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# THE OTTAWA NATURALIST

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# THE OTTAWA NATURALIST

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VOL. XXI.

OTTAWA, MARCH, 1908

No. 12

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## MOUNTAIN SPRITES.

BY DR. JAMES FLETCHER, OTTAWA.

(Delivered Dec. 10th at the opening meeting of the  
Winter Course, 1907-8.)

As I came into the hall this evening I was asked whether Mountain Sprites were birds, beasts or fishes, or at any rate to which branch of natural history sprites belonged. A sprite the dictionary tells us is a spirit, a shade, an apparition, and I have never yet found in nature anything to which such a title could be quite so appropriately applied as to the very elusive soberly coloured or extremely active butterflies which one finds on the summits of high mountains, where they flit up suddenly from the broken rocks, appear for a second or two and then close their wings and drop into a crevice or over a precipice where pursuit is impossible. Another disconcerting device is to drop suddenly to the ground and feign death, when followed closely, where they lie over sideways among the broken rocks with which such places are strewn, and thus become instantly and most effectually invisible. On the other hand these attractive creatures may come dashing at you out of space as soon as a ray of sunshine warms up the snow fields or rugged rocks, and then as suddenly disappear over a cliff or beyond a pile of rough boulders where pursuit is most difficult.

It may not be amiss to remind you, here, that chasing butterflies in the rarefied atmosphere and among the loose rocks on the bare summits, or on the boulder-strewn slopes of a mountain over 8,000 feet high, is an entirely different proposition from even a long trying chase over level meadows and through the woods of the lowlands. The very fatigue of violent exercise of all kinds at such heights is a factor which constantly forces itself upon one. Added to this any recklessness, accidental stumble or mis-step near the edge of a ravine may easily result in a serious accident, involving perhaps a sudden and involuntary descent of some thousands of feet.

There are many species of fragile butterflies and insects of all kinds, which are found only on the bleak and wind-swept summits of high mountains. These are naturally, on account of their rarity in collections, a great attraction to entomologists whenever opportunities occur of seeking for them in their native haunts.

In response to the President's invitation to speak for a few minutes this evening on "a collecting experience of the past summer," I am going to tell you of a short expedition made on the 4th of August last in company with my friend Dr. Henry Skinner, of Philadelphia, the well known authority on many branches of entomology and the Editor of Entomological News. The chief objects of our search were some species of mountain butterflies discovered by Mr. T. E. Bean whose excellent work on the butterflies of the Canadian Rockies has made Laggan, the place where he lived for some years, a classic ground for entomologists. We decided to stop at this Mecca and endeavor to secure among others, specimens of *Argynnis alberta*, Edw., and *Eneis beanii*, both discovered for the first time by Mr. Bean in this locality. The chief object of our search, however, was the beautiful and most interesting *Argynnis astarte*, Dbl.-Hew., which has a very interesting history. This butterfly had been described in 1848 from a specimen brought back to England by a collector sent out by Lord Derby. Owing to the small appreciation of the value of exact localities in those days and even to-day with some of the entomologists in Europe who deal with all-world collections, the inaccurate and indefinite locality given on this specimen was "Jamaica," which was one of the points of call of the collector in proceeding to or from North America. In 1888 Mr. Bean who was then living in the Rocky Mountains, re-discovered the species which had been a mystery to all entomologists from the time the single specimen was taken back to Europe. As Mr. H. J. Elwes, one of the most astute of the English lepidopterists, wrote to me just about that time, it seemed almost impossible that a species with the general appearance of *A. astarte* could be a tropical insect, and he felt sure that this insect would prove to be an arctic or high alpine form, which would be found in the Rocky Mountains if anyone would go and search for it. He even offered to subscribe £200 towards such an expedition. Just about this time, by a curious co-incidence, Mr. Bean sent specimens of the butterfly, together with several other new species, to Mr. W. H. Edwards of Coalburgh, W. Va., for identification, and Mr. Edwards had decided to name it *A. Victoria* after our late beloved Queen, Victoria the Good. This fine

insect is not only extremely rare and difficult to obtain because of the inaccessibility of its habitat, but is exceedingly active and difficult to catch even under the most favourable circumstances.

