yellow; disk-corollas with long slender tube hirtellous with strongly gland-tipped short hairs, the throat rather more than half as long and turbinate; achenes strigose-hispid; pappus fine, whitish, barbellulate.

British Columbia, along the International boundary, between the Columbia and Kettle Rivers, J. M. Macoun, 30th June, 1902. A fine species of that section in which Pursh's *A. fulgens* is typical, all the others of which section are monocephalous, while this new one produces a flowering peduncle from each leaf-axil, yet in habit the plant is as upright and strict as a plant can well be that is not simple. The label of my specimen bears No. 64979 of Canad. Geol. Surv.

A. LACTUCINA. Slender, a foot high or less, the herbage of a vivid green and almost wholly glabrous; basal leaves not seen, the cauline is about 2 pairs, sessile and divaricately spreading, the lower pair either panduriform or else contracted very near the base to a broad and short winged petiole, the upper pair often broadest at base and there subhastately dilated; all very acute at apex, below the middle more or less prominently and even spinosely toothed; heads small and subcorymbose, the involucre campanulate, of about 10 narrow bracts slenderly acuminate, not pubescent, but granular-glandular; rays 10 or 12.

long and showy, deep yellow; disk-corollas with short villous tube and much larger subclavate throat; achenes small, black, glabrous, but with a line of shortly stipitate glands besetting the 4 or 5 prominent angles; pappus short, firm, white, barbellate-scabrous.

Plant of the Rocky Mountains northward, in Alberta, the type in U. S. Herb. from Vermillion Mountain, near Banff, 24th July, 1899, W. C. McCalla, the specimens in flower only; but the account of the achenes and pappus is drawn from specimens in my own herbarium, also from the vicinity of Banff, by Miss Edith M. Farr, who gathered them at Mt. Fairview, 18th August, 1905.

A. FALCONARIA. Upright, stout and simple, 10 to 16 inches high, rather pale with a minute but sparse viscidulous pubescence, the stems and petioles somewhat villous; leaves mainly subcordate-oval, obtusish, irregularly and coarsely dentate, $1\frac{1}{2}$ to $2\frac{1}{2}$ inches long, tapering very abruptly to a petiole as long, the reduced upper cauline pair either spatulate and sessile, or with short broadly-winged petiole; heads 1 to 3, large, on moderately long peduncles; involucre campanulate, of about 10 rather broad elliptic-lanceolate thin sparsely villous bracts; rays, none; disk-corollas with short villous-hirtellous tube and much longer narrow funnellform throat, the segments all villous at tip; achenes slender, sparsely short-setulose and as sparsely beset with minute sessile glands; pappus white, barbellate.

Falcon Valley, Washington, 27th June, 1892, W. N. Suksdorf; type in U. S. Herb. under No. 1617, labelled *A. cordifolia*, var. *eradiata*, Gray; but the plant bears no intimate relation to that particular species.

A. EVERMANNII. Low, leafy at base, the peduncles several, mostly subscapiform, the whole plant 5 to 7 inches high; leaves deep green, not thin, ovate-subcordate to ovate-lanceolate with subtruncate base, about 2 inches long, the petioles about as long, the single cauline pair as large but spatulate, all acutish, remotely and saliently dentate, the pubescence very scanty; involucre turbinate-campanulate, nearly $\frac{3}{4}$ inch high, bracts 9 to 11, thin, subbiserial, linear-lanceolate, acuminate, viscidly villous; rays of medium length but very narrow; disk-corollas with short thinly setulose tube and longer narrow-funnelform throat; achenes linear, striate, minutely short-setulose; pappus white, barbellate.

Subalpine species of Northern Idaho and adjacent Washington, found at altitudes of 7,000 to 10,000 feet; the type by B. W. Evermann, from shores of Pettit Lake, 13th August, 1895.

MEETING OF THE ENTOMOLOGICAL BRANCH.

The first of the winter's series of meetings of the Entomological Branch was held at the residence of Mr. Arthur Gibson, on the evening of the 10th February. There were present: Messrs. Harrington, Wilson, Criddle, Baldwin, Young, Halkett and Nicholls, in addition to the Chairman.

