

It was decided by the men that *Lactarius hygginus* was the best of the lot with *L. deliciosus* a good second. Several writers allege that the last named species does not merit its name, but we found it very good. We used it, however, only in the button and semi-expanded stages. By the time it reaches the funnel shape it becomes tough and loses its flavour.

NOTE.—Mr. Frits Johansen found *Calvatia cretacea* Berk. on stony tundra at Bernard Harbor in 1915. This is the only one of the larger species of puff-ball reported from the Canadian Arctic; it may be the one that Mr. Spence collected and doubtless like the other large puff-balls is wholesome food. Few people here venture to cook *Lactarius hygginus* Fr. on account of its fiery taste when raw.—J. D.

THE MAYFLIES OF LAKE WINNIPEG

By FERRIS NEAVE
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THE FOLLOWING list of species will doubtless seem very short when one takes into account the enormous size of Lake Winnipeg and considers, moreover, that it lies on the boundary between very different types of country. Undoubtedly the list is incomplete, but natural factors contribute to its brevity. In the first place no attempt is made to include the numerous forms which inhabit the streams, rivers and lagoons of the area, but only those species whose nymphs live in the main body of the lake. Since most mayfly nymphs are confined to quite shallow water, it is obvious that in a body like Lake Winnipeg such species can only exist along the shore line. Owing to the size of the lake and the prevalence of unsettled weather most of the shores are exposed to a great deal of wave action, which further restricts the fauna to forms which can withstand these conditions. Again, a general lack of aquatic vegetation accounts for the absence or scarcity of many other species. With regard to the nymphs, it is well known that the three subfamilies *Ephemerinæ*, *Heptageninæ* and *Bætinæ* may be described roughly as burrowers, stone-clingers and swimmers respectively. In the present list it will be noted that the species are about equally distributed between these three groups. Actually, however, the species of *Bætinæ* are much scarcer and more local than the members of the other two subfamilies, due to their relative inability to withstand the above-mentioned conditions. They are found only in comparatively sheltered situations. On the other hand, nearly all the other species are abundant and widely distributed over Lake Winnipeg, being well adapted to the prevailing types of habitat. With the exception of the two species of *Centroptilum*, whose distributional status is uncertain, the list consists of species with a wide geographical range. In most cases this range, as known at the present time, lies mainly to the east and south of the area under discussion. A very similar list could

probably be made for a great many of the larger lakes of North America.

EPHEMERINÆ

Ephemera simulans Walk.—Very common as far as the extreme north end of the lake. The nymphs affect particularly shallow, sandy bays. They have been found in the stomachs of sturgeon from Lake Winnipeg. The flying season lasts from June to August.

Hexagenia limbata occulta Walk.—This species and the next are the so-called "fish flies", which appear in tremendous numbers in July. The nymphs burrow in the mud and are more thoroughly adapted to a lacustrine life than any other species in Lake Winnipeg, living often at distances of several miles from the shore and occurring at depths down to 50 or 60 feet. They form an important food supply for whitefish, sturgeon, goldeye, perch and other commercial fishes.

Hexagenia rigida McDunnough—Abundant but considerably less numerous than the previous species.

Ephoron album Say—Plentiful in late summer in many localities.

BÆTINÆ

Blasturus cupidus Say—Ponemah and mouth of Manigotagan River. Nymphal skins of this or the next species at Warren's Landing and George Island. The nymphs have the habit of migrating considerable distances up small streams in early spring.

Blasturus nebulosus Walk.—Wells Harbour, 14-15 July, 1930 (F.N.)

Cænis forcipata McD.—Common in various localities in both northern and southern portions of the lake, June to end of August.

Bætis spp.—Single specimens of adults and nymphs have been taken but not in sufficient numbers to determine the species with confidence.

Centroptilum infrequens McDunnough—Winnipeg Beach (A. T. Hunter) Holotype. (*Can. Ent.*, 56:98). It is doubtful if this is really a lake shore form, as considerable collecting in such

habitats has failed to rediscover it.