We arrived at Laggan Station on the Canadian Pacific Railway on the morning of August 3rd. The station is almost at the highest point reached by the railway (alt. 5037 feet above sea-level) in passing over the main chain of the Rockies, and is close to the dividing line between the provinces of Alberta and British Columbia. It was a glorious morning and we enjoyed thoroughly the drive of four miles or thereabouts up through the woods to the Chalet Hotel on Lake Louise. Our hopes rose to a high point as we saw the numerous butterflies and other insects flitting along the flowery banks of the roadway. Having arrived at the Chalet, perhaps the most picturesquely situated and luxuriously comfortable, even of the Canadian Pacific Railway hotels, we at once made preparations for our journey up to the happy hunting grounds on the top of Mount St. Piran, a mountain towering up 8,500 feet to the south of Lake Louise. Alas, however, we were to be disappointed. Lake Louise, which on our arrival, from its beautiful colour well deserved its original name of Emerald Lake, in an hour's time was entirely changed in appearance, for heavy black clouds rolled over from Mount Lefroy and Victoria Glacier, and very soon descended in such a torrent of rain as only can fall in the mountains. Frequent showers followed throughout the afternoon which made an ascent of the mountain quite out of the question. Short excursions, however, along the side of the Lake and along the carriage drive, enabled us to secure some insects of interest. Among these were specimens of a reddish "black fly" (*Simulium fulvum*, Coq.) which little knowing their danger were stupidly persistent in circling around our heads. On the flowers of the tall Spiked Willowherb and the large golden flowers of an Arnica, we secured many bumble bees and a few *Pisias*. While waiting in a boathouse between showers several specimens of two species of mosquitoes were enticed from their native wilds to our collecting boxes.

The next morning we were up bright and early, and although the day was not very promising, we started up the mountain in a light shower of rain, hoping that on the summit conditions would improve.

To those who have never enjoyed the exquisite pleasure of threading their way up through the rich forests which clothe the bases of our grand mountains in any of the great chains of the Rockies, and then on through the diminishing groves of

trees, shrubs and bushes to the delightful flower-laden mountain meadows above, the idea that every fresh zone of vegetation is teeming with animate life characteristic of each altitude, must come somewhat as a surprise. This, however, is known actually to be the case by all who have been fortunate enough to enjoy such a climb as my companion and I did last August. From the base to the very summits capped with snow, which at a distance seem to be so bare and forbidding, we find that not only the plants but the animals, birds, and insects, keep rapidly changing with each succeeding modification of the conditions of life, due to the varying altitudes. The recognition of the various denizens of the mountain forests, streams, meadows, and rocky crags, as each group appears and then gives place to others better able to stand the rigours of higher altitudes, gives an indescribable charm and exhilarating zest to an ascent of one of these mountains.

On leaving the hotel we pushed on through the woods with our eyes ever on the alert to notice the different trees, shrubs and abundant flowering plants. A circuitous path up the side of the mountain brought us to the Lakes in the Clouds, Lake Agnes and Mirror Lake, two beautiful pieces of water which lie on the flanks of St. Piran. Here we hoped to find *Argynnis alberta* among the shrubs and low groves of conifers, but we were too late in the season to get this local treasure. Above the lakes the mass of the mountain slopes away gradually to the summit over meadows which were ablaze with lovely alpine flowers and where clumsy bumble bees hummed busily from one bright blossom to another. Many of these beautiful mountain blossoms were of so much interest that we cannot pass them by, and indeed they were the chief interest of our expedition, for with the exception of a few moths, one or two butterflies, and some small insects of various orders, found here and on the surface of the snowfields at the summit, our expedition was rather unproductive in specimens, although most enjoyable from the opportunity of seeing new friends in all forms of life, among the sublime surroundings of the mighty mountains which form the backbone of our continent. The scenery in that part of the main chain of the Rockies is beyond description magnificent. From the summit of Mount St. Piran we looked down upon the lakes below with the Chalet nestling, half hidden among the trees, at one end of Lake Louise, and further off in the valley of the Bow, a slender thread showed where the railway made it possible for new lovers of nature to come and enjoy this wonderland. Beyond this again, across the Bow Valley, was the great Sawback Range. Nearer to us



were many mountains of equal height or soaring above that on which we stood. As we watched the snowfields on Mount Lefroy we noticed what appeared to be a little puff of snow or cloud rolling down the precipitous side, and many seconds later we appreciated, by the roar of sound that was brought to us, that this had been an avalanche of perhaps thousands of tons of ice and snow which had been dislodged by the action of the summer heat.

