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THE OTTAWA NATURALIST

VOL. XXV. OTTAWA, MARCH, 1912 No. 12

FINAL REPORT OF THE JAMES FLETCHER MEMORIAL COMMITTEE OF THE OTTAWA FIELD-NATURALISTS' CLUB.

The Memorial Fountain, erected on the Central Experimental Farm, was unveiled on July 19th, 1910. Several hundreds of people were present at the ceremony, including some distinguished visitors from a distance. Official representatives of the Royal Society of Canada, the Entomological Society of Ontario and the Ottawa Field-Naturalists' Club were present, and took a prominent part in the proceedings. The Fountain, including the medallion, is the work of Dr. R. Tait McKenzie, of the University of Pennsylvania, Philadelphia, U.S.A.

The Memorial portrait, which is the work of Mr. Franklyn Brownell, R.C.A., was unveiled at an evening meeting of the Ottawa Field-Naturalists' Club on January 9th, 1912. It is an exceedingly good likeness of the late Dr. Fletcher, and, as most satisfactory arrangements have been made with the Municipal Library Board and the Librarian of the Carnegie Library, the portrait will be hung in a prominent place in this latter building.

CASH STATEMENT.

Receipts.

Total amount paid by subscribers		$1,838.85
Bank interest		22.61
		$1,861.46

Expenditure.

Cost of Memorial Fountain	$1,500.00	
Cost of Portrait, including frame	225.00	
Miscellaneous expenses: printing, envelopes, receipt forms, postage, travelling, etc.	136.46	
		$1,861.46

On behalf of the Committee,

ARTHUR GIBSON, Secretary-Treasurer.

Ottawa, January 23rd, 1912.

PASSENGER PIGEON INVESTIGATION.

February 14, 1912.

LIST OF REWARDS WITH CONDITIONS GOVERNING THEM.

ONE THOUSAND DOLLARS ($1,000) REWARD.—For first information, *exclusive and confidential*, of the location of a nesting pair or colony of passenger pigeons, anywhere in North America; when properly confirmed and if found by confirming party with parent birds and eggs or young UNDISTURBED:

Colonel Anthony R. Kuser will pay a reward of....$300
John E. Thayer will pay a reward of.....$700

For first nesting discovered thereafter in the following States will be paid by:—

John Burroughs, New York.....$100
A. B. F. Kinney, Massachusetts..... 100
Anonymous, Massachusetts, for 2d find..... 100
Allan B. Miller, for 1st nesting found in Worcester Co., Mass. 20
Edward Avis, Connecticut..... 100
Harry S. Hathaway, Rhode Island..... 100
Worthington Society, New Jersey..... 100
John Dryden Kuser, for 2d nesting found in New Jersey... 10
Henry W. Shoemaker, Penna. $200 (adds $25, if nest is protected)..... 225
W. B. Mershon, Michigan..... 100
R. W. Mathews, Minnesota..... 100
Ruthven Deane, Illinois..... 50
John E. Thayer, Me., N. H., Vt., Ont., Wis., $100 each.... 500
John Lewis Childs, for first three nestings not entitled to any of the above rewards, $200 each..... 600

The purpose of these offers is to secure an intelligent search of the American continent for breeding pigeons in the hope that, if found, the species may be saved from extermination.

All above rewards are offered solely and only for information of location of undisturbed nestings. We do not desire possession of any birds, alive or dead, but are working solely to save the free, wild pigeon.

To insure intelligence and good faith informants of nestings are advised to enclose or agree to forfeit at least $5 in case they have failed to identify the birds correctly. This is only fair, since the amount may cover but a small part of the costs occasioned by a false report. The money will be immediately returned, if the birds are found to be passenger pigeons (Ectopistes migratorius). In the case of nesting pigeons, there can be no excuse for sending in false reports. *Disregard all nests on*

the ground. The wild pigeon always nests in trees, generally 10 *feet or more from the ground.*

Priority of claim will be decided by time of receipt at post or telegraph office. Rewards will be equally divided, if two or more letters or messages bear record of same date and hour. All nestings within one mile of one another will be counted as one colony.

Please report all pigeons seen, giving *exactly* date, hour, number in flock, direction of flight. Unless absolutely certain that you know the Band-tailed, Viosca and Red-billed pigeons, do *not* report that you have seen the passenger pigeon in the Rocky Mts. or Pacific Coast region, from British Columbia to Mexico.

As soon as a pigeon nesting is surely identified write the undersigned, who will arrange for confirming party and for payment of the reward. All rewards not claimed by Oct. 31, 1912, will be withdrawn.

Signed, C. F. HODGE,
Clark University, Worcester, Mass.

DRINKING WATER AND HEALTH.

