

HERMIT THRUSH ON NEST

HERMIT THRUSH (*Hylocichla guttata pallasi*)

Naturalists not only seize, they make opportunities for getting into the country and for loitering in the deep solitude of the woods. There is an element of mystery and attraction in the spires of the distant spruces and they are always the means of snaring one off the main highway. To me, no matter how arduous the trail, the day's work is not complete until a favorite spruce bog

has been explored again or the secrets of an unknown one investigated. It is pleasant and refreshing to linger after sunset on the border of a sphagnum bog with eye and ear alert. Here we have the advantage of privacy and liberty and we listen keenly with hush and awe as the trill of a Lincoln's Sparrow is heard from the centre of the barren; most likely he is amongst the boughs of a tiny spruce and should we be successful, in approaching nearer unobserved, we are astonished to catch a most agreeable termination to this unsparrowlike song—a guttural warble. The bird frequently repeats and then quickly disappears into the thickets for the night.

In the County of Matane, there are many sphagnum bogs, and whilst wandering along the margin of one of them on June 8, 1925, a Hermit Thrush was found at home. The nest, containing four incubated eggs, was built at the base of a small spruce and was made of moss, rootlets and lined with pine needles. Many visits were made to the nest for photographs and the bird proved quite fearless when pictures were being taken at a distance of one foot. She only left the nest when an attempt was made to touch her with the hand. An Olive-backed Thrush, White-throated and Lincoln's Sparrows had nests within ten feet of the site of the Hermit Thrush. In the neighborhood, Ruby-crowned Kinglets, Yellow-bellied Flycatcher, Myrtle, Tennessee, Nashville, Yellow Palm and Wilson's Warblers were also nesting.

OBSERVATIONS ON CANADIAN FRESHWATER-CRUSTACEA MADE IN 1925

By FRITS JOHANSEN

I.—EUPHYLLOPODA

Eubranchipus gelidus. The temperatures at Ottawa for April 1-6, 1925, were between 20° and 54°F., and the weather clear, except rain on April 1st and overcast on April 2nd and 3rd. The maximum temperatures on April 2nd, 3rd and 6th were between 52°F. and 54°F.

On April 5th, I went to Billing's Bridge, in Ottawa South. The Rideau River was now free of ice and contained much water, but its inundations on the fields had already receded considerably so that isolated pools were formed in the depressions here. I could discover no trace of Euphyllopoda, though Copepods were numerous.

April 7th to 10th had clear weather, with temperatures between 26° and 60°F. The maximum temperature on April 7th was 58°F., which caused the hatching of a number of *Eubranchipus gelidus* eggs, though further hatching was delayed by the lower maximum temperature (48°F.) on April 8th. On April 9th and 10th, however, the maximum temperature rose to 56°-60°F., and the remaining eggs of *E. gelidus* hatched around Ottawa. Unfortunately, sickness prevented any excursions on my part on April 7th to 9th. The hatching of the hibernating eggs of *E. gelidus* around Ottawa thus took place in 1925 more than a week earlier than in 1924, and almost two weeks

earlier than in 1923, but only a few days earlier than in 1922. It will thus be seen that the air-temperature necessary for the hatching of eggs of *E. gelidus* around Ottawa can be pretty accurately placed at 55°F. or over.

On April 10th, I went to the rapids of Ottawa River at the Country Club on the Aylmer Line, Quebec, and investigated the pools left among the trees between the railroad-track and the river. The smaller pools did not contain any fairy-shrimps, but in the largest and deepest one were millions of young *E. gelidus*, all congregating in the sunny part of the pool. They had a length of between 2 and 5 mm., and by careful search and using a pipette, I also secured a couple $1\frac{1}{2}$ to 2 mm. long. The older (larger) larvae had probably hatched on April 7th; the youngest ones, April 9th or 10th. Air temperature at 4.30 P.M., 53°F.; water in this pool, 54½°F. This is a new locality for *E. gelidus* around Ottawa and samples of the larvae were kept.