On the whole our trip it must be acknowledged, as far as insects were concerned, was half a failure, because we did not succeed fully in the object of our quest. When we reached the summit where the butterflies we most desired are to be found, we were met by a strong freezing blast which came up from the other side of the mountain with such force as to make it at times almost impossible to stand. The sun was for most of the time hidden by rolling clouds laden with snow, which almost incessantly fell in flurries during the hour and a half we were on the summit. For a few minutes the sun came out and I saw a black object like a drifting leaf rise from a bed of broken rock and drop suddenly upon another one. This I knew to be *Cneis beanii*, one of the Mountain Sprites we were in search of. It was within a few feet of me and gave a good instance of the almost incredible difficulty of finding these insects which nature has so well protected by their resemblance to the rocks amongst which they live and by their secretive habits. I saw the little creature fall almost at my feet within a space of two feet square where not a blade of grass was growing, and yet it was only by going down on my hands and knees and picking off one by one every piece of loose stone that at last I detected it by a movement of the wing as a small piece of rock fell upon it. It feigned death perfectly and was easily picked up and dropped into the killing bottle. No other specimens were seen except one *Argynnis astarte* which Dr. Skinner says came towards him as though it had started from the south pole and when he raised his net to make a stroke, made for the north pole as if it meant never to stop till it reached there. The temperature was below freezing, snow was falling and the wind blowing a perfect gale. The sun showed no sign of being in a kindlier mood, so after a stay of an hour and a half we made up our minds to revisit again the flowery fields below. Here we were well repaid by the many objects of beauty which we found on every side. Around the Lakes in the Clouds the rocks were covered with mossy Saxifrages and the rich flowers of the Wide-leaved Willow-herb. Here also we found beds of the White Dryas (*Dryas octopetala*, L.) a low alpien

shrub with creamy white flowers, and close to the water, sturdy bushes of Labrador Tea, the same as we get in our eastern swamps, the small-leaved mountain variety *microphylla* of *Kalmia glauca* and other bog plants. Among flower-laden bushes of the White-flowered Rhododendron, the tall graceful spikes and almost tropical foliage of the False Hellebore (*Veratrum viride*), were conspicuous, together with bushes of *Lonicera involucrata* showing both the small yellow twinned blossoms and dark purple berries surrounded by their enlarged claret coloured bracts. Here too Lyall's Larch and *Abies lasiocarpa*, heavily loaded with their curious cones, drew the attention of the passer by. The striking crimson flowering spikes of the Greenland Lousewort and three other species of the same genus, *Pedicularis contorta*, *racemosa*, and *bracteosa*, all grew close together on a springy slope, mixed with the graceful white-flowered Grass of Parnassus, the large purple daisy-like flowers of *Erigeron salsuginosus*, Lewis's Mimulus, scented Valerians, golden Buttercups, Arnica and Cinquefoils. Higher up the slope were seen beds of Alpine Asters, Golden Ragworts, some of the smaller Fleabanes and showy Pentstemons, all of which added their quota to this scene of beauty. The feathery seed heads of the beautiful Western Anemone (*Anemone occidentalis*), stood well up above the low grasses and sedges. Higher up the mountain side we found in perfection the handsome white cup-like flowers of the same plant, and higher still nearer the snow, the young buds lying like white satin buttons close to the ground. With these were also the pretty blue tinged flowers of Drummond's Anemone and hosts of other alpine flowers too numerous even to mention. A word, however, must be said of the beds of mountain heather which are such a charm to all visitors to the mountains. These are of three colours and although they are not true heathers, they belong to the same natural order, the Heath family. The most beautiful is the red-flowered heather, *Bryanthus empetriiformis*, then the white, *Cassiope mertensiana*, which grows on St. Piran in wonderful beauty. An interesting but less showy plant is *Phyllodoce glanduliflora* which has clusters of greenish white flowers. Right on the bleak summits of these mountains large patches of the lovely little Moss Campion, *Silene acaulis*, are to be found. This little plant consists of numerous stems all bunched close together like a tuft of moss. The annual growth consists merely of half a dozen leaves and one large flower at the tip of each little stemlet, giving the whole tuft the appearance of a green cushion thickly studded with rosy pink blossoms.

As we left the Lakes of the Clouds and went down the

slope to the Hotel, we noted a few more floral treasures nestling among the feathery mosses which covered the ground everywhere among the tall trees. Here the deliciously scented Twin-flowers and Single-flowered Pyrolas were abundant and the Star-like flowers of *Clintonia uniflora*, prettily called by Mrs. Henshaw "Queen Cups," looked bravely up from between their shining leaves and were intermingled with delicate orchids and many other treasures characteristic of these woods. We reached the hotel towards sunset, not particularly laden with treasures of the chase, but perfectly happy after one of the most enjoyable days we had either of us ever spent with Nature.