BY FRANK T. SHUTT, M.A., F.R.S.C., DOMINION CHEMIST.

(Continued from page 171).

Waters as used by towns or for isolated households, as on the farm, may be classified as follows:— Rain water; Upland surface waters; Ground waters or those of shallow wells; and Deep-seated waters, as obtained by drilling or boring and among which many springs may be placed.

Rain water. This can be caught and used as such. As a drinking supply little need be said of this source. In Canada, where in most districts, other and larger sources of supply are readily available, rain water is seldom used save for washing and laundering purposes, for which by reason of its extreme softness it is eminently suitable. Its quality or purity will depend on the condition of the atmosphere through which it falls; if in town we may expect it to contain soot and gases from which it would be comparatively free if falling in rural parts. Again, dirty roofs and eave troughs, storage tanks in which organic débris accumulate, all contribute towards making this supply foul and unfit for consumption—so that even a fairly pure rain water that has been stored is difficult to find. However, if fresh and clean, it is not at all unwholesome, though

not very palatable. If stored in vats or tanks these should be of cement and frequently examined and cleaned. The water for use should be passed through an efficient filter and boiling would be an additional safeguard, though the presence of disease germs would not naturally be expected.

Upland Surface Waters. These constitute the waters of our lakes and streams and are formed by the run-off from the lands, though to some extent, of course, these sources are fed by springs. By far the larger number of supplies of Canadian cities and towns are drawn from lakes and rivers and hence the importance of immediate and efficient legislation that will protect these natural bodies of water from sewage and other pollution. The fact should be emphasized that these natural waters are, almost without exception, eminently suited without any preliminary treatment for drinking and domestic use. But as our population increases and especially as cities and towns build up on the margins of lakes and the banks of streams, the necessity of adequate filtration becomes apparent. It will therefore be the part of wisdom from this on, not only to protect these waters from pollution a effectively as possible, but, also for those communities drawing upon them for their supply to establish filtration plants. Experience in other countries has shown that despite the most vigilant protective measures such waters may at any time, through accident or otherwise, receive excretal waste and become a source of danger, a menace to good health. It is now generally recognized by the highest authorities that filtration is imperative—a sine qua non—if the supply is at all seasons to be relied on as free from injurious bacterial life.

The nature of the country and the composition of the rocks of the catchment area will largely determine the character of these waters. Thus a limestone district gives rise to a hard water, a Laurentian area, with gneiss, granite and similar rocks, result in a comparatively soft water. Again the colour of these waters is largely determined by the presence or absence of swamps in the country from which they draw their supply. A colored water, that is, one brown or yellowish-brown, through the presence of dissolved peaty matter, though offending the aesthetic sense (for we all prefer a colorless water), may be perfectly wholesome and especially so when such is from a large body of quickly flowing water, as for instance the Ottawa river. There are very few cases of illness or indisposition on record —if indeed any that can be definitely traced to the consumption of these peaty waters from large, actively flowing waters, provided of course such have proven to be free from excretal pollution. These so-called peaty waters and from sources such as I have described, have shown themselves almost universally

to be perfectly satisfactory for city supplies, not only from their extreme softness (which means a considerable saving in soap and labor to the community) but from the hygienic standpoint. These waters keep well, for their dissolved peaty matter does not readily undergo further decay, is in fact remarkably stable. It is true that temporary indisposition frequently follows the use of these waters when one has been accustomed to a hard, colourless water, but it is equally true that the reverse happens. Any change in the character of the water consumed may bring about a slight derangement, for the system becomes habituated to a certain water and some persons are very susceptible, for a time, to any difference in its character. The case, however, with coloured waters from low-lying swampy, shallow lakes and ponds is very different. Such bodies of water being more or less stagnant, produce an abundance of vegetable growth largely algal, which under favourable weather conditions may rapidly decompose, giving rise to offensive and nauseating products. If, as frequently happens in summer, these decay products accumulate, in other words get ahead of growth that can utilize them, the water becomes foul and unfit for consumption. The result of drinking such water usually shows itself in an attack of diarrhoea or nausea. From these considerations it would be obvious that colour is not in itself a quality or factor that can be used alone in deciding upon the suitability of a supply. Leaving out of consideration sewage pollution, we may have on the one hand a comparatively colourless water but one in which algae and other low forms of life are present in large numbers and in which chemical analysis proves the presence of easily decomposable organic matter, and on the other hand a highly coloured peaty water from a large and quickly flowing river, and the former will be distinctly the inferior water, one that must be efficiently filtered and purified before it can be regarded as a wholesome, potable supply.

