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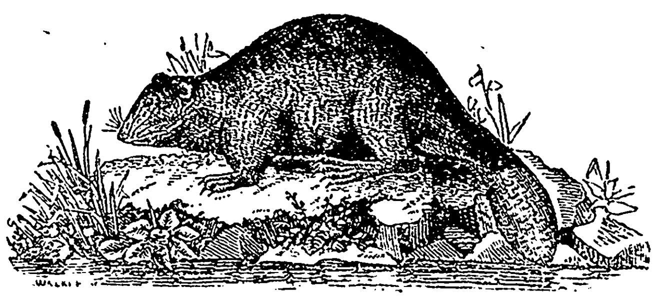

THE BEAVER (*Castor Canadensis*, Kuhl).

CONTENTS.

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and cells we see when plants are microscopically and even macroscopically examined. In the infancy of chemical science it was customary to call in the aid of the vital principle in further explanation. It seems that we have now got beyond that; "nous avons change tout cela" as the French say. I shall have, however, something more to say about this point before I close this lecture.

But those albuminoids are not the only compounds which plants are capable of forming with such inorganic nitrogen; many very wonderful compounds of different nature are stowed away in the root, stems, leaves and seeds of plants and trees which have nitrogen for an essential constituent. They are known as the alkaloids so much used in medicine. Although the plants and trees which yield the alkaloids grow in localities wide apart, at different altitudes, on soils of varying composition, and although they frequently come from very different parts of the plant, from the roots, the stem, the bark, the sap, the leaves and the seed, yet the fact that plants cannot elaborate these curious and valuable and dangerous substances without nitrogen, ammonia or nitric acid is common to them all. Among them are caffeina, which in tea, coffee and cocoa cheers, but not inebriates; quinia, the great fever remedy, from the bark of shrubs and trees of the tribe cinchonaceæ growing on the west slope of the Andes; morphia, from poppy juice, well known for its sedative powers and regarding which it has been remarked that by its judicious employment more happiness and by its abuse more misery has been produced than by any other drug used by mankind. Aconitia, mostly used in the anodyne liniment, seems to be to the human body outwardly what morphia is internally, a soother of pain. But it as well as atropia, brucia and strychnia are also known as the most powerful poisons. They are in appearance very innocent individuals, but they are terribly dangerous at close quarters.

The following formulæ show the composition of some of these bodies :—

Caffeina $C_8 H_{10} N_4 O_2 + H_2O$. Atropia $C_{17} H_{23} N O_3$.
Quinia $C_{20} H_{24} N_2 O_2 + 3H_2O$. Brucia $C_{23} H_{26} N_2 O_4$.
Morphia $C_{17} H_{19} N O_3 + H_2O$. Strychnia $C_{21} H_{22} N_2 O_2$.
Aconitia $C_{33} H_{43} N O_{12}$.

We must not however go farther afield in noticing these products of the transmutation of nitrogen. Il faut que nous revenons a nos moutons ; we must return to our mutton or rather to the substances which make our mutton, for it must not be forgotten that proteids are also to be found in the grassy plants. This has been fully shown by Mr. Shutt in his reports and he has even proved that "the percentage of albuminoids is higher in a grass before flowering or when in flower than when the seed is fully formed." He tells us that, "as the seed matures there is a migration of the albuminoids of the leaf and stalk into the seed," a very interesting fact and only less wonderful than the first formation of these important substances.

Valuable and important substances they are indeed, for the researches of Liebig went to prove, nearly fifty years ago, that these albuminous compounds are formed in the vegetable kingdom alone: that the animal body possesses only the power of appropriating them and converting the one into the other. Animals are entirely dependant on vegetables for a supply of the substances out of which first blood, and then from that fluid all the solids of the body are produced. For this reason the food of animals must contain these albumenoids ready formed.