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#### BOTANICAL NOTES.

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RHUS ITHACENSIS, Greene, Proc. Wash. Acad. Sci. VIII, 178.

*R. glabra*, Macoun, Cat. Can. Plants, I, 100.

*R. glabra* is a southern species which does not occur in Canada. An immature specimen collected by Dr. Geo. Dawson at the Lake of the Woods (Herb. No. 10069) Dr. Greene believes to be an undoubted undescribed species, but the specimen is too poor to describe.

RHINANTHUS OBLONGIFOLIUS, Fernald, Rhodora, IX, 24.

Distinguished from *R. Crista-galli* by its wider crenate-toothed leaves and the much broader yellow lateral teeth of the upper lip of the corolla. Common on alpine meadows and slopes on Table-topped Mountain, Gaspé Co., Que. (*J. A. Allen, Fernald and Collins*). Several specimens in our herbarium from Labrador and the Hudson Bay region apparently belong here, but they have not retained their green color which Mr. Fernald says is a characteristic of *R. oblongifolius*.

EUTHAMIA OCCIDENTALIS, Nutt.

In thickets, Lake Okanagan, B.C., August 14th, 1891 (*Jas. McEvoy*). Our only Canadian specimens. Referred at time of collecting to *Solidago lanceolata*.

J. M. M.

## ON AN OCCURRENCE OF HYBOCYSTIS IN ONTARIO.

(Plate II, Figures 1-5)

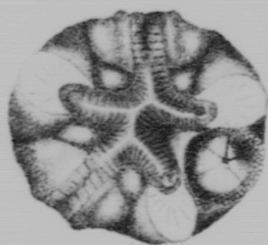
BY W. A. PARKS, PH.D., ASSOCIATE PROFESSOR OF GEOLOGY,  
UNIVERSITY OF TORONTO.

In the Journal of the Cincinnati Society of Natural History for 1880, Professor Wetherby records the discovery of seven specimens of a remarkable organism which he describes as *Hybocystites problematicus*, referring the genus to the Cystoidea, as the name implies. The same specimens were examined by Herbert Carpenter who decided that their relationships were with the Blastoids rather than with the Cystids.\* Wachsmuth and Springer in their revision of the Palaeocrinoidea, are of the opinion that these forms are really Crinoids of low organization. In view of the diverse opinions as to the proper place in a classification of this remarkable genus, it will be of interest to students of the Echinodermata to learn of its occurrence in a new locality—the first since the original discovery in Mercer County, Kentucky. The Trent Valley Canal cutting in Eldon tp., Victoria County, near Kirkfield, Ont., has yielded the University collector, Mr. Joseph Townsend, a fine series of Crinoids, Cystids and Asteroids. In working over this material one excellent specimen of *H. problematicus* and three of a new species of the same genus were found. As the present example of Wetherby's species is in a much better state of preservation than any of the original forms it is hoped that a few additional notes on the anatomy of this interesting fossil will not be superfluous. Rather than to enter the discussion as to the affinity of the organism the writer prefers to accept Wachsmuth and Springer's conclusion and to regard it as a Crinoid. The almost exact resemblance to *Hybocrinus* in the arrangement of the calyx plates and in the character of the anal orifice tend to strengthen the decision of these authors. An amended description of *Hybocystis problematicus* follows:—

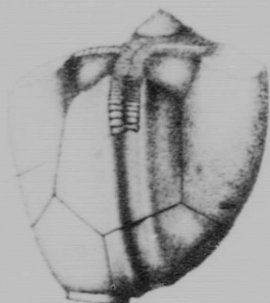
*Basals.*—Five, pentagonal, the two posterior plates symmetrical and larger than the other three. This forces the column into an excentric position. (Fig. 5).