Ground Water. This is the rain and melted snow absorbed and retained by the soil and subsoil. It is the source that supplies the shallow, domestic well so commonly used on the farm homestead and in the village. When the surroundings are perfectly satisfactory from the sanitary standpoint, these wells are frequently a source of excellent water, but, when, as is usually the case, convenience to the house or farm buildings is alone considered in the location of the well, the water is seldom of first class quality and more often must be adjudged as quite unfit for consumption. On the larger number of farms we find these wells, usually between 10 and 25 feet in depth, sunk in the barnyard or under the stable or other outbuildings, or not very far from the privy (a most crude and unsanitary affair

as a rule), or near the back door, out of which the household slops may be thrown and near which the garbage heap with all sorts of refuse may be found. It is quite true that most soils, and more particularly those that are porous and well aerated (gravels and sands), possess filtering and purifying properties in a marked degree, but the soil surrounding wells located as we have described must in time become saturated with organic filth of a most objectionable character, and is then no longer able to purify but rather serves to more seriously contaminate the water passing through it to the well, which under such conditions may be said to act as a cess pit.

Further, we frequently find these wells become the watery grave for rats, mice, frogs and other small animals, the decomposing bodies of which render the water foul and unfit for use. Imperfect protection of the mouth of the well may allow the entrance of surface wash. Rotten crib work is another source of contamination. Other causes of pollution could be enumerated but enough has been said to justify the conclusion that the ordinary farm well is at the best a poor supply and should be abandoned for a safer, purer source. The examination in the laboratories of the Experimental Farms of hundred of samples of such well waters have shown that few of these wells furnish a supply that can be considered wholesome, by far the larger number must be condemned as totally unfit for use. Considering the location of most farm wells, it is not a matter of surprise that but a very small proportion of them yield water of sufficient purity to be classed as satisfactory. Many of these waters are colourless, bright, sparkling, clear and cool, but these qualities are no criterion and it is by no means uncommon to find waters possessing all these commendable properties and at the same time reeking with filth. Of course, if a well water becomes turbid after a rain, there is reason to reject it, for in this turbidity we have a sign that the soil is no longer able to do its work as a filter and purifier.

A precaution of very considerable value, towards protecting the well water from organic filth, is to line the well to a depth of say 10 or 12 feet to a thickness of say 6 inches with concrete or puddled clay. This lining should project some 6 to 12 inches above the mouth of the well. This prevents the direct inflow of wash and of water from the surface soil, in which the larger amount of putrescible organic matter is found and ensures a certain amount of filtration through clean layers of soil.

Another safeguard is to keep an area of say 50 yards radius round the well free from manure and all deposition of filth, (it should preferably be in sod), and this plan we would heartily recommend to those who are contemplating sinking a well for

household use or for watering stock. If the ground surrounding the well is an undisturbed area and free from all excretal waste, it will perform its function as a natural filter and the water may be very good. Especially is this the case if the soil is sand or gravel, for such will not only remove suspended matter and germ life, but will also foster the destruction by oxidation of the organic matter held in solution. A clay subsoil is far inferior to sand in its purifying effect.*

Deep Seated Waters. These are waters that have percolated through the soil and permeable rock strata until arrested by an impervious stratum. They may appear on the surface as springs, but are more commonly obtained by deep wells, driven or bored, possibly through several overlying impervious strata to the water bearing rock. If there are no fissures in these overlying strata and there is no opportunity for water to flow downwards between piping and the sides of the boring, a good water will in all probability, be obtained. While it cannot be taken for granted that a bored well will necessarily yield a good drinking water, it is the source of supply to be generally recommended for the isolated households. Examination has shown that they are capable of furnishing in the larger number of instances, and when proper precaution has been taken to exclude surface water, a supply of high organic purity and very low bacterial content. In certain districts we find these deep seated waters characterized by an excess of saline matter, rendering them unsuitable for domestic use; but when such is not the case the deep well undoubtedly constitutes a safer and better source of supply than the shallow, ground water well. With a pump actuated by a windmill, small gasoline or hot air engine, tanks can be filled in the farm buildings for the watering of the stock and in the farm house to supply the bath room and kitchen. Such an arrangement would mean much, not only in the matter of convenience and the saving of labor, but in the still more important matter of securing a supply that would lead to better thrift in the stock and better health in the family.

Before bringing this address to a close, I must answer though it may be briefly, one or two questions that have been handed me for reply.

1. Is a hard water injurious to health? The human system has a remarkable adaptability and though certain authorities have considered that a hard water is inducive to the formation of calculi there is very little evidence to support the statement.

* Analyses of well waters from farm homesteads are made free of charge by the Chemical Division, Experimental Farm, Ottawa, provided the samples are collected and shipped in accordance with instructions that are sent on application.