I then continued on to the pools near Wrightville, Quebec, and found them all free of ice, but *E. gelidus* not numerous. In the pond on the slope near Fairy Lake, I secured seven 2-4 mm. long, and in the two other ponds nearer Wrightville (after crossing the creek) they were also found being 5-7 mm. long in the larger, deep pool nearest Fairy Lake. They were 4-6 mm. long in the smaller, shallow pool on the fields nearest Wrightville (five specimens kept).

The temperatures for Ottawa on April 11th to 20th were between 24°F. and 56°F. Weather mostly clear except for a heavy snowfall on April 11th; overcast on April 12th, 14th and 19th; rain or hail on April 15th. This cool and windy weather somewhat retarded the growth of the young *E. gelidus*.

On April 13th, I went again to Billing's Bridge, and found a number of young *E. gelidus*, 4-12 mm. long, in the pools here which had already shrunk considerably in extent. Most of the fairy-shrimps (samples kept) had a length of between 5 and 10 mm., and their average size was larger in some of the pools than in others. Air at 5.30 P.M., 49 F.; water in the pools, 59°F.; weather, cloudy-clear.

I then continued on to the pond on Brule's quarry at Hog's Back, but I could find no trace here of the *E. gelidus*, which I liberated here last spring, though pelagic gnath-larvae (*Corethra*) were common. In the pools on the lowland between the trees below the quarry, I secured, however, nine young *E. gelidus* about $\frac{3}{4}$ cm. long. This is another new locality (around Ottawa) for this fairy-shrimp.

On April 19th, I visited the pools on the fields between Fairy Lake and King's Mountain, Quebec,

and found even the smallest of them (almost dried up) teeming with young *E. gelidus*, between $\frac{3}{4}$ and $1\frac{1}{2}$ cm. long, the greater number having a length of between 1 and $1\frac{1}{2}$ cm. I kept a number of them and observed that the sexual differentiation was already well marked in the largest specimens.

Two days later I went again to Billing's Bridge and secured more *E. gelidus*. They now had a length of between $\frac{1}{2}$ and $1\frac{1}{2}$ cm., the vast majority of them being between 1 and $1\frac{1}{2}$ cm. long, and with the sexual characters (females with unripe eggs) well developed. The same day I also found the first nauplii of *Limnetis gouldii* here (see under this species).

The temperatures around Ottawa on April 21st to 25th were between 32° and 66°F., with clear and warm weather.

On April 25th, I collected at Billing's Bridge more *E. gelidus* of a length between $\frac{1}{2}$ and $1\frac{3}{4}$ cm. The largest ones were fully developed sexually (females with ripe, loose eggs) in certain pools only.

The next day I went to Graham Bay, on the Ottawa River, where, in a small land-locked pool on the sand beach, were a number of *E. gelidus* of both sexes and fully developed (females with loose, ripe eggs) samples of which I kept. This is a third new locality for *E. gelidus* around Ottawa.

The temperatures around Ottawa on April 26th were 46°-76°F., with weather clear, though rain-showers and a thunder-storm occurred in the afternoon. April 27th to 29th, clear; on April 30th to May 8th, overcast or rainy.

On May 3rd, I again went to Fairy Lake and Wrightville, and collected more *E. gelidus*, which were now all adult and fully developed (females with loose, ripe eggs) in the same pools as on April 10th. May 9th to 15th had temperatures between 36°F. and 70°F.; weather clear and warm, except rain on May 13th.

On May 10th, I again visited the pools at Billing's Bridge and found both sexes of *E. gelidus* fully developed (females with loose, ripe eggs). Apparently a number of them had died off, however, as they were not very numerous.

A week later I visited the pools near Fairy Lake and Wrightville, but only in the one nearest Wrightville were a few *E. gelidus* still to be seen. I secured a male and two females here.