*Radials.*—The second ring of plates consists of four radials and a posterior hexagonal anal (azygous plate). This plate bears on its upper left side a small upper azygous or

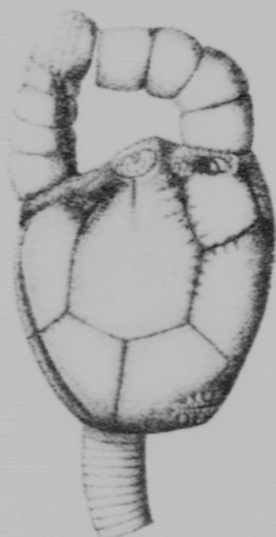
\* *Quarterly Journal, Geol. Soc., London, p. 307, pl. XI., 1882.*



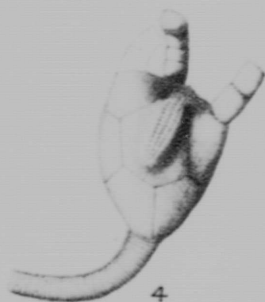
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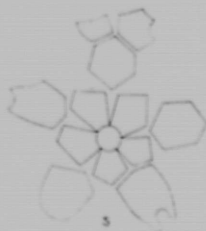
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5

Figs. 1, 2, 3 and 5—*Hybocystites problematicus*.  
Fig. 4—*Hybocystites eldonensis*.

second anal plate and on its right upper side a small fifth radial. (Fig. 5).

*Arms.*—Short, stout, consisting of five subequal, quadrangular joints. The arms curve inward over the vault. Three only occur, being borne on the anterior and the two posterior radials. The internal face of each arm is deeply excavated by an ambulacral furrow, which passes over the distal end, is continued down the outer side and is prolonged over the face of the radial. (Fig. 3).

*Calycine ambulacra.*—Two, passing from the vault over the summit of the two antero-lateral radials and continuing downwards and backwards so that the two almost meet at the posterior side of the column. The calyx plates are raised into a prominent ridge at the borders of the furrows and near their extremities these ridges unite beneath the ambulacra, so that these structures seem raised on tumid pads with crenulated edges. (Fig. 2).

*Ventral disc.*—As the radials are much inflected at their superior aspect the ventral surface is restricted. Four diamond-shaped, nodose orals occupy the interradial positions, with the exception of the posterior: here, the large anal structure has forced the oral plate inwards and upwards so that it appears as a prominent ridge bordering the anus medially. The ambulacra from both arms and calyx are continued to the centre, the furrows being arched over by rigid cover pieces so that the oral aperture is entirely hidden. No apical plate is apparent but it is possible that the proximal cover plates are so fused as to function as such. (Fig. 1).

*Ventral sac.*—A large circular, shallow depression is situated just within the anal plate. Around the border this hollow is lined by numerous minute plates while the centre is raised into a dome-like elevation, consisting of six (or possibly more) triangular plates, after the manner of a Cystid. It is possible that in life this depression was a real proboscis which has been forced in by the processes of fossilization. In this event the anus was certainly situated at its extremity. (Fig. 1).

*Column.*—Round, tapering distally, composed of very thin equal joints.

*Discussion.*—The above description differs in many points from the assertions of Wetherby, Carpenter and Wachsmuth and Springer. The chief differences may be briefly stated as follows: *Arms.*—Only two joints have previously been observed; five certainly occur and no more, for the distal joint shows most distinctly the ambulacral cover plates passing over to the outside. Carpenter figures the furrows as passing

over the summit of the second joint; this must be erroneous if the species are identical. *Mouth*.—The ambulacra meet at or near the centre of the disc and do not enter the calyx at the edge of the radials as stated by Wachsmuth and Springer. A central oral aperture must exist but it is not observable, being rigidly closed in by the tight fitting and interlocking ambulacral cover-plates. Carpenter's figures of the oral aspect are extremely variable and confusing; it is difficult to correlate his diagrams. *Anus*.—Despite Wachsmuth and Springer's objection, Wetherby's statement as to the existence of a valvular pyramid is correct. That this pyramid is surrounded by a series of small plates is here recorded for the first time. This feature tends to increase the resemblance of the present genus to *Hybocrinus*, for the same structure was observed by W. R. Billings in the latter genus and is figured for *Carabocrinus* by Wachsmuth and Springer.\*

*Locality*.—Mercer County, Kentucky; Trent Valley Canal, Eldon tp., Victoria County, Ont., two miles from Kirkfield, J. Townsend, collector. No. 567 T. University of Toronto Museum.