This is not the first time you have been told that "All flesh is grass," but that has been to you for the most part a figurative expression. It is, however, true in a very literal sense. Flesh, that is to say, the fibrin of the muscles, the insoluble albuminoid of the animal kingdom is derived from the albuminoids of grass, vegetables, cereals, and leguminous plants. With these we follow the fortunes of Nitrogen from the vegetable into the animal kingdom. The great mass of the dry organic constituents of the animal tissues consists of these amorphous, nitrogenous, complicated substances of high molecular weight, and it is very well worthy of remark, that although the carbo-hydrates, starch, sugar, and even cellulose, play a most important part in animal nutrition and economy, they do not form part of what may be called the permanent constituents of the bodies of animals. Take for instance the body of a man of 11 stone or 154 lbs. ; it has been estimated that

111 lbs. or more than two thirds, consist of water. The remaining 43 lbs. consist of the following proximate constituents :—

	lbs.	oz.
Phosphate and carbonate of lime with fluoride of calcium forming the earthy matter of the bones....	7	
Other phosphates and carbonates with chlorides, sulphates, silica, and iron oxide........	..	9
Fat, constituting the adipose tissue.........	12	..
Gelatine, of which the walls of the cells and many tissues of the body, as well as of skin and bones are composed.........	15	..
Albumen found in the blood and nerves.....	4	3
Fibrin forming the muscles, the clot and globules of the blood	4	4
Total......................	43.	0.

Thus out of 43 lbs. dry substances 23.7 are albuminoids, but taking the dry organic constituents alone, 23.7 lbs. in 34.7 lbs., or 66 per cent., consist of the nitrogenous constituents of which we have been speaking. The carbohydrates so far as they have contributed to the building up of the body are represented by the fat.

According to Hammarsten it has become customary to include the whole of the animal albuminoids under the name of proteines or proteids, which would seem to be rather an unfortunate arrangement. It is unnecessary to go so far back as to explain how and why this term was invented by Mulder for designating all these nitrogenous substances, but since it comes from a Greek word signifying "I am the first" it would appear more appropriate to apply it rather to the vegetable albuminoids and confine it to them only.

It will scarcely be expected that I should give in such a lecture as this a full description of the processes of digestion and assimilation, but it is our business to attempt to follow the proteids of the vegetable kingdom in the changes which they undergo in passing through the animal economy. We must leave almost unnoticed the fat and the carbo-hydrates of food, and follow the proteids into the animal stomach where it is the special function of the pepsin contained in the gastric juice to render them soluble.

A word or two may not be out of place here regarding the digestive ferments. These are all nitrogenous bodies as is also the disatase of malt; but they are unorganised ferments or enzymes. They are quite different from the organized ferments, the vegetable or animal growths such as *Saccharomyces cerevisiæ*, which are said to provoke the various kinds of fermentations. Perhaps a good way to classify them would be to call the former ferments and the latter "varmints."

It does not appear that the digestive fluids of the intestinal canal such as the bile and pancreatic juice, are much concerned in acting upon the albuminoids of food or rather the peptones of the chyle. Their functions seem to be rather to convert sugar and fat into a condition for easy absorption. Elaboration follows absorption and ultimately these nutritive materials become part of the blood which conveys them to every part of the body, and affords to every organ and tissue a supply of the substances they stand in need of. Thus the nitrogen we have been following becomes part of the albuminoids of the blood, muscles and nervous system, and to its functions and transformations in connection with these I have now to invite your attention.

The blood, which constitutes about one twelfth of the weight of the body, and consists of the slightly yellowish colored fluid called the plasma or serum, and the blood corpuscles which swim around in it, is the fluid of life. It not only conducts to the various tissues and organs the substances which are necessary to their sustentation and growth, together with the oxygen required for changing the condition of the waste which they sustain, but it also takes up and removes from them all the substances which have served their purpose and become waste, in order to conduct them to the various organs of removal, the lungs, the skin and the kidneys, through which they obtain egress from the animal body. Formerly it was supposed that the various combinations and decompositions necessary to those operations took place in the blood itself. This view has, however, long since been recognized as erroneous, for none of the products of such decompositions are ever found in the arterial blood. Chyle, lymph and blood are simply to be regarded as the means by which the transportation is effected of the decomposable and decomposed material ; the decomposition or change itself is effected in the tissues. The various substances dissolved or suspended in the arterial blood, such as albuminoids, fat, sugar, salts and oxygen diffuse themselves through the fine capillaries of the blood vessels into the fluids of the tissues and here it is that they are subjected to all sorts of changes and transformations. The products of these are gathered up into the dark venous blood, which carries them away to be discharged from the body, while another set of fine tubes, the lymphatic absorbents, pick up all healthy superfluous fluid from the various tissues and return it into the circulation.