Mr. Gibson had on exhibition his collection of arctiid moths of the genus *Apanthesis*. He spoke at some length on the different species and varieties represented in the cases and told of his work in studying their life-histories. Specimens of the inflated larvæ and pupæ of many of the species were also shown. The range of variation in the genus is remarkable, and has been the cause of much confusion by some of the earlier writers who had but few specimens to study. The larger number of the specimens in the cases exhibited had been reared from eggs. At Ottawa the following species of this genus have been found: *virgo*, *parthenice*, *virguncula*, *figurata*, *celia*, *arge* and *vittata*.

Mr. Norman Criddle showed a collection of Tiger Beetles from Manitoba. Thirteen species were represented in the case, most of which had been found at Aweme, Man. Mr. Criddle spoke particularly of the burrowing habits of the larvæ and on the life-histories of the insects in general. He has found that in Manitoba some of the species take at least three years to complete their life-cycle, whereas at Chicago, it has been found by Prof. Shelford, that the same species only required two years to complete their growth. The habits of cicindelid larvæ are exceedingly interesting. In Manitoba there is much difference in the depth to which the larvæ burrow for hibernation. Some species such as *limbata* and *repanda* only go down to a depth of six or eight inches, while others, as *manitoba* and *lepida* go much deeper: the former sometimes being found six and a half feet below the surface, and the latter six feet.

Mr. A. Nicholls brought two specimens for determination. These were *Thalassa lunator* and *Corydalis cornuta*. Mr. Harrington spoke of the habits of both of these insects. Referring to the latter species Mr. Gibson mentioned that both he and the late Dr. Fletcher had found it "at sugar" commonly, some years ago. It is unusual for a neuropterous insect to be attracted at night to trees on which "sugar" is put to allure noctuid moths. Speaking of attracting moths, Mr. Criddle mentioned that at Aweme the males of the Buck Moth, *Hemileuca maia*, var. *lucina*, can easily be attracted by smoke. In the sand hills near Aweme, where the moth is usually abundant, both he and his brothers had frequently made smudges of leaves and grass

to attract the moths. Almost immediately the males would appear, some being seen to come from quite a long distance.

Mr. Halkett exhibited a small miscellaneous collection of insects which he had gathered at random in Nova Scotia during the past summer. The most interesting species was *Hydroecia micacea* of which two specimens had been collected. This is an European insect recently introduced into America, and an account of which appears in the annual report of the Entomological Society of Ontario for 1908.

Mr. Baldwin showed a box of noctuid moths which he had collected in 1909, mostly at the Electric Railway power house near Britannia. Some rare species were represented, viz.: *Tapinostola variana*, *Baileya doubledayi*, *Mamestra nimbosa* and a species of *Syneda*, the first taken in the Ottawa district.

Sir George Hampson's two latest volumes on Lepidoptera which appeared in 1909, and Dr. J. B. Smith's new book "Our Insect Friends and Enemies" were shown by Mr. Gibson, who also spoke of a paper he was preparing on the Butterflies of the Toronto District. In this article eighty one species are listed.

A. G.

A SHREW NEW TO NEW BRUNSWICK.

BY WM. H. MOORE, SCOTCH LAKE, N.B.

Last autumn a shrew, different from anything hitherto observed by the writer in this locality, was secured. The specimen was in a badly damaged condition, having been killed and mutilated by some farm poultry, but enough of it was left intact to serve for the identification of the animal, which was kindly made by Mr. E. A. Preble, of the Biological Survey, Washington, D.C., who after an examination was assured that it was *Neosorex albibarbis* (Cope). The upper parts are blackish; underparts grayish, with a brownish band across neck and chest. Tail blackish above and all around near tip; lighter on balance of under side. Length of body 84 mm.; tail 75 mm.

In bulletin No. 10 of North America Fauna the range of this species is given by Dr. C. Hart Merriam "from mountains of Pennsylvania and New York northward to Labrador." In the same bulletin Mr. G. S. Miller, Jr., mentions having examined specimens from Nova Scotia, Quebec, Maine and other states.

Dr. Philip Cox, of the University of New Brunswick tells me that it is a new mammal to record for the province. In other parts of New Brunswick this species may be tolerably common or even plentiful, but I cannot think that it is anything but rare

here, for no such animal has been noticed, either dead or alive, resembling this in the last twenty years. Why I say dead or alive is because dead specimens of our shrews and moles are often found on our highways.

Other shrews and their relatives that I have taken here are as follows:—

Common mole, *Condylura cristata*. Generally distributed, its habitat being chiefly wettish places where it burrows in search of worms, grubs, etc. Its colour ranges from sooty to black, according to season. It is larger, being much more stoutly proportioned, than the shrews. Measurements are about as follows: body 130 mm.; tail 60 mm.; hind foot 23 mm.