HYBOCYSTIS ELDONENSIS, *sp. nov.*

(Plate II., Fig. 4)

This species is founded on one well preserved, specimen although two others are at hand. The latter, however, are somewhat larger and stouter, so that, in order to avoid any specific confusion, the description is confined to the single specimen. The present species is much smaller than *H. problematicus*, being only about seven millimetres in vertical extent. It shows the same asymmetric shape, the column being excentric and the vault much elevated on the anal side. The calycine plates are quite similar but the upper azygous plate is relatively smaller; its presence, indeed, is more to be inferred than observed. The ventral sac and anus are likewise similar, the circling of small plates and the dome-like valvular pyramid being clearly shown. The ambulacral tracts on the tegmen are well closed by rigid cover-pieces which are relatively larger than in the genotype. The most pronounced difference is in the fact that the two calycine ambulacra do not extend over the basals but are confined to the radials, where they are bolstered up on relatively larger tumid pads. The cover-plates are large and distinct with the individual ossicles of the two rows alternating. There is no trace of an ambulacral

\* North American Crinoidea Camerata, p. 137.

furrow on the arm-bearing radials, nor can such a depression be made out on the external aspect of the arms themselves. In the specimen one arm is lost, two joints of the second are preserved and three of the third. It can not be stated, however, that the arms were complete in three segments. Each arm-joint is much longer than wide and in this differs from *H. problematicus* where they are roughly quadrangular. Whether or not the ambulacra were extended on the external face of the arms can not be stated, but it is certain that no trace of such an arrangement is exhibited by the specimen. All the plates of the calyx are pitted but this appearance is probably of accidental rather than of organic origin.

*Locality*.—Township of Eldon, Victoria County, Ont.. J Townsend, collector. Type, No. 566 T. University of Toronto Museum.

*Remarks*.—One cannot fail to be impressed with the strong resemblance of *Hybocystis problematicus* and of *H. eldonensis* to *Hybocrinus conicus*, Bill. and *H. tumidus*, Bill. respectively. The resemblance of *Hybocystis eldonensis* to *Hybocrinus pristinus* is also remarkable; it may be that the new species is comparable with *H. pristinus* and the two stouter undescribed specimens more closely related to *H. tumidus*. The exact similarity in the plates of the calyx has already been established; to this must now be added the close agreement in the structure of the anal apparatus. It is significant also that the recent discoveries should have been made in, or near, the same locality from which Billings obtained his types of *Hybocrinus*. Wetherby has suggested that a sexual difference may be all that divides the two genera; in view of the facts above cited this explanation is worthy of especial consideration. One strong objection urged by Wachsmuth and Springer against Carpenter's decision that these forms should be placed under the Blastoidea, is that the calycine ambulacra extend over the basal plates. In the case of the new species this objection does not hold; further, the large pads under the ambulacra show some slight evidence of being separate calcifications. If this latter fact could be established the radials would become typical "forked plates" of the Blastoids and the pad itself develop into the "lancet plate." While not inclining to this view, the writer thinks it just to Carpenter's conclusions to draw attention to the above facts.

#### EXPLANATION OF PLATE.

*Hybocystis problematicus*.

Fig. 1.—Tegminal view with arms removed.



Fig. 2.—Left antero-lateral view, showing the calycine furrow with the cover-plates in the upper portion.

Fig. 3.—Left postero-lateral view, showing the left furrow and the extremity of the right furrow with the supporting pad and the cover-pieces intact.

Fig. 5.—Dissection of calyx.

*Hybocystis eldonensis*.

Fig. 4.—Right antero-lateral view.

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#### BIRD NOTES FROM SOUTHWESTERN NOVA SCOTIA.

BY H. F. TUFTS.

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The latter half of April, 1907, was spent by the writer in ornithological collecting in the vicinity of Cape Sable, Nova Scotia. This is the southwesternmost point of the province, jutting well out into the sea, and in consequence is a port of call, as it were, for most of the north-breeding sea fowl in their spring and fall migrations.

A numerous and energetic population of fishermen hereabout—as much gunners as fishermen—keeps the birds in such a constant state of persecution and harassment, that the collecting of a good series of specimens without undue waste of time is out of the question. There are more favored localities along the shore of Nova Scotia, I have since been informed. However, a record of some notes on observations, and some unusual captures made, may be of interest to those who know not the seashore and its bird life.

To begin with, the season was most unfavorable for this work. Unusually rough and stormy weather prevailed, making it impossible to get out to the outer islands and ledges among which the birds were passing, while many species more or less abundant all winter had already vacated these waters for more northern haunts.