Centropilum quaeitum McDunnough (?)—Inhabits protected, shallow bays with a growth of aquatic vegetation. At present known only from the northern portion of the lake (Warren's Landing and Gull Bay, near Long Point).

HEPTAGENIINÆ

Siphloplecton basalis Walk.—Taken only on the Manigotagan River, near its mouth, but probably occurs also on the lake itself.

Heptagenia hebe McDunnough—Husavick, 29 Aug. 1923 (J. B. Wallis); Gimli, 23-24 Aug. 1930 (F.N.).

Heptagenia pulla Clemens—A very characteris-

tic form, occurring in all parts of the lake. The nymphs are common along stony beaches. Adults June to August.

Ecdyonurus tripunctatus Banks—Plentiful, June to beginning of August. Nymphs on stony shores.

Ecdyonurus interpunctatus Say—Abundant all over the lake. Shows great variation in colour, some specimens being perhaps dark enough to be considered as *canadensis* Walk. Nymphs often found in company with those of *Heptagenia pulla*.

Ecdyonurus terminatus Walsh—Not common but widely distributed. George Island; Grindstone Point; Gimli. June to August.

WHITE STRAWBERRIES

By SUSAN K. SQUIRES



IN A BOOK which I read recently the author made the characters pick white strawberries on an island in a lake somewhere in northern Alberta or British Columbia. I wondered if these strawberry plants are indigenous to Canada or if the author were just drawing on his imagination. I have been quite interested in their history for a number of years—because I have grown them.

We moved to our present home in May, 1898, and that autumn the daughter of our predecessor asked me if I had seen any white strawberries that summer. I told her that I did not even know that strawberries ever were white. She took me out into the orchard and showed me the spot where they had formerly grown and said that they had grown there when her father had bought the place twelve years before. As the spot was covered with heavy timothy hay I did not think that there was much chance for strawberries. However, I kept watching for them for several years and at last concluded that, if they ever had been on the place, they had died out; and not for twenty years did I find them.

About ten years ago someone said one afternoon that wild strawberries were very plentiful in a back field, and I proposed that we go and pick some as they are so delicious. We passed through a small hardwood grove and as I stepped down from an old stone fence behind it I saw a patch of strawberry leaves, not the vivid green they should be, but with a peculiar yellowish tinge to them. I stooped and brushed back the leaves and saw quite a number of creamy-white berries. I picked and ate the largest and it was sweet. Like a flash my memory bridged the years and I said, "White strawberries." They were growing not four feet from the fence and directly under

the far out-reaching branches of a big yellow birch and were somewhat stunted from lack of sunshine. I called to my sons who were with me and showed them what I had found and one of them exclaimed, "Why, I saw leaves just like those on the other side of the grove." We retraced our steps and found the spot not far out from the trees and perhaps ten or twelve feet in diameter with sturdy plants scattered all through the grass and most of the plants bore fruit.

Although it was the middle of July, I transplanted thirty plants to a vacant row in the garden and not one of them died. When I moved them to a permanent position in October, some of them had as many as thirteen suckers with new plants on the tips. In two or three years I had quite a bed, but by that time the robins learned that strawberries did not have to be red to be edible. The fruit was seldom much larger than a marble and it lacked the sharp acid of the red berries. Although the white berries had rather a pleasing flavour, they were sometimes insipid. In picking them a convenient peculiarity was the fact that they stemmed themselves, the calyx always staying on the stem. The fact that one was quite likely to pick immature fruit was not so convenient.

One structural difference between the white plants and any other strawberry plants I have ever seen was in the fruit stems. They grew like the blossom stems of the house primula. The fruit stem grew out from the plant and produced one set of berries, then a bud in the centre developed into another stem and cluster of berries, to be again extended into a third cluster of fruit. This was the rule rather than the exception on sturdy plants and much prolonged the bearing season. If this peculiarity could be