Short-tailed shrew, *Blarina brevicauda*. Generally distributed about damp woods and fields; have secured some in open fields and in the same runways as used by the common meadow mouse, or vole. Its colour is ashy, slightly paler below, varies with the seasons. Measurements are about as follows: body 90 mm.; tail 23 mm.; hind foot 14 mm.

Smoky shrew, *Sorex fumeus*. This species is without doubt the most common of the shrews in this locality. It seems to be found mostly about moist woods and thickets. The general size here is, body 68 mm.; tail 44 mm.; hind foot 13 mm. Colour grayish, slightly paler below, lightest on throat; feet and tail lighter than body, tip of tail darkest.

Little shrew, *Sorex personatus*. Found about moist woods and swampy grassy areas. This species very much resembles *S. fumeus* but is much smaller; body 50 mm.; tail 43 mm.; hind foot 13 mm.

These constitute the species found at Scotch Lake. There are two other species found elsewhere in the province, viz.: *S. hoyi* taken in northern New Brunswick; (I think I secured a specimen near Nictor Lake in Restigouche County, but the skin was destroyed), and *S. richardsoni* reported from along the St. John River by Dr. Cox.

As mentioned above specimens of moles and shrews are frequently found dead along roadways. Upon examination I have always found them to have been killed by some preying mammal, probably the work of a weasel. The skulls have all been more or less broken, and at times the skin about the fore parts punctured or badly mutilated. Cats will kill shrews, probably in mistake for mice, but they do not eat them as the shrews have a pungent musky odor obnoxious to carnivorous mammals.

MEETING OF THE BOTANICAL BRANCH.

The third meeting of the Botanical Branch was held on December 11th, at the residence of Mr. George Michaud. There were present: Messrs. G. H. Clark, James M. Macoun, Wm. T. Macoun, A. E. Attwood, H. Groh, R. MacMillan, Norman Criddle, R. B. White and the Chairman.

The subject for the evening was "The value of the seeds as a means of identifying plants." The seeds were shown by Mr. Michaud to be very important in identifying plants on account of their more constant characters, being less affected by environment than are other organs such as leaves, flowers, etc. A collection of specimens mounted on slides was exhibited showing the generic characteristics of the most important families of our wild and cultivated plants in their normal and different conditions, as found in commercial samples of seed grain. Special slides showing the following interesting points were also shown:—

1. Similarity of the external appearance of seeds of quite different botanical groups; e.g., *Stipa spartea* vrs. *Erodium cicutarium*, *Saponaria officinalis* vrs. *Astragalus caryocarpus*, *Saponaria Vaccaria* vrs. *Brassica Rapa*, *Cynoglossum officinale* vrs. *Ranunculus tuberculatus*, *Euphorbia Helioscopia* vrs. *Neslia paniculata*, *Glycyrrhiza lepidota* vrs. *Xanthium canadense*, and others.

2. Apparent dissimilarity of external characters of seeds belonging to the same botanical groups; e.g., *Corispermum hyssopifolium* vrs. *Atriplex patula*, *Potentilla monspeliensis* vrs. *Rosa acicularis*, *Agrimonia gryposepala* vrs. *Geum album*, *Trifolium repens* vrs. *Glycyrrhiza lepidota*, *Geranium Bicknellii* vrs. *Erodium cicutarium*, *Apium graveolens* vrs. *Washingtonia longistylis* vrs. *Heracleum lanatum*, *Lithospermum arvense* vrs. *L. officinale*, *Cynoglossum officinale* vrs. *Myosotis palustris*, *Mimulus ringens* vrs. *Linaria vulgaris*, *Achillea Millefolium* vrs. *Bidens frondosa*, and others.

Specimens of dead leafless plants, collected under the snow at the end of November, which had been identified through single seeds still found on them, were also shown.

The purity work of the Seed Laboratory was also discussed and shown to be simply an identification of plants by the seeds only.

Those who were present at this meeting were much interested in seeing the specimens of seeds of certain species which, without a magnifying glass or microscope, appeared identical with seeds of other species, even of other genera, but which on being put under the glass showed striking differences in the marking of

the seed coat in the relative roughness or smoothness of it, and in other characteristics. Those who had previously been sceptical as to the possibility of identifying species of plants with certainty from their seeds alone, were convinced before the meeting was over that this could be done, and that in many cases when the specimens of dried plants were so bad that it was impossible to identify them, a single seed would settle the whole matter. G. M.