Cities having even a very hard water supply do not show the prevalence of any disease that can be attributed to the water and we may conclude that the lime compounds present do not work any injury to health. As already remarked sudden changes from one character of water to another, whether hard to soft or soft to hard, may cause disturbance in the system, but such will only be temporary. The system requires lime to build up its skeleton and for its other tissues and it may take it from the water as well as from the food; there is nothing to prove that the lime taken in the water is not as readily assimilable as that in the food stuffs we consume. Consensus of opinion points to a moderately hard spring water, in which all possibility of contamination is out of the question, as probably the best supply, but such unfortunately is very hard to find.

2. Is distilled water wholesome? The only argument that can be urged against its use for drinking is that it does not contain the necessary mineral elements for the building up of the tissues and for the replacement of the daily outgo of these elements. The answer is that in the ordinary, normal diet there is such an abundance of the mineral salts that the absence of them in the drinking water need cause no alarm. There is much to be said in favor of distilled water, as it should be free from all forms of organic matter and disease germs.

3. What means can the householder take towards making a suspicious water harmless? Undoubtedly the best plan is to boil the water for from 5 to 15 minutes. This is the most efficient safeguard that can be proposed for the individual. Household filters, though removing suspended matter, are seldom to be depended upon to deprive the water of germ life and at the best require constant attention and cleansing to be kept even fairly efficient. The addition of hypochlorite of lime, now largely used in the purification of city supplies is not readily applicable in the house and cannot be regarded as equal to boiling for the destruction of germs. The boiled water may be rendered palatable and the "flat" taste removed, by being allowed to cool in the open air.

And now in conclusion, I must emphasize two points. The first is the insidious character of polluted water. The danger that lurks in water polluted with excretal products is not always apparent. This fact must not be lost sight of. There may be no outbreak of typhoid fever, but it may be generally undermining the health. In far too many cases the well goes unsuspected until the victim is stricken down. The moral is, ascertain the purity of the supply.

And the second point is that there is abundance almost everywhere of pure water. There is no better watered country

in the world than Canada. We can unhesitatingly affirm that the normal waters of our lakes, streams and springs, our ground waters and our deep seated sources, are of the purest. It becomes our duty as communities and individuals, to preserve and protect them from pollution and to see to it that the water we drink is as irreproachable in quality as that with which Nature has supplied us.

THE IDENTITY OF THE BETTER KNOWN MIDGE GALLS.

BY E. P. FELT, ALBANY, N.Y.

(Continued from page 167).

TRIBE OLIGOTROPHIARIAE.

The third vein in this group is well separated from the anterior margin of the wing; the antennal segments are short, cylindric, usually stemmed in the male, and the claws are simple or at least rudimentary. This latter character serves to differentiate the species from the preceding tribe. The food habits, like those of the Dasyneuriariae are somewhat general, though there is a much greater preponderance of bud galls.

PHYTOPHAGA ROND.

The antennal segments in this genus range from 12 to over 20, the flagellate ones being stemmed in the male and usually sessile in the female. The palpi are quadriarticulate. This genus is distinguished from the following by the third vein uniting with costa at the apex of the wing. Synonym: *Mayetiola* Kieff.

P. ulmi Beutm. The larvae live among the small, immature terminal leaves or inhabit leaf buds. Previously referred to *Cecidomyia* and *Mayetiola*.

P. violicola Coq. The pale yellowish larvae live in curled violet leaves. Previously referred to *Diplosis*, *Contarinia* and *Mayetiola*.

P. destructor Say. The yellowish larvae injure the stems of wheat and other grains under the leaf sheath. Widely known as the Hessian fly. Previously referred to *Cecidomyia* and *Mayetiola*.

P. rigidae O.S. Gall an apical or subapical enlargement on willow stems, fusiform in shape, about an inch long and tipped with a rather characteristic slender, curved beak. Previously referred to *Cecidomyia* and *Rhabdophaga*.

OLIGOTROPHUS Latr.

Antennal segments 13 to 20, the flagellate ones stemmed in the male, sessile in the female; palpi presumably triarticulate.

O. betulae Winn. The larva occurs in inflated seeds of white birch. An introduced species, previously referred to *Cecidomyia*.

RHOPALOMYIA Rübs.

Antennal segments 12 to over 20, the flagellate ones stemmed in the male, usually subsessile in the female; palpi uni- or biarticulate. Members of this genus display a marked preference for flower or bud galls, a large proportion of the species occurring upon solidago.

R. hirtipes O.S. The orange larvae occur in somewhat nut-like apical galls on stunted solidago shoots, or more commonly as smooth, brownish, subterranean swellings evidently developing from root stock buds and varying in size from ¼ to 1¼ inches in diameter. Described as *Cecidomyia*.