I then went to the pools on the pasture between Fairy Lake and King's Mountain, where *E. gelidus* was so common a month before, but now most of the pools had dried up. One of them had, however, a little water and contained, besides many *L. gouldii*, $1\frac{1}{4}$ cm. long *E. gelidus* of both sexes, samples of which I kept. Air at 8 P.M., 48°F.; water in pool, 58°F.

Finally, on May 25th, I again visited Billing's Bridge and, though most of the pools here had now dried up, I succeeded in getting a dozen adult *E. gelidus* of both sexes by wading out in the deepest of the pools, where they were swimming briskly around. Temperature of air and water at 7 P.M., about 58°F. This was the last time I found *E. gelidus* around Ottawa in 1925, though I found them two days later in 1923, and four days later in 1924.

The temperatures around Ottawa on May 16th to 25th were between 28° and 78°F.; May 19th and 20th having the highest (70°F. and above) and May 18th, 22nd, 23rd the lowest temperature (32°F. and below). May 16-19th, 21st and 24th-25th were clear-cloudy; rain on May 16th, 20th, 22nd and May 23rd cold and overcast.

May 26th to June 2nd had temperatures between 42° and 76°F. Weather mostly clear or cloudy, with rainshowers on May 29th and May 31st to June 2nd, rainy. On June 2nd, I looked carefully for *E. gelidus* in the pond at Tenaga (see under *L. gouldii*) but there was no sign of the fairy shrimp here now. The end of May was thus the date *E. gelidus* disappeared around Ottawa in 1925.

Limnetis gouldii (*L. brachyurus*). As stated above, under *E. gelidus* I found the first nauplii of *L. gouldii* in 1925 at Billing's Bridge, Ontario, on April 21st, only a day later than in 1924, and a day earlier than in 1922, but a week earlier than in 1923. In a small pool not half a foot deep, on the pasture here at Billing's Bridge, I secured, by using a pipette, several nauplii ("turtle-shell", etc.) and metanauplii (double "clam-shell", etc.) of *L. gouldii*. The metanauplii were of about the same size as the nauplii, and had thus just transformed; all of these larvae had undoubtedly hatched on that day, the first real warm day for a week. Air at 4 P.M., 50°F.; temperature of water in this pool, about 58°F. (clear). Some of these nauplii and metanauplii of *L. gouldii* were sent to Dr. R. Gurney, in England, for special study.

Four days later, I collected more nauplii and metanauplii (the latter the most numerous) in the same pool and in others nearby, which shows that the hatching of the eggs takes place in the course of several days. Weather clear and warm.

On May 10th, I again visited the pools at Billing's Bridge and found that the young *L. gouldii* now had a size of 1-1½ mm., and were a vivid orange colour. I kept a number of them. The temperature of the air and water in the pools at 5 P.M. was about 60°F.

A week later, I investigated the pools on the pasture between Fairy Lake and King's Mountain, Quebec (see under *E. gelidus*) and found many 1½-1½ mm. large *L. gouldii* in a small, almost dried

up pool here. This is a new locality for *L. gouldii* around Ottawa.

On May 25th, I again went to Billing's Bridge. Most of the pools on the pasture had dried up now, but in the pools still containing water I secured 1-2 mm. large *L. gouldii* all of an orange colour. Most of them had a size of about 1 mm. long, only some of the ones found in a deeper pool being larger.

On June 2nd, I visited Tenaga, Quebec, and found many *L. gouldii* in the pond on the fields here. They had a size of 1½ to 3 mm., and most of the larger ones had a more vivid, orange colour than the smaller ones. The temperatures around Ottawa for June 3-8 were very high (60° to 94°F.); weather mostly clear, with rainshowers on June 3rd and 7th.

On June 21st, I looked for *L. gouldii* in the pools near Fairy Lake, Quebec, where I found so many on May 17th, but the pools on the pasture here had now all dried up and no Ephyphlopoda were seen. Temperatures around Ottawa, June 9th to 27th, were between 44° and 84°F., with mostly overcast and rainy weather, but clear on June 9th, 11th, 14th, 19th, 24th and 27th.