THE CORRELATION OF CHARACTERS IN PLANTS AND ITS ECONOMIC IMPORTANCE TO THE PLANT BREEDERS.

(SYNOPSIS OF A TALK GIVEN AT A MEETING OF THE BOTANICAL BRANCH ON THE EVENING OF JANUARY 8TH BY MR. L. H. NEWMAN.)

It is a well known fact that certain characters in plants are more or less closely related and that any modification of the one is simultaneously followed by a modification of the other. Darwin considered the correlation of different parts of the individual to be an important factor in explaining some of the laws of variation. This tendency for the development of certain parts to follow the development of certain other parts is of considerable value to the practical plant breeder since his efforts to effect improvement along certain lines may be either offset or assisted by the development of other characters elsewhere in response to the disturbance within the organism. The nature of this bond of correlation is not understood although several have attempted to explain it.

Webber has classified the various forms of correlations under four heads, viz.: (1) Environmental, (2) Physiological, (3) Coherital and (4) Morphological.

Environmental correlation implies merely the response of a plant to its environment. In other words, if the soil be poor there will be a correspondingly poor growth; increase the fertility and the plant immediately responds.

De Vreis describes this class of variation as one in which two characters react similarly to external conditions. Liebenberg claims that increase in length of stem is correlated with increase in strength of stem, length of head, number of spikelets and total weight of kernel produced.

Grains grown under conditions characterized by a superabundance of light, heat, food or moisture produce extra long heads. In wheat these heads seldom produce more than an

extra spikelet and sometimes even less, but the distance between the spikelets is greatly increased while the kernel is likely to be starchy, hence *environment* vrs. *quality of grain*. Selecting these heads is therefore a useless practice and is always discouraged.

Physiological Correlations:—Under this class of correlations belong those variations which occur in the functional organs of the plant. An example of this class is given by certain breeders who have noticed that excessive leaf development is followed by a corresponding reduction in the production of seeds. Potatoes, pease and other crops have also demonstrated that an excessive growth of vine or stalk is usually associated with a decreased yield of tubers or seed as the case may be. East discusses this under the heading of "The interrelation of parts not homologous," or "The compensation in growth of plants." This latter law was propounded almost simultaneously many years ago by G. St. Hilaire and Goethe.

Coherital Correlations:—Under this heading are included those characters which seem to be inherited as a single unite character. They are related in such a way that they are "inherited together," although there is little or no evidence to show that this relationship is of any functional importance.

Webber cites an interesting case of coherital correlation which came to his notice in connection with an attempt to cross Black Mexican and Stowell's Evergreen Sweet corn with a view to producing a hybrid having the tenderness and sweetness of the Mexican but with the larger and more suitable ear for canning purposes peculiar to the Stowells. It was also desired to produce a hybrid having the light colored kernel of the Stowells when in the milk stage with a light blue color indicating "something new" when ripe. In the fourth generation an examination was made and careful notes taken on the color of the silks, stamens and glumes of the tassels. In the pure Mexican these parts are light in color while in the Stowells which produces a white kernel, these organs vary from dark reddish-purple to a lighter pink. It will be noted here that, contrary to what would naturally be expected, the black kernel produces light colored reproductive organs while the white kernelled variety bears organs which are dark in color. We often find the same peculiarity in wheat.

An examination of the ears produced in the fourth and fifth generations showed that these related characters still cling together despite the claims of some authorities, notably, Johannsen, that hybridization breaks correlations—Webber found that only in about one case out of 50 or 100 was the correlation broken through hybridization.

This correlation of colors is of value to the breeder as it enables him to make an examination of organs which are exposed and still growing or in operation and thus to tell what the color of the kernel will be. If it be desired to produce a hybrid of a uniform color, say a light blue, the tassels or male organs might be removed from those plants bearing light green glumes, stamens and silks before the pollen is shed so that a race of a pure color might be developed much more quickly.