The albuminous substances thus spread all over the system are split up into more and more simply organised bodies, the final products being urea and uric acid. Just how this transformation is effected is far from being clearly understood. But there is not the slightest doubt about the fact tnat the substance urea, which contains nearly 50 per cent. of nitrogen, together with small quantities of uric acid and ammonia, is the ultimate product of the decomposition of the albuminoids in the animal organism, and is completely removed from the body by the instrumentality of the kidneys. Consequently the quantity of urea produced in the animal body furnishes a measure of the quantities or albuminoids consumed. The nitrogen of 100 parts of albuminoids is capable of producing 33.45 parts of urea and if the constituents of the latter are substracted from the albuminoids thus:

	C.	H.	N.	O.
In 100 pts albuminoids ...	53.53	7.06	15.61	23.80
In 33.45 urea	6.69	2.23	15.61	8.92
There remain..........	46.84	4.83	....	14.88

which are applied either direct to sustain the animal heat or are deposited in the body as fat. Thus, while the carbon, to a very large extent, of the albuminoids in common with that of the carbo-hydrates either promotes the production of fat or finds its way in the shape of carbonic acid to the lungs, and is so discharged into the atmosphere, a very different fate is experienced by the nitrogen. In some mysterious way, in a manner not yet understood by physiological chemists, it is made to form part of this substance urea and in the form of that compound it is separated from the body.

A very pertinent question, and one of the greatest importance is this: What is the special function of nitrogen in the animal economy? To what purpose is this continuous stream of it which passes through the body? Why are the albuminoids so essential to life, apart altogether from their carbon which goes partly to sustain the animal heat? Liebig's theory is well known and it is probably the one which to-day, in spite of its defects, finds widest acceptance. It is simply this: The conversion of part of the substance of the muscles into urea produces the power which the muscles require in performing movement and work. The nitrogen which is discharged from the body is therefore the equivalent of the transformed fibre, and therefore of the developed power and of the accomplished work. But there have been many objections to this teaching. It has been maintained that the muscles do not form the material by the chemical transformation of which power is produced, but only the apparatus in which the change is effected. Voit showed that, although the supply of albuminoids to an animal might remain unchanged, the mechanical work performed by that animal might be increased at pleasure, and that without provoking any increase in the amount of nitrogen discharged. Lawes and Gilbert too proved that this quantity depended entirely upon the nitrogen contents of the food, and therefore that the consumption of the muscle substances was entirely independent of the work accomplished. But since the muscular power must have come from the nourishment some opponents of Liebig's theory have sought its cause in the combustion of the non-nitrogenous nutrients, and they feel themselves the more justified in doing this because Smith, Von Pettenkofer and Voit had established beyond doubt the fact that, with the increase of muscular activity, the quantity of carbonic acid exhaled from the lungs increased also. In 1870 Liebig admitted the defects of his first theory and and brought forward a revision or modification of it. He felt himself, however, obliged to admit that even his new explanations were not entirely satisfactory, and declared that the true theory of the origin of muscular power had not yet been discovered and could only be expected from the far distant scientific investigations of the future. Here then we find ourselves face to face with one of the many questions to which scientists must answer, We don't know yet. Perhaps the activity and functions of nitrogen may bye and bye be located elsewhere in the body, and it is not impossible that it may have a closer connection with the nervous system than is now generally supposed. But what we are now quite certain of is that comparatively little of the nitrogenous substances or proteids of the vegetable kingdom remain permanently in the bodies of animals. A much larger quantity, or rather of their nitrogen, is made use of in simply sustaining the vital processes. Of the albuminoids thus consumed, say by the live stock on a farm, their carbon finds its way to the lungs in the shape of carbonic acid and their nitrogen is expelled chiefly in the liquid manure of the animals. This is a fact not yet sufficiently appreciated by our agriculturists generally, and much of the nitrogen thus expelled finds its way back to the atmosphere. When it is properly cared for by the farmer it does, or should, not escape from the soil of his fields. Our nitrogen thus travels back to soil or atmosphere after having completed its life giving circulation through the vegetable and animal kingdom. If it is allowed to reach the atmosphere then the agency of the leguminosæ is required to recapture it. If it again becomes a part of mother earth it is pretty securely held and is subject to some changes which we have now to consider.

Animal matter containing nitrogen, when it finds itself in a soil which is destitute of bases such as potash, soda or lime, usually gives rise to the formation of ammonia, but when bases are also present further oxidation takes place to nitric acid with simultaneous formation of nitrates such as saltpetre. It was this fact which caused Chaptal to suggest nitrogen as a name for that element from words signifying "I give rise to nitre."