R. solidaginis Loew. A large apical rosette gall on solidago. Described as *Cecidomyia*.

R. racemicola O.S. Gall a greenish or reddish, subglobular, bud-like enlargement about .1 of an inch in diameter on solidago. Described as *Cecidomyia*.

R. anthophila O.S. Gall nearly cylindric, green, densely pubescent, about ⅛ of an inch long on solidago. Described as *Cecidomyia*.

R. antennariae Whlr. Gall a corm-shaped apical bud deformity about ⅛ of an inch in diameter on *Antennaria*. Described as *Cecidomyia*.

R. tridentatae Rubs. Produces an apical bud gall on *Artemisia tridentata*.

R. alticola Ckll. Gall a subglobular, grayish, woolly enlargement; diameter ¼ to ½ inch, on *Artemisia*. Described as *Cecidomyia*.

R. gutierreziae Ckll. Gall a pale green, fusiform or suboval swelling in the flower heads of *Gutierrezia*. Length ½ inch, diameter ⅛ inch.

R. bigeloviae Ckll. Reared from a hollow stem gall on *Bigelowia*. Described as *Cecidomyia*.

R. chrysopsidis Lw. The gall is apical, light brown, irregular, woolly, about ¾ of an inch in diameter and occurs on *Chrysopsis mariana*. Described as *Cecidomyia*.

TRIBE ASPHONDYLIARIAE.

This tribe comprises mostly large, heavy-bodied insects easily recognized by the long, cylindric, sessile antennal segments

and the simple claws. The species breed largely in flower buds or fruits.

ASPHONDYLIA H. Lw.

Antennal segments 14, flagellate sessile, cylindric, the distal ones in the female reduced; palpi uni- to triarticulate; terminal clasp segment of the male genitalia bidentate; ovipositor of the female with the distal portion aciculate.

A. globulus O.S. Stem gall, globular or spherical; diameter ½ to 2 inches; on *Helianthus*.

A. betheli Ckll. The larvae occur in the swollen fruit of *Opuntia*.

A. monacha O.S. Produces a small apical rosette gall on *Solidago lanceolata*. It may also occur in an oval chamber between two adhering developing leaves, and has been reared from dwarfed aster heads. Synonyms: *A. recondita* O.S., *A. solidaginis* Beutm. and *A. patens* Beutm.

A. antennariae Whlr. Gall a corm-shaped bud gall ⅛ to ¼ an inch in diameter on *Antennaria*. Described as *Asynapta*.

A. autumnalis Beutm. A globular, irregularly rounded bud gall on *Helenium*. Length ¾ to 1¼ inches, diameter about ½ inch.

A. atriplicis Ckll. An irregular twig gall on *Atriplex*. Length ½ inch, diameter ¼ inch. Described as *Cecidomyia*.

A. conspicua O.S. Gall an irregular, subglobular enlargement some 2 inches in diameter, of the flower head of *Rudbeckia*.

SCHIZOMYIA Kieff.

Antennal segments 14, sessile or subsessile, the flagellate ones in the male with remarkably stout, elevated circumfili; palpi quadriarticulate; the basal clasp segment of the male lobed distally, the terminal clasp segment irregular. Antennal segments of the female much as in *Asphondylia*, the apical portion of the ovipositor aciculate.

S. coryloides Walsh & Riley. Gall a roundish mass 1¼ to 2½ inches in diameter of from 10 to 50 opaque, woolly-pubescent, fusiform or sometimes flattish-oval, green galls, each from ½ to ¾ of an inch long; on grape. Described as *Cecidomyia vitis-coryloides*.

S. pomum Walsh & Riley. Gall depressed, subspherical or flattened. The young gall is green, succulent, credited with possessing a pleasant subacid flavor and covered with a fine pubescence. The fully developed gall has 8 or 9 longitudinal ribs somewhat like those of a muskmelon and within a number of longitudinal cells arranged in two tiers; on grape. Described as *Cecidomyia vitis-pomum*.

CINCTICORNIA Felt.

Antennal segments 14, sessile, the flagellate ones of the male with numerous low, regular circumfili, those of the female with two to six transverse, anastomosing circumfili; palpi quadriarticulate; terminal clasp segment of the male genitalia transversely and evenly serrate. Ovipositor stout, tapering to subacute, minute lobes. This genus appears to be confined very largely, if not exclusively to oak leaf galls.

C. pilulae Walsh. Gall reddish brown, coarsely reticulate, thick-walled, irregularly subglobose, about $\frac{1}{8}$ of an inch in diameter, depressed or fused to form lobulated masses on oak leaves. Described as *Cecidomyia quercus-pilulae*.

C. symmetrica O.S. is possibly identical with the above. It belongs, with very little question, to this genus. Described as *Cecidomyia*.