Norton cites an interesting case of coherital correlation in oats. In hulled oats the spikelet produces from 1 to 3 flowers while naked types produce from 3 to 7 flowers. Hybrids of these two have been effected with a view to increasing the number of flowers to a spikelet and still retain the hulled character, but it was found that where as many as four flowers were produced to a spikelet the kernel was invariably found to be naked. The difficulty of breaking this correlation has here worked to the disadvantage of the breeder so it will be seen that these correlations are not always advantageous. The existence of these coherital correlations seems to strengthen the theory of the existence of unit characters in plants which theory is being accepted by many of our leading biologists and breeders of the present day. East has recently extended Webber's classification and has discussed several groups not included in the above arrangement. His dissertation on "The interrelation of parts not homologous" is especially interesting.

Morphological Correlations:—Under this class belong those cases "where a variation in one character is the *primary cause* for the variation in another character." An example of this class is illustrated in work done by Dr. Hopkins, of Illinois, in improving certain characters in the corn kernel, notably the oil and protein content.

The germ of the corn kernel is richest in oil, therefore, the larger the germ in relation to the rest of the kernel the higher the oil content; the hard corneous substance of the kernel is richest in protein, hence the larger the proportion of this substance to the rest of the kernel the higher the protein content.

At the Nebraska Station, Lyon conducted some tests with a large number of samples of wheat with a view to determining the relationship between the per cent. protein and the weight of kernel. His results indicate that high protein kernels are smaller and lighter and that plants producing kernels of high protein content do not produce such high yields as do those producing kernels lower in protein. This suggests to the breeder the futility of breeding for high protein and high yields at the same time. Medium yielding heads are also found to come from highest yielding plants.

There is said to be a relationship between the per cent-hull in oats and the strength of straw. Very thick or very thin hulled varieties produce weak straw. For an example we have the Tartar King and Joannette varieties respectively. Tartar King variety seems to vary considerably as regards the manner in which the kernels are developed.

At the Svalöf Station, Sweden, some interesting morphological correlations have been discovered in barley. Barley is normally classified under two main types, viz., the hexastichum or six-rowed (including the four-rowed) and the distichum or two-rowed nodding (nutans) and the two-rowed erect (erectum). An examination of grains of barley will show that some have smooth backs while some have indentations on the edges. Again at the base of the ventral portion of the grain we will find the plumule, in some cases, made up of comparatively long stiff hairs, while in other cases it consists of a mass of short curled hairs. These characters have been found to have a great permanency and to correspond to certain physiological characters such as rate of maturing and brewing qualities. Types of barley which ripen evenly and have a thick husk with short woolly hairs at the base of the scales are better brewers than are those not possessing these characters. These peculiarities of form or structure are considered very useful by the breeder in enabling him to isolate superior types much more quickly and with much less work.

In our own corn improvement work we find many interesting correlations, some of which are of considerable value to the breeder. During the past summer the writer had occasion to examine with special care seventy-three special corn plots and succeeded in gathering considerable important data. Among our breeders of Dent corn were found some who, in their desire to develop highly productive types, were selecting large deep kernelled ears having at least 20 rows of kernels. Such ears, however, are universally later since depth of kernel and length of time it requires for an ear of corn to mature are very closely related. We find another correlation between the size of the ear and the height at which it is borne on the stalk, the large late ears being borne higher from the ground than are those which mature earlier. One breeder planted ears averaging $9\frac{1}{2}$ —10 inches long by 9 inches in circumference with the result that ears averaging 20-22 rows of kernels were produced and these were borne at about 5' from the ground. Still another correlation is found between the character of the dent of corn and the depth of kernel—the smoother the dent the shallower the kernel and vice versa. This fact is useful to the breeder in

that he can be guided in making his selections by observing the character of the dent of the kernel.

An examination of the plots just referred to showed that where the average size of the ear did not exceed 9 inches in length by 7 inches in circumference the largest proportion of good mature ears were found, and therefore the largest yield was realized. This proves the importance of selecting medium sized ears of good type which will thoroughly mature before frost. In ordinary fields of corn it is very common to find a mixture of many different types, some of which are deep kernelled while others are shallower. In such cases there is a very conspicuous lack in the uniformity of maturity of the crop, and as a consequence its value is greatly decreased not only for feeding purposes but more especially for seed. A sufficient number of cases have been given to indicate that the correlation of different characters in plants is not only of scientific interest but is of considerable practical value in revealing to the breeder certain hidden qualities. Care should be taken, however, to avoid concluding too hastily that any two characters are correlated sufficiently to warrant a selection being made because of its existence. On the other hand, the general ratio in which each is found in the general population should decide the issue.

THE PASSENGER PIGEON.

By W. LOCHHEAD.