The first observations were made about the more sheltered inner bays about Barrington, some six or eight miles in from "the cape." Here the birds noted were, golden-eyes, in small flocks; red-breasted mergansers, in scattered pairs; a good many brant, which kept together mostly in a few large flocks, and a few black ducks. All of these birds were kept continually on the move by the fishermen and gunners, and were wary to an extreme degree. Black-backed and herring gulls were the only other sea birds noted.

Upon moving out to "the cape" and the unsheltered waters

to seaward a different and more varied lot of fowl came under observation. The most abundant species were the eiders and scoters. The former are known to the fishermen as "sea-ducks," the three species of the latter being collectively called "coots" and differentiated by their most prominent characteristics. Thus the American scoter is known as "butter-nose coot" from the yellow and orange knob at the base of its upper mandible. The surf scoter from the white spots about its head and nape is called "patch-poll coot," while the velvet scoter is quite properly called the "white-winged coot," from its conspicuous wing patches. None of these birds were seen in a state of rest during my stay about the locality, though hundreds were seen daily, always in long wavering strings passing the outer points and ledges uniformly moving to eastward. Taking advantage of this regularity of the birds' movements, the fishermen gunners would put out in their shooting skiffs and stringing out over the water, perhaps ten or twenty boats in all, each a couple of gunshots from the other and partly concealed by the swell and waves of the sea, would intercept the flocks as they came along, often causing great destruction in their ranks.

A few "old squaws" and black guillemots, an occasional puffin, auk, loon, jaeger and a few others were also noted while on these shooting trips, well out from land.

On April 23rd the first gannets were seen. A "flight" of them commenced about 10 o'clock, a.m., and continued throughout the day, the birds passing, singly or in scattered flocks, westwardly along the shore some 100-200 yards off. These gannets have a most characteristic mode of flight—it is remarkably straightforward, the wings beating with a uniform regularity and certain deliberation that forces them into the face of storm with apparent ease. Their beaks seem constantly to point downward, the birds always on the lookout for their finny prey beneath, upon which they drop like bullets as soon as seen. For several days following, this "flight" of gannets was noted between the same hours and in the same direction and over the same waters. At the mouth of the Bay of Fundy is a rocky island known as Gannet Rock, where formerly large numbers of these birds bred and raised their young.

On the morning of April 24th during a heavy southeast storm, which piled great breakers roaring upon the beach, I noted the first "shore bird" arrival for the season. Above the thunder of the surf, while walking along the beach, I heard a soft, flute-like note—a plaintive "phe-blo," it sounded—and upon looking about discovered its origin in a little, dusky-collared, grey and white bird, scurrying about among the

kelp and seaweed—the piping plover. A week or two later quite a number of these birds put in an appearance, and as I later observed, stayed to rear their young. A few days later the semipalmated plover and least sandpipers came along from the south, some of which also remained to breed.

The capture of two birds very rare to the province was made during this trip. On April 23rd a little blue heron was flushed and shot from a salt marsh behind the sand beaches. On the 25th a least bittern was found on the beach, its feet entangled in a mess of eel grass and sea-weed. He was quite alive however. Heavy southerly gales and much fog had prevailed for some time previous and no doubt these birds had thus strayed and drifted from their more southern haunts.

I left this locality for the interior on May 6th, but returned again on the 4th of June en route to Seal and Mud islands, which lie some 20 miles off the coast. Being detained here for two days on account of storms, I again went over the ground of my previous observations. Now of course the sea birds had gone, but about the beaches and sand dunes were many black-breasted, piping and semi-palmated plover, and spotted and least sandpipers. The black-breasts were merely lingering here before moving to their more northern breeding grounds. All the others, however, gave evidence to the fact that they were nesting. Several nests with eggs of the spotted sand-piper were discovered, and the downy young some few hours old of the least sand-piper were found on the border of a salt marsh near where they were no doubt hatched. I was not previously aware that these latter bred so far south. Piping and semi-palmated plover were also nesting about the pebbly wastes above the sand beach, as they plainly showed by their excited circlings about my head, but diligent search failed to locate either eggs or young.

On June 8th, the weather having cleared, sail was set for Mud Island—20 miles out to sea. Here were found many Leach's petrels, terns, gulls, guillemots and a few eiders, while of the small land birds the Bicknell's thrush and black-poll warblers were the most interesting. Petrels were nesting all over the island, their burrows and musky odor being much in evidence. At the end of each burrow two birds were almost invariably found, but no eggs as yet.