TRIBE ITONIDINARIAE.

The more characteristic members of this tribe are easily distinguished by the usually long, thickly haired antennae having 14, rarely 12 segments, the flagellate segments in the male usually binodose, and with two or three circumfili, the latter generally with greatly produced loops; palpi uni- to quadriarticulate; claws simple or toothed. This very large tribe includes many diverse forms.

GROUP BIFILI.

This subtribe is easily distinguished by the presence of but two circumfili on the flagellate antennal segments of the male; the nodes are equal or nearly so.

CONTARINIA Rond.

The third vein unites with the interrupted costa at the apex of the wing; the palpi are quadriarticulate; the lobes of the dorsal plate taper strongly and are subacute; the ovipositor is long and filiform.

C. johnsoni Sling. The small, yellowish larvae occur in deformed grape blossoms. Described as *Cecidomyia*.

C. virginianiae Felt. The yellowish larvae occur in deformed, bladder-like fruit of the chokecherry. Described as *Cecidomyia*.

C. rumicis Loew. The reddish larvae infest the seeds of *Rumex*. An introduced European species.

C. sorghicola Coq. The yellowish larvae occur in the seeds of *Sorghum* and related plants. Described as *Diplosis*.

C. pyrivora Riley. The yellowish larvae occur in young pears. Described as *Diplosis*.

C. setigera Lintn. Reared from small, irregular, subovate, downy galls on muskmelon. Described as *Diplosis*.

THECODIPLOSIS Kieff.

Separated from Contarinia by costa not being interrupted at its union with the third vein and by the long, broadly lobed dorsal and ventral plates in connection with the stout, usually very long ovipositor.

T. ananassi Riley. Reared from a brown gall with a length about $\frac{3}{4}$ of an inch on Cypress twigs. Described as *Cecidomyia cupressi-ananassi*.

T. liriodendri O.S. A circular blister on tulip leaves. It has a dark brown center surrounded by a light brown, irregular area; diameter $\frac{1}{4}$ inch. Referred to *Cecidomyia* and *Diplosis*.

GROUP TRIFILI.

This subtribe is easily recognized by the presence of three usually well developed circumfili on the flagellate antennal segments of the male. The nodes are generally unequal and in some extreme forms the distal enlargement is almost divided.

YOUNGOMYIA Felt.

Flagellate antennal segments of the male trinodose, the distal enlargement being distinctly divided and sometimes by an appreciable stem; palpi quadriarticulate; wings large, rather hairy, the third vein uniting with costa well beyond the apex of the wing; legs long, claws stout, unidentate, the pulvilli about half as long as the claws. The terminal clasp segment of the male is unusually long; the ovipositor of the female is short, the lobes large and orbicular.

Y. umbellicola O.S. The yellowish larvae occur in enlarged blossoms of elder. Described as *Cecidomyia*.

APHIDOLETES Kieff.

This genus is easily recognized by the greatly produced setae and circumfili on the dorsal surface of the flagellate antennal segments in the male. It is readily separated from the allied Bremia by the well developed middle circumfilum. Anterior claws unidentate.

A. cucumeris Lintn. Reared presumably from plantlice on cucumber. Described as *Diplosis*.

CLINODIPLOSIS Kieff.

Antennal segments 14, binodose. Palpi quadriarticulate. The terminal clasp segment is not abnormally produced or subfusiform. The ventral plate is produced, emarginate, the dorsal

plate deeply cleft and triangularly emarginate. The ovipositor is short. Anterior claws unidentate.

C. rosivora Coq. The larvae lie just under the sepals of rose buds, usually singly, though sometimes in clusters of five or six. Described as *Diplosis*.

C. caulicola Coq. The larvae are rather abundant in the basal portion of the stems of Iceland poppies. Described as *Diplosis*.

CARYOMYIA Felt.

Allied to Hormomyia but differing by the thorax not being greatly produced over the head and by the presence of but 14 antennal segments. The males may have the flagellate antennal segments binodose or cylindric and subsessile and invariably with three low, stout circumfili. The antennal segments of the female are cylindric and with two circumfili; palpi tri- or quadri-articulate; wings rather broad, the third vein joining costa at or near the wing apex; claws simple, the pulvilli well developed. The ovipositor of the female is short, triangular and with minute lobes apically. This genus appears to be confined to hickory leaf galls.

C. caryae O.S. Gall globose, thin-walled, yellowish green or brown; diameter .1 inch, on hickory leaf. Referred to *Diplosis*, *Cecidomyia* and *Hormomyia*.

C. holotricha O.S. Gall small, globular, fuzzy, rust red; diameter .1 to 1-5 inch, on hickory. Referred to *Cecidomyia* and *Hormomyia*.