Not many years ago the passenger pigeon was a very common bird, and great flocks, comprising hundreds of thousands, were often observed during their periods of flight. Its range extended along eastern North America, as far west as the Mississippi valley and northward to Hudson Bay. It nested in the northern portions of its range. Now, however, it is so rare that there are doubts as to its very existence in America.

The cause of the disappearance of such useful, beautiful, tender-voiced birds in the course of a single generation is not far to seek. They were thoughtlessly slaughtered by the thousands, in order to provide sport and food for a few days. It is stated by a trustworthy eye-witness that "people would come from all parts of the country with wagons, axes, beds and cooking utensils, camping on the ground with their families for days, where they could plunder the nests of the roosts, of the vast army of passenger pigeons." Accordingly, the passenger pigeon has gone the way of the buffalo which existed once in countless numbers on the prairies of the West—awful examples

of the work of destruction of people who had no thought of to-morrow.

An effort is now being made by persons interested in the preservation of such a fine bird to save it from utter extinction if there be any alive. At a recent meeting of the American Ornithologists' Union the matter was brought up by Prof. C. F. Hodge, of Clark University, Worcester, Mass., and as a result of the discussion that followed Colonel Kuser offered an award of \$300 for the first information of a nesting pair of wild passenger pigeons *undisturbed*. Before this award will be paid, such information exclusive and confidential, must be furnished as will enable a committee of expert ornithologists to visit the nest and confirm the finding. If the nest and parent birds are found *undisturbed* the award will be promptly paid, through Prof. Hodge. The object of this generous award is to induce a search for nesting passenger pigeons throughout the length and breadth of Canada and the United States; and when they are found to organize adequate protective work through legislation and warden service, so that the birds may be permitted to feed in absolute safety and be accorded the freedom of the American continent.

All lovers of birds, it is felt, will join heartily in the plan proposed for the preservation of this ill-fated pigeon. In order, however, that a wide-spread interest may be aroused in the effort to locate nesting pairs, there should also be local volunteer awards for the first undisturbed nest in each province; and a call is here made to our liberal-minded citizens for such local awards. Teachers throughout Canada should call the attention of the boys and girls to the plan and ask them to join in the search. The first nest discovered will draw Colonel Kuser's award of \$300 and the local award as well. That first nest is likely to be found in Canada.

BOOK REVIEW.

CATALOGUE OF CANADIAN BIRDS. By John Macoun, Naturalist to the Geological Survey, Canada, and James M. Macoun, Assistant Naturalist to the Geological Survey, Canada. Department of Mines, Geological Survey Branch, Ottawa, 1909.

Bird lovers and Canadians generally will join in felicitations to Prof. John Macoun and Mr. J. M. Macoun on the successful completion of their revision of the Catalogue of Canadian Birds, which is just out, bringing Canadian ornithological records as nearly as possible up to date.

Prof. Macoun has been fortunate in having the assistance of Mr. J. M. Macoun in these labors, which have produced a volume of 761 pages, exceeding its predecessor by 28 pages, and appearing in one volume instead of three parts as before.

Five additional species appear in the list, four of them by the taking of specimens, namely:—

The Fulvous Tree Duck, an old record of which has been turned up, and in addition, a specimen taken from a flock of eleven of the same species near New Alberni, Vancouver Island, September, 1905.

The Dotterel, taken at King Island, Alaska, July 23, 1897.

The Chuck-Will's-Widow, taken at Point Pelee, May 19, 1906, and one near Picton, N.S., date not given.

The European Linnet, taken at Toronto, January, 1890, by Mr. Wm. Loan.

In addition to these, the Green Crested Flycatcher has been added to the list on a surmise by Mr. J. H. Fleming that a specimen which he took years ago at Toronto was of this species; while the surmise is probably correct, the specimen was never preserved. Since the list was in type, however, there have been two satisfactory records of the occurrence of this species in Ontario.

The activities of the closet naturalist are well illustrated by the addition of twenty, and the elimination of five varieties, which make a net addition of twenty titles to the present edition, the contents of the book being enlarged at the same time from 738 to 761 pages. The elimination of the lists of specimens in the Government Museum also left space for the inclusion of much new matter. The arrangement of the matter and the type used, and the proof-reading, are eminently satisfactory, so also is the index. In these respects there was no fault to find with the previous editions, but other publications have sometimes been sadly lacking in this regard. The index is so printed that one's eye passes very rapidly over the titles until the item desired is reached.