On June 27th, I paid my last visit to Billing's Bridge. On the pasture here were only a few small waterholes (cattle-tracks) left of the two largest ponds, all the other pools had dried up completely. In one of these "ponds", I secured, by careful search, nine *L. gouldii* (one of which was a female with small eggs), all I was able to find. The largest of these two (former) ponds contained no *L. gouldii* at all this year, though it had more water left than the other, former pond, in which I got the nine clam-shrimps. The observations thus show that the life-time of *L. gouldii* is up now, this year, and also that these clam-shrimps do not occur in the same ponds here at Billing's Bridge year after year. In 1924 I found them here as late as July 6th, but that was apparently an exceptionally late occurrence, for, in 1923, I found the last ones on June 26th, and in 1921 and 1922 on June 18th.

The temperatures around Ottawa, June 28th to July 4th, 1925, were between 48° and 80°F. Clear on June 28th-29th, and July 3rd. The other days, overcast, with much rain on July 4th. The weather was thus not warmer than during most of June, which shows that it is not the temperature which kills off *L. gouldii* around Ottawa each year, but the drying up of the pools in which they occur, and the dying off of these Crustacea as their life-cycle is completed.

II.—AMPHIPODS AND ISOPODS

Hyalella azteca. On August 28th, 1925, I collected a number of adults with eggs and young,

attached to submerged pieces of wood in Robinson Lake, eight miles west of Dalhousie, N.B. This is apparently the first record of this freshwater amphipod from the St. Lawrence side of New Brunswick; but I have formerly recorded it both from the Gaspé Peninsula and from the vicinity of St. John, N.B., so it undoubtedly occurs all over New Brunswick.

On October 4th, 1925, I collected a number of young *H. azteca* attached to floating pieces of wood and filamentous algae in the dam at Leamy Lake, outside of Hull, Quebec. I noticed that the purple colour between the body-segments in the live animals was of varying intensity, and particularly found as a dot at the base of each leg.

The Amphipods *Gammarus limnaeus*, *Pontoporeia hoyi* and *H. azteca* have recently been recorded from Lake Nipigon, Ontario (See Univ. of Toronto Studies, Nos. 22, 24, 25, published 1923-24), and *H. azteca* by R. E. Foerster from Trout Lake, on the lower Fraser River, B.C., collected on July 14th, 1922 (see Contrib. Canad. Biol., New Ser., Vol. II, pp. 335-422, table 9, Toronto, 1925).

Eucrangonyx gracilis. On November 22, 1925, I collected specimens of all stages from newborn to adults, of this Amphipod, in the pond in Major Hill Park, Ottawa, Ontario, and two weeks later I found a couple of young ones in the outlet from the same pond. Only few individuals of this species were to be found on December 6th, probably owing to the freezing of the pond in the end of November (see under *Asellus communis*).