C. sanguinolenta O.S. Gall conical, with a distinct nipple, greenish and variably tinged with purplish or blood red, on hickory leaves. Described as *Cecidomyia*.

C. tubicola O.S. Gall a green or blackish, hollow tube about 1-5 of an inch long, growing at right angles from a socket in hickory leaves. Referred to *Cecidomyia* and *Hormomyia*.

C. persicoides Beutm. Gall irregular, monothalamous, hairy, ¼ inch in diameter and usually clustered on the midrib of a hickory leaf. Described as *Cecidomyia*.

Most of the other hickory leaf galls described are probably made by a species of *Caryomyia*, though other midges have been reared from these deformities.

HORMOMYIA H. Lw.

Typical members of this genus may be most easily recognized by the mesonotum being greatly produced over the head. The antennal segments vary in number from 14 to over 20, the flagellate ones in the male binodose and with short circumfili; palpi uni- to tri- or quadriarticulate. The large forms probably live on sedges.

H. verruca Walsh. Gall a characteristic subconic enlargement arising in clusters from the midrib or some of the principal veins of willow leaves. It is about .1 of an inch in diameter, greenish yellow, monothalamous, subglobular and tapering to a truncate, frequently lipped, free extremity. Not a typical *Hormomyia*. Described as *Cecidomyia*.

LESTODIPLOSIS Kieff.

Usually yellowish, frail species with spotted wings, most easily recognized by the triangular lobe at the internal basal angle of the basal clasp segment of the male.

L. grassator Fyles. The pale orange larvae prey upon Phylloxera. Described as *Diplosis*.

PARALLELODIPLOSIS Rübs.

Mostly pale yellowish or orange species, distinguished by the long, narrowly rounded ventral plate of the male genitalia.

P. caryae Felt. Reared from several hickory leaf galls and probably an inquiline with various species of *Caryomyia*. Previously referred to *Cecidomyia* and *Clinodiplosis*.

OBOLODIPLOSIS Felt.

A large form remarkable for the greatly expanded orbicular dorsal plate of the male.

O. robiniae Hald. The larvae occur in marginal leaf rolls of *Robinia*. Described as *Cecidomyia;* also as *O. orbiculata*.

ITONIDA Meign.

Antennal segments 14, those of the male binodose, the nodes unequal; circumfili three. Palpi quadriarticulate. The third vein unites with the margin well beyond the apex of the wing. The pulvilli are longer than the simple claws, while the dorsal and ventral plates of the male genitalia are deeply bilobed. Ovipositor rather long, the lobes narrowly oval.

I. tritici Kirby. The orange larvae develop in the heads of wheat and some other grains. Widely known as the wheat midge. Previously referred to *Cecidomyia* and *Diplosis*.

I. verbenae Beutm. The larvae occur in terminal rolled leaves of white or nettle-leafed Vervain. Described as *Cecidomyia*.

I. catalpae Comst. The yellowish larvae attack the pods and frequently deform the young shoots of Catalpa. Previously referred to *Diplosis* and *Cecidomyia*.

I. tecomiae Felt. The pale yellowish larvae roll the leaves of the trumpet vine. Previously referred to *Bremia* and *Cecidomyia*.

I. resinicola O.S. The pale orange larvae occur in pitch exudations on hard pine. Previously referred to *Diplosis* and *Cecidomyia*.

I. resinicoloides Wlms. The larvae occur in resinous exudations on the Monterey pine. Described as *Cecidomyia*.

I. foliora Rssl. & Hkr. Gall the folded edge of oak leaves similar to that described for *Cecidomyia erubescens* by Osten Sacken. Described as *Cecidomyia*.

CECIDOMYIA.

This term is employed here in a general sense to include galls which can not be satisfactorily referred to any well defined genus, and also adults with inadequate descriptions.

C. caryae O.S. Probably an inquiline in the typical *Caryomyia caryae* O.S. gall on hickory. This species is not identical with our *Cliniodiplosis caryae* or *Mycodiplosis holotricha*, both probably inquilines in *Caryomyia* galls.

THE GRAY OR ARKANSAS KING BIRD, *TYRANNUS VERTICALIS*.

During a residence of now more than ten years in Pilot Mound, I do not remember seeing *Tyrannus verticalis* until May 21st, 1909, when I was visiting a patient just north of Crystal City. On the wire fence by the roadside sat a gray-backed bird whose tail was nearly black but whose belly and especially the lower belly was sulphur yellow, fading to a lighter shade breastwards. Again, on May 21st, 1910, and May 22nd, 1911, I have noted the first appearance of this bird. In 1910, however, a pair nested in Pilot Mound, while in 1911, not only did two pairs nest on the roadside trees in town, but I saw specimens in Crystal City and Clearwater. Prof. W. W. Cooke of the U.S.A. Biological Dept., to whom I send annual records of the spring migration of birds, tells me that S.W. Manitoba constitutes the far N.E. limit of the range of *T. verticalis*. It is a very charming bird, built on graceful lines and less truculent than the aggressive *T. tyrannus*, which will bully the robins and humming birds. While we were playing tennis in August at the close of the nesting season, both old and young birds wheeled about the space between our stop-netting and the public school roof. The Boy Scouts will protect these and our other birds from nest thieves.