In the reception and arrangement of such a vast amount of material as is here published, it is inevitable that errors should creep in; but the authors have characteristically preferred to err on the side of generosity, rather than to exclude entries which may probably be incorrect. There are, however, items to which perhaps exception may reasonably be taken, and which it would appear, ought to be noticed in greater detail, as for instance the Yellow-green Vireo, which is reported as taken at Godbout in May, 1883. This species is of only casual occurrence in North America and the validity of this record when published

without circumstantial detail is open to question. So rare a specimen should be located and verified by the highest authorities.

The record of the Wilson's Plover is open to similar criticism, and for a Canadian list it would seem as though the basis of the published habitat should be stated.

Again with regard to the Black Rail, the three records given are none of them thoroughly reliable; one was a bird seen in flight; another refers to the taking of a number of specimens in the Dundas Marsh, which have since proved to be the Virginia Rail; and the third depends upon the ability of a gentleman, the honesty of whose intentions is not open to question, but who may have fallen into the same error as did Mr. Nash regarding the Virginia Rail.

The record of the White-winged Black Tern, which is also a sight record of birds seen on the wing, is another fair mark for criticism. The fact that Black Terns, as well as other species of the family, are known to carry over into the second year parts of the juvenal plumage, and that the bend of the wing appears white in flight renders sight records of these species more liable to error than would otherwise be the case.

The authors are to be congratulated on having preferred the long used English names, instead of following the changes which the A.O.U. Committee of Revision are attempting to foist upon the ornithological world. Alterations in scientific names have been so frequent and widespread that there is a tendency to cease referring to them, and to use only the English names which have been so far perfectly stable, but when the Committee endeavors to attach to the English names that changeableness which has so long been characteristic of the scientific names, it is time for the rank and file of ornithologists to refuse to follow their lead. The laws which have been made to govern the application of scientific names, have doubtless required the making of the changes that have occurred, but these laws do not govern the English names, nor is it likely that they will be followed by the bulk of students. Furthermore many students will prefer, and will use, the old style of possessive names for such birds, as Wilson's Thrush. The present catalogue follows the newly suggested method of omitting the possessive which would sometimes lead us into serious trouble; for instance, if a thrush were named for James Brown and the name were spelt after the newly suggested manner, it would be the "Brown Thrush," which would certainly lead to confusion.

It would appear that in publishing the present edition, current literature has not been scanned as closely as it might

have been in the scrutinizing and addition of records. For instance, the Prairie Warbler, Carolina Wren and others have had notable additions to their Canadian status since the last edition; the Blue-wing Warbler and the Worm-eating Warbler have been added to the Canadian list, by the taking of specimens, and were recorded in the Auk for July, 1908; but when such criticism is offered, one must bear in mind that the list has been in type for a long time, and it may not have been possible to make these additions since it passed out of the authors' hands. Certainly it is a fact that there is less elasticity in the issuance of Government publications than is usual in the commercial world.

It is understood that the authors intend to issue an addendum to this list in the present year with the idea of making any corrections and additions that may be necessary to bring the matter thoroughly up to date. If all bird students will keep this matter in view while reading the work, and will make notes on such matters as deserve remarks and later on report these notes to the authors, they will materially assist the work of these gentlemen who have done so much for this branch of natural history.

W. E. S.

THE SMOKY SHREW. *Sorex fumeus*, the Smoky Shrew, is a small animal that is practically unknown from Ontario. Skilled collectors have taken and recorded a few specimens to the north and west of Muskoka, and now I wish to record the only two specimens that have been taken in the older part of the province. These were both taken by Mr. John A. Morden, near Hyde Park. One, a female, was trapped on December 9th, 1907, in a sphagnum and spruce swamp, 4 miles west of London. Mr. Morden recognized the tracks on the snow as being made by an animal new to him.

The second one was caught by Mr. Morden's cat and discarded by that animal, as being useless for her purpose. The date was April 7th, 1909, and the specimen is a male.

Both individuals are now in the collection of Mr. J. E. Keays, of this city. He and I have trapped considerably on the very ground on which Mr. Morden's first specimen was taken. This locality is the only place where we have been able to find *Synaptomys* near London, but we have never succeeded in taking *fumeus* there, although *Sorex personatus* is usually found in fair numbers, and sometimes appears to be quite common, whereas, through the country generally, it is rare. W. E. SAUNDERS, London, Ont.

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