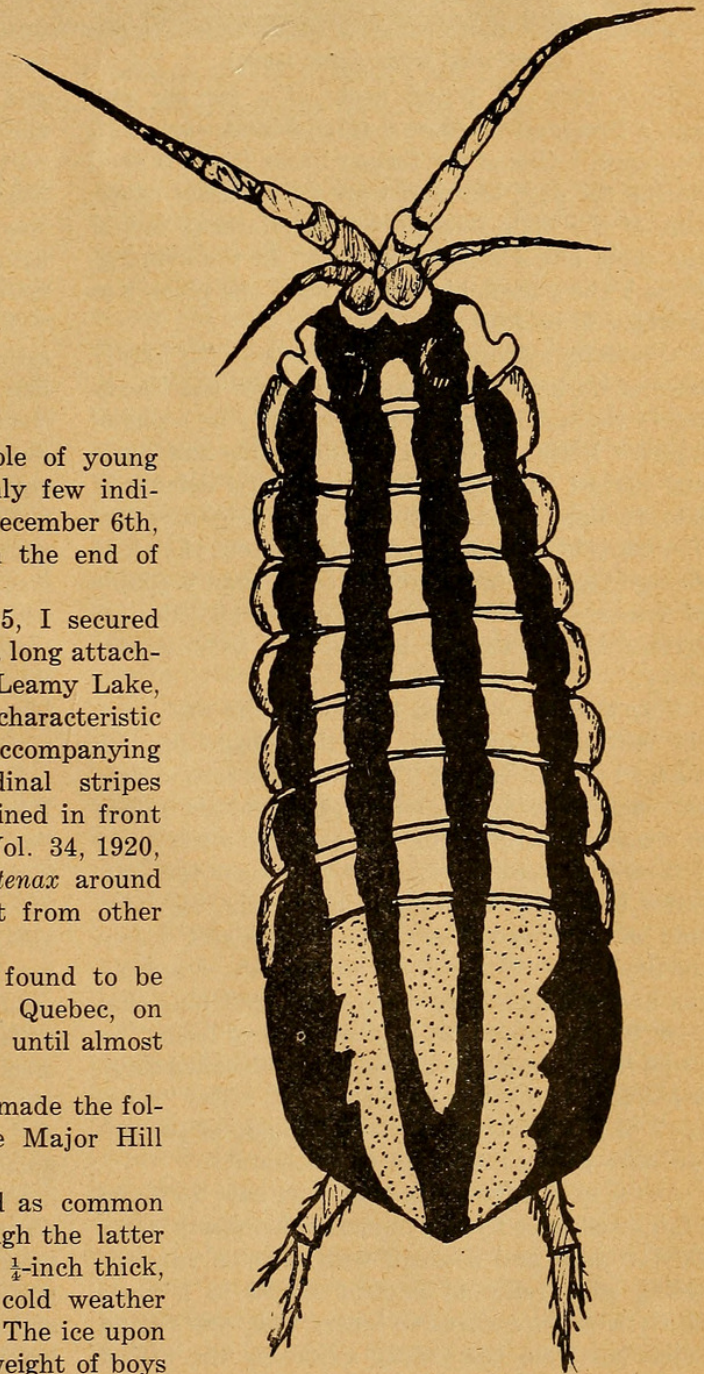
Mancasellus tenax. On October 4th, 1925, I secured half a dozen young of this species, 3 to 6 mm. long attached to floating pieces of wood, in the dam at Leamy Lake, Hull, Quebec. They had the colouration so characteristic of the young of this species, as shown in the accompanying sketch, namely four, dark-brown, longitudinal stripes dorsally, the two middle ones of which are joined in front and behind (see *Canadian Field-Naturalist*, Vol. 34, 1920, p. 146). This is a new locality for *M. tenax* around Ottawa, though I have formerly recorded it from other places around Hull, Quebec.

Asellus communis. This isopod was also found to be common in the dam at Leamy Lake, Hull, Quebec, on October 4, 1925. A number of young ones until almost full-grown, were secured.

During November and December, 1925, I made the following observations on *A. communis* in the Major Hill Park, Ottawa, Ontario.

All through November, I found this isopod as common as ever among dead leaves in the pond, though the latter occasionally (November 12) was covered by $\frac{1}{4}$ -inch thick, new ice. In the end of November, very cold weather came, with quite a little snow on the 27th. The ice upon the pond became thick enough to carry the weight of boys

on sleds, but during the first week of December, it thawed again and on December 6th, the outlet from the pond was running and there was water on top of the ice. On this day, I found *A. communis* of various sizes common among dead leaves in the outlet. From December 9th on, the weather was fairly cold, so that the pond became covered with thick ice, as also the outlet, except at the place where it leaves the pond. By visiting the place on December 13th and 20th, I found that *A. communis* were both active and numerous among the dead leaves in this open part of the outlet. A small, living *Corixa* was also secured here. The very cold weather, December 25th to 30th, froze solid the open place in the outlet from



the pond so that when I visited it on the last day of the month, no observations on crustacea could be made.