H. M. SPEECHLY,
Pilot Mound, Man.

NOTES—CONCHOLOGICAL AND OTHERWISE.

In the January *Nautilus*, Dr. Sterki describes a new species of mussel, under the name *Musculium declive*. A number of the specimens upon which the species is based were obtained in the County of Renfrew; the others were found in Michigan. The Renfrew shells were discovered in September, 1911, in a lake about a mile west of Brudenell, known locally as Lake Gorman. It is a beautiful sheet of water set among the Opeongo Hills which though depleted of the pine still preserves on all sides of the lake the aspect of the primeval forest. About ten years ago when charged *inter alia* with the administration of the Fish and Game Department of Ontario, I arranged for the seining at Long Point, Lake Erie, of large numbers of adult small-mouthed black bass, and the distribution of them in suitable localities—barren or depleted—throughout the province. At the request of my old friend, the Rev. F. J. French, of Brudenell, I sent him about fifty fish to stock Lake Gorman, which contained no game fish. Many died *en route* between the railway at Killaloe and the lake. Probably not more than twenty were living when placed in its water. The few, however, found their new home so congenial that they increased and multiplied to such an extent that the lake now fairly swarms with this gamiest of inland fishes. I have in common with my good friend a regard for these bass which is almost paternal; yet when an opportunity presented itself last September of accepting his oft repeated invitation to revisit Brudenell, neither he nor I allowed our interest in the bass to interfere—at least for a time—with our more primitive instincts. The sport was glorious. Every fish was a fighter, leaping repeatedly from his element into ours. It would have been sinful to catch more than we had use for, and we refrained from any excess. It then occurred to me that the lake might yield other specimens than *Micropterous dolomion*. I looked for and found shells in abundance. The only large mussel was *Unio complanatus*. A fine *Physa*, probably *P. sayii* Tappan, spotted the rocks near the boathouse, and with it was a remarkably beautiful, pearly form of *Planorbis bicarinatus*. On the sandy beach at the northern end of the lake occurred a large, and, I think, undescribed, *Sphærium*. It differed widely from the other large *Sphæria*,—*S. sulcatum* and *S. crassum*. Many were collected and cleaned. They were regarded as particularly precious, and were put away with that excessive care which, like ambition, sometimes "o'erleaps itself and falls on t'other side." They have not yet been found.

The surprise of the day—for me—was the finding of another

undescribed shell—an exquisite, brightly-colored, little *Musculium*, mainly occurring in the outlet of the lake. Specimens were not numerous and in sifting through the hand-dredge the coarse gravel in which they seemed least rare not a few were broken. A nice set, however, was procured in the time I could avail myself of without trespassing unduly upon the patience of my waiting host, who pityingly regarded me with the compassion due to a naturalist excercising his hobby in the presence of a sane onlooker. I fear I should never have regained my friend's good opinion had I not later that evening made just the right lead to his double of a no trumps declaration, and thus enabled him, from love, to make game and rubber.

A characteristic lot of the little mussels was sent to Dr. Sterki. He recognized it as a new species which he had described in MS from specimens obtained in Michigan. His description has now been published, but it is of interest only to the few who, leaving the broad and well-trodden ways so many follow in nature study, venture almost alone into the sequestered fields which are so full of freshness and permanent delight.

I may add, as of interest to the ornithologists of the Club, that a large heronry exists in a grove of tall hemlocks at the south end of Lake Gorman. None of the birds, *Ardea herodias*, were seen on the occasion mentioned.

F. R. L.

PORTRAIT OF THE LATE DR. JAMES FLETCHER.

On the afternoon of 28th February, in the presence of several members of the Memorial Committee, the portrait of the late Dr. James Fletcher, painted by Mr. Franklyn Brownell, R.C.A., and unveiled at a recent meeting of the Ottawa Field-Naturalists' Club by the Hon. Sydney Fisher, was hung in the Carnegie Library. The portrait, which is an excellent likeness, has been much admired by friends of the late Dr. Fletcher. It is a graceful tribute to the memory of one who was greatly beloved in this city and one who with much enthusiasm did most valuable pioneer work in encouraging a love for the study of Nature among our citizens.

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