(Here the following experiments were introduced and explanations given ; combustion of phosphorus and carbon in nitrous oxide ; oxidation of nitric oxide to nitrogen tetroxide ; production of nitric acid from saltpetre. The lecturer also referred to the oxidation of nitrogen in the soil, and the manufacture of nitre in the the East Indies.)

The instability of the compounds of nitrogen has been referred to, and although we can point to some animal substances of a very permanent character which contain nitrogen, nevertheless I am afraid we must admit that on the whole the subject of our lecture is a fickle and unreliable element. It is a constituent of almost every explosive, and these owe their effectiveness to the ease with which nitrogen and its associates part company and resolve themselves into gases, the sudden production and expansion of which fractures and ruins their environment, whatever that may be, unless properly confined or regulated. The chief raw material for the old explosive gunpowder was, as you know, saltpetre, but now, for the high explosives so-called, nitric acid is employed. The aim of the manufacturers of these new explosives, whose name is legion, is to get rid of all unnecessary constituents and employ only such as will resolve themselves completely into gas, and as much of that as can be produced. In place of sulphur and charcoal used of old in making gunpowder, cotton and various forms of cellulose, glycerine and even sugar have been substituted and nitrified or nitrised by nitric acid. In this way gun-cotton is produced as well as nitroglycerine. The latter substance is composed of $C_3 H_5 N_3 O_9$ and when exploded 2 molecules of it yield 6 of carbonic acid, 5 of water, 1 of nitrous oxide.and 4 of nitrogen, one part by bulk will yield on combustion.

554	volumes of	aqueous vapour
469	"	carbonic acid
39	"	oxygen
236	"	nitrogen
1298	volumes in all.	

But M. Noble tells us that the heat set free by explosion causes the gases to expand to eight times their bulk ; so that one volume of nitroglycerine will yield 10,384 volumes of gas while one part by bulk of ordinary gunpowder yields only 800 volumes. Noble was not the discoverer of nitroglycerine. The first inventor was Sobrero, in 1847 while a student in the laboratory of Pelonze at Paris. Noble began its manufacture 15 years afterwards in 1862. From that sleep of 15 years it has awakened with such violence as almost to make people wish it had never been invented.

(Continued on page 69.)

POPULAR *vs.* SCIENTIFIC ORNITHOLOGY.

By A. G. Kingston.

As a sequel to my note on page 44 the following correspondence in succeeding issues of *The Auk* is worth reproducing:

Mr. Wm. Brewster, writing in the October number, says:

"In an article which appeared in the July number of *The Auk* I "described at some length a peculiar process of regurgitation employed "by the Flicker in feeding its young, believing and indeed remarking "at the time that the habit was unknown or at least unrecorded. It "seems, however, that it had been previously observed by Mrs. Olive "Thorne Miller, who published an account of it in 1890 in the *Atlantic* "*Monthly*, the article being afterwards (in 1892) republished in a col-"lection of essays entitled 'Little Brothers of the Air.'

"It is a pity that writers like Mrs. Miller gifted with rare powers "of observation and blessed with abundant opportunities for exercising "them—cannot be induced to record at least the more important of "their discoveries in some accredited scientific journal, instead of "scattering them broadcast over the pages of popular magazines or "newspapers, or ambushing them in books with titles such as that just "quoted."

And Mrs. Olive Thorne Miller, in the January number, replies:

"Mr. Brewster's gentle admonition in *The Auk* of October last "seems to call for an explanation of my position. The reasons I turn "more readily to a literary than to a scientific channel of expression "are several, not to speak of the fact that I am naturally of literary "rather than scientific proclivities. There is first my great desire to "bring into the lives of others the delights to be found in the study of "nature, which necessitates the using of an unscientific publication and "a title that shall attract, even though it may, in a measure, ambush "my subject.

"Again, never having studied scientific ornithology, and having no "time at present, if I had the wish to do so, and moreover, having an "intense love of live birds, and an almost Buddhistic horror of having "them killed, I must admit of feeling the least bit out of my element "among those who—to put it mildly—feel otherwise. Let those who "will spend their days killing, dissecting and classifying; I chose rather "to give my time to the study of life, and to doing my small best toward "preserving the tribes of the air from the utter extinction with which "they are threatened. * * * * * "

ROYAL SOCIETY OF CANADA.