A pair of eiders had built a nest at the base of a large spruce on the high bank overlooking the beach, and six eggs had been laid, but when examined each egg showed a ragged puncture in its side, through which the contents had been largely removed—this without doubt the work of the crows, which here

abound.

The terns and guillemots were inhabiting a small, flat, grass-covered, granite-bound island known as "Noddy" some half mile away, to which a visit proved interesting. The island which contains about three acres, was literally covered with the terns, which arose in swarms as our boat drew near, and hovered overhead, uttering shrill, piercing cries as they darted down at us. Three varieties were here represented—the Arctic, common and roseate, the former being much the most numerous, while the latter were rare. No eggs were yet deposited, but I was told that in a few weeks time the fishermen would come here and gather the eggs by the bushel. It seems too bad that these birds should be thus persecuted and finally driven from their nesting ground as they have from the other adjoining islands where once they swarmed. Crows and ravens also aid in this destructive work—the birds have no friends, despite their beautiful and graceful forms and interesting ways.

On Seal Island, next visited, the gulls, guillemots and petrels were found as numerous as upon the occasion of my visit of a year ago, and all were nesting, here much protected by Mr. Crowell the lighthouse keeper. But the great attraction of this island to me and the object of my expedition hither, was the Bicknell's thrush, its nest and eggs. During the four days spent on the island three nests were collected and others in process of building were noted. These nests were placed in the dense moss and lichen covered spruces, at varying distances from the ground, sometimes close to the trunk, again well out on the limbs. In composition they are similar, consisting of moss, lichens, wool, twigs and dried grasses, quite bulky but withal compact and neat. The full complement of eggs seems to be three, light blue in color, finely speckled with brown. Several nests of the black-poll warbler in varying stages of completion were discovered, but none contained eggs at that date.

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#### MEETING OF BOTANICAL BRANCH.

The fourth meeting of the Botanical Branch was held at the residence of Mr. J. M. Macoun. Messrs. Whyte, W. T. Macoun, Cameron, Fletcher, Attwood, Clarke and Jacombe were present. The subject presented for discussion by Mr. J. M. Macoun was "Botanical Nomenclature." After briefly explaining the points of difference between the arrangement of orders and genera by Bentham and Hooker and Engler and Prantl, the former being that used in Gray's Manual and the

latter, with some modifications, in Britton and Brown's Manual, Mr. Macoun told of the work of the International Botanical Congress at Paris in 1900 and at Vienna in 1905. The arrangement of genera by Engler and Prantl will, with a few changes, be the one used in future by practically all systematic botanists. This will entail the rearrangement of nearly all Canadian herbaria, as these now are, with very few exceptions, arranged according to Macoun's Catalogue of Canadian Plants which follows Bentham and Hooker. The rules of nomenclature approved by the Vienna Congress and which have already been accepted by nearly all systematic botanists will entail no very great changes in the names of plants as they are known to local botanists who have used Gray's Manual. Between 3 and 5 per cent. of the generic names, and something over 10 per cent. of the specific names will need to be changed. If the Vienna rules are strictly followed a much larger number of changes must be made by those who have used Britton and Brown's Manual.

As regards genera the chief point of difference between what is known as the Rochester Code, that followed by Britton and Brown, and the Vienna Rules, is the list of genera to which the Vienna Congress decided its own rules should not apply. It has been decided that botanical nomenclature of both genera and species is to begin with the publication of Linnæus' "Species Plantarum" in 1753, but in order to avoid the very large number of changes in genera which would be necessary if this rule were strictly followed, the Vienna Rules provide a list of names which must be followed in all cases. This list includes about 400 generic names which of course carry with them many thousand species. An important group of American botanists has refused to accept these exceptions and will continue to use the oldest generic names not, of course, going further back than 1753. Most amateur botanists, at least, will welcome the list of exceptions and not hesitate to follow it. By doing so they need not substitute *Panicularia* for *Glyceria*, *Juncooides* for *Luzula*, *Vagnera* for *Smilacina*, *Hicoria* for *Carya*, *Capnoides* for *Corydalis*, *Falcata* for *Amphicarpæa*, *Illicoides* for *Nemopanthis*, *Pneumaria* for *Mertensia*, *Leptamnium* for *Epiphegus*, *Hedypnois* for *Taraxacum*, and so on. A few of the more important rules adopted by the Vienna Congress were given by Mr. Macoun. As these rules have been published in several botanical periodicals they need not be reprinted here. They will be found in the March, 1907, issue of *Rhodora*, in the library of the Club.

J. M. M.

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