The thirteenth annual Meeting opened in the Convocation Hall of the Normal School on Tuesday, 22nd May. Dr. G. M. Dawson, President, occupied the chair, and a large number of the Fellows were in attendance, with numerous ladies and gentlemen also interested in literature and science. Their Excellencies the Governor General and the Countess of Aberdeen were present, and an address of welcome was read by the President. His Excellency responded in appropriate terms, and warmly congratulated the society on the success which had accompanied its labours. The voluminous Report of the Council was then read by the Hon.-Sec., Dr. Bourinot, after which the sections organized and proceeded to the reading and discussion of papers.

In the evening Dr. Dawson delivered his President's address, the chair being taken by the Hon.-President, His Excellency the Governor General. The large audience included Lady Aberdeen and many distinguished persons, who greatly appreciated the President's able address upon "The Progress and Trend of Scientific Investigations in Canada," which gave a comprehensive survey of the work conducted by various departments of the government, and by the leading scientific societies. On the conclusion of the address His Excellency made some eulogistic remarks, and tendered to the learned lecturer the thanks of the audience. Many of those present then attended a delightful reception given by Mrs. Bourinot in her charming house on Cooper Street.

Wednesday was devoted entirely to the reading of papers in the sections; an adjournment being made at 5 p.m., so that the members might attend an "At Home" given by Dr. Sandford Fleming. A very interesting public meeting was held in the evening by the French Literature Section: the programme including a lecture by the Hon. Mr. Marchand, M.L.A., of Quebec, entitled "Un Tour de France durant la Seconde République."

Thursday was made, in honour of Her Majesty the Queen, a day of rest and recreation. During the forenoon a large party visited the Central Experimental Farm, and were conducted over the grounds by the Director and his staff, who fully explained the many interesting experiments in progress in the several departments. A Luncheon and Garden Party at Government House, to the members and delegates, was given by Their Excellencies, whose delightful hospitality was greatly enjoyed. The society sent through His Excellency a cable message of congratulation to Her Majesty, Queen Victoria, to which a gracious reply was promptly transmitted.

Friday morning was occupied by the sections in completing their work and electing their officers, and in the afternoon a general meeting of the society was held, at which the reports of the sections were received, several Fellows elected, and various important matters discussed. The meeting was closed by the election of the following officers for the present year :—President, Mr. J. M. LeMoine, Quebec; Vice-President, Dr. Selwyn ; Hon.-Sec., Dr. Bourinot ; Hon.-Treas., Mr. Fletcher.

An eloquent and forcible lecture was delivered in the evening by Prof. B. E. Fernow, Chief of the Division of Forestry, U. S. Dept. of Agriculture, Washington, his subject being the "Battle of the forest." He graphically portrayed, first the long fight for the possession of the earth's surface and the formation of soil ; next the conflicts of the various species and the struggle for the most favorable habitats ; finally, the defeat by man, and the destruction of the more valuable forms. With axe and fire, not only the forest is removed, but often the very soil which it had taken so many ages to accumulate and prepare. The interest of the lecture was much enhanced by numerous beautiful illustrations. This address, read in conjunction with that of Prof. Macoun should impress upon all thoughtful persons the necessity for a more comprehensive and rational system of using our forests.

The success of this meeting of the society was contributed to by the following distinguished scientists from the United States, (who were present by invitation), Prof. O. C. Marsh, Dr. S. Scudder and Prof. B. E. Fernow. . Rt. Hon. James Brice (London Eng.), Sir James Hector (Wellington, N. Z.), and Dr. S. H. Scudder (Washington U.S.), were elected Corresponding Members, and the following gentlemen were elected Fellows :—Sec. I, Adolphe Poisson (Arthabaskaville); Sec. II, Wilfred W. Campbell (Ottawa), Arthur Harvey (Toronto), Dr. J. A. McCabe (Ottawa), Lt. Gov. J. C. Schultz (Winnipeg); Sec. III, Rev. Dr. Williamson (Kingston); Sec. IV, G. U. Hay (St. John N. B.), W. H. Harrington (Ottawa), and Rev. G. W. Taylor (Victoria B.C.). Wm. Kirby (Niagara), and Ewan McColl (Toronto), of Sec. II, were created Retired Members. Sections II and IV have now their full quota of members, there is one vacancy in Sec. I, and four in Sec. III.

Some sixty papers were read before the sections, many of which were extensive contributions to literature and science. In section III, a paper was read by Mr. Shutt, entitled "Some observations on the quality of the air of Ottawa," but the papers read in section IV were naturally of most interest to the members of the Ottawa Field-Naturalists' Club. Prof. Macoun's Presidential address was a very valuable paper on "The Forests of the Dominion and their Distribution." It is regretted that for want of space not even the titles of the other papers can be given. The Section elected the following officers for the current year: President, Mr. James Fletcher; Vice-Pres., Prof. Wesley Mills; Secretary, Prof. Penhallow. [Ed.]

BOOK NOTICES.

ON CYPHORNIS, AN EXTINCT GENUS OF BIRDS.—BY E. D. COPE. JOURNAL A. N. S. PHILADELPHIA, VOL. IX, pp. 449—452, PLATE XX.

To our knowledge of the extinct vertebrates of Canada, Prof. E. D. Cope contributes an interesting chapter in the last fascicle issued by the Journal of the Academy of Natural Sciences, Philadelphia. The paper is based on a specimen collected by Dr. George M. Dawson, from the Tertiary Shales of the west coast of Vancouver Island and belongs to the Geological Survey of Canada.

Elaborate descriptions and measurements of this specimen are given on pages 449 *et seq*, and it is said to consist of the "superior part of a tarsometatarse,' belonging to an extinct genus of bird. It was a rather singular but fortunate occurrence that this portion of the skeleton of this bird was preserved and discovered, inasmuch as "the tarsometatarse is perhaps the most characteristic part of the skeleton of a bird." Prof. Cope finds that this extinct species of bird, which used to inhabit our western coast in Tertiary times, and to which he has given the generic designation of Cyphornis, bears greater resemblance to the steganopodes or pelicans, than to any other family. "The anterior aspect of the bone," Cope says. (*loc. cit.* p. 451), "is almost exactly like that of Pelecanus, but the posterior aspect resembles that of none of the order in the absence of the tendinous groove." When compared with cretaceous birds, Prof. Cope finds but "one point of resemblance" and that with the extinct form *Hesperornis*, viz: in "the ridge-like elevation of the anterior part of the external tibial facet, which is in both genera connected with the intercondylar tuberosity." The affinities of this bird, Prof. Cope holds, "are more clearly with the Steganopodes, combined with affinities to more primitive birds, and having a simple hypotarsal structure." *Chyphornis magnus*, Cope, is the name ascribed to this extinct bird, which in Tertiary times—at a period probably intermediate between the Eocene and Oligocene—frequented the shores of Vancouver Island.

"As regards its habits, it may be said that the pneumatic character of its foot bone renders it improbable that it depended on this member for habitual locomotion on land. In all the birds of terrestial habit which I have examined," he continues, "and of which I can give information the tarsometatarse is either filled with cancellous tissue, dense or open, or the walls of the shaft are thick as in the Emu. The presumed affinity with the Steganopodes indicates natatory habits and probable capacity for flight. Should this power have been developed in *Cyphornis magnus*, it will have been much the largest bird of flight thus far known."

On plate XX, which accompanies the text of this fascicle, Prof. Cope figures four aspects of this bone and in the latter expresses the hope that additional material will be forthcoming from which to make more detailed and more perfect descriptions of this extinct bird.

H. M. Ami.

FAUNA OTTAWAENSIS.

Hemiptera.

By W. Hague Harrington, F.R.S.C.

Since the publication, in June 1892, of the list of Ottawa Hemiptera (Ottawa Naturalist, Vol. VI, page 25), the following additional species have been collected, and have been kindly identified by Mr. E. P. Van Duzee. Unless otherwise stated, only single specimens have been observed.

HETEROPTERA.

Corimelæna nitiduloides, *Wolf.* April 15th.

Euchistus ictericus, *Linn.* June 3rd 1893, Mer Bleue. May 25th and June 10th, 1894, Hull.

Phytocoris tibialis, *Reut.* Apparently common. July.

Neurocolpus nubilus, *Say.* July 29th.

Lygus pabulinus, *Linn.* July.

Diplodus socius, *Uhler.* July 30th. On Solidago, near Hull. This species is recorded from the Western States, and Mr. Van Duzee expresses his surprise at its occurrence at Ottawa. He asks "did it not come from British Columbia?" As it was captured not many hundred yards from the main line of the famous C.P.R., it may possibly have stolen a ride across the continent upon some train.

Limnotrechus marginatus, *Say.* Sept 3rd. Both sexes (and young apparently of same species) abundant in the canal. Probably the common species of all our waters.

Rhagovelia obesa, *Uhler.* Nov. 3rd. Both sexes abundant in Rideau River, above the railway bridge, near Hog's Back, in the small pools of the rapids.

HOMOPTERA.

Agallia sanguinolenta, *Prov.* June 26th.

Parabolocratus viridis, *Ulher.* This insect was erroneously given in the list as *Gypona quebecensis*, Prov., which is a synonym of *G. striata*, Burm.

Deltocephalus inimicus, *Say*.

Athysanus extrusus, *Van Duzee*. June 17th.

Athysanus curtisii, *Fitch*.

Phlepsius incisus, *Van Duzee*. July 29th.

Phlepsius humidus, *Van Duzee*. July 31st. Aylmer.

Ulopa canadensis, *Van Duzee*. Common. This was referred to in previous list as *Ulopa n. sp.* It has since been described from specimens taken at Ottawa and Ridgeway, Ont. (Trans. Am. Ent. Soc. Vol. XIX, page 301). It is quite common in moss collected late in the fall and I have also taken it in the spring. No individuals have been observed with fully developed wings.

REPORT ON ORNITHOLOGY, 1893.

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

The Leaders in Ornithology beg to report as follows :—

The birds of this district have been under observation for so many years that any additions to the recorded list must almost of necessity be regarded as merely casual or accidental visitors. Of this character are the first two records which follow—

Brunnick's Murre, (Uria lomvia). A flock of 20 seen by Mr. G. R. White on the 20th of November on the Ottawa River near the city, out of which 5 were secured. They were identified by Mr. Robert Ridgeway of the U. S. National Museum. Reference has already been made to these in the "NATURALIST" for January 1894, p. 164.

Chewick, towhee, (Pipilo erythrophthalmus). One seen by Messrs. F. A. and A. P. Saunders 19th July, about 80 miles north of Ottawa near the Desert. This bird was certainly a long distance from its usual habitat, and the observers being without a gun at the time were unable to "collect" it; but both of them are familiar with the species in western Ontario, and they are positive of the identification in this instance not only by sight but by call-note.

Holboell's Grebe, (Colymbus holboellii). There are but three previous records of this species here. On 6th September Dr. E. S. Wiggins shot one out of a flock of 5 or 6 on Shirley's Bay, Ottawa River.

Cowbird, (Molothrus ater). The report for 1891 recorded an instance of a pair of chipping sparrows, whose nest had been invaded by a cowbird in the usual fashion, but who succeeded in bringing their own young to maturity as well as the young cowbird.

The same observer, Miss Gertrude Harmer, in her notes for 1893, tells of a like case which came under her notice this year, and in which the result was equally fortunate. We are not aware of any other records similar to these, but it is possible that closer observation, on the part of those who may be fortunate enough to find nests containing eggs of the cowbird, might serve in some degree to relieve this species of the blame that has always attached to it, as a preventer of the hatching of the eggs of other birds.

An albino specimen of this species was observed this autumn near Shirley's Bay by Dr. McElhinney and Messrs. Robson and Thicke.

A number of minor observations in bird life, such as do not call for a place in this report, have been noted from time to time during the year in the Ottawa "NATURALIST" under the head of Notes on Ornithology.

The table of first and last appearances of migrants for 1893 has been prepared, but owing to the comparatively small number of records it has not been deemed advisable to publish it. It may, however, be referred to when required.

All of which is respectfully submitted.

A. G. KINGSTON.
Wm. A. D. LEES. } *Leaders.*
E. BOLTON.

NOTE.—The second excursion was held on Saturday, 23rd June, to Wakefield, and was a very successful and enjoyable trip, of which a fuller account will be given next month.—The several Sub Editors could contribute very greatly to the value and interest of the NATURALIST, and also lighten the work of the Editor, by sending in contributions more regularly. (Ed.)

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,* shall not be more than 1500 feet in length, nor more than 600 feet in breadth. A location for mining *Iron,* 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 1892.