I kept several of the *A. communis*, collected in November and December, 1925, in this pond, alive in a jar with a little mud and filamentous algae, in my office, and although I gave them no food, they thrived admirably and lived for several months. The largest individuals died first, but at the time of writing this article (March, 1926) there is still one smaller specimen alive.

These observations on the occurrence of *A. communis* around Ottawa during the winter, show definitely that the species does not die off at all, but live under the ice and at ice-free places all winter. The only other similar observation from the same vicinity was almost twenty years ago, by Odell (see *Canadian Field-Naturalist*, Vol. 34, 1921, p. 148), who does not give the exact date on which he observed *Asellus* under the ice of Rideau River. The thickness of the ice (about one foot) he gives, indicates, however, that the observation was made in January, 1907.

NEW LIGHT ON FORGOTTEN TRAILS IN THE FAR NORTHWEST

By G. H. BLANCHET

(Concluded from April issue)

JULY 15TH.—I found nests of a herring gull and a Bonaparte gull on a small island, each with two eggs. One of the former broke from its shell during the day, but died from no apparent cause. One of the little Bonapartes had its beak out of the shell, and I assisted it out. In the evening, though the parent birds were near, the chick was nowhere to be seen.

Observing during the night, I noted: "It hardly became dark and about one A.M. dawn was breaking in the northeast. There is really no sense of night. Distant hills become dark blue and clear-cut against the sky. The lights and colours of late twilight hold until the east brightens up. The birds keep up their song throughout the night though they are noticeably quieter than a couple of weeks ago. The monotonous repetition of certain notes ends by becoming a trifle melancholy."

Two men were left at the base camp and, with the third, the little canoe and the lightest possible outfit, I set out for the Thelon. The second day, we reached the big lake which I named Lake Eileen and started working our way east and north. At first stormy weather prevailed that made the little canoe look and feel very small on the big lake. Bad weather also means poor fishing and, before the first trout "struck", our little stock of pemmican had almost melted away. I might note that after trying pemmican in a number of forms, we found it to be most palatable in a well-boiled soup. A handful of macaroni improves it. The "rubaboo" of the Northern Indians is made of pemmican soup with a little flour to thicken it.

At the extremity of the southeast bay, we found a fair-sized river flowing in and, at its mouth, some old raft logs and a sleigh with wooden runners. Seeing such relics of ancient travel in a place which even the natives no longer visit, one's mind builds up from the scanty evidence, the life of

long ago. Perhaps here sled travel came to an end and, in order to cross the river flooded with spring freshets, the raft was constructed and the party continued with dogs and women packed and hunters scouring the country for the spring season was often a hungry one, and sometimes the more adventurous families that went far to the east were never heard of again.

The travel up the east coast was made up of a series of disappointments. A succession of fiord-like arms led off to the east, each promising a river but always closed, after a few miles, by marsh land leading to the bold hills that feature this shore.

Trees became more and more scarce and the country more typical "Barren Lands", but far from unpleasant. The rounded hills, with their white moss and green shrubbery, the grassy valleys, the shingle and sand beaches present scenes that delight the eye and the extended views were most interesting after our restricted horizons in the woods and hills.

Evening, JULY 20TH.—We are camped at what is "the big point" of the lake. In all our views of the lake it has stood out as a predominating feature. Although we can now see around it, we cannot make much out of the confusion of hills, islands and bays. The sand hills of the north end stand out clearly, now. Timber is reduced to a few dwarfs and an odd timbered valley on sand and what life there is is that of the open plains, a few loons, gulls and terns on the water and on shore chiefly the Lapland longspur and plovers. There is the vast stillness of the north on the hills and the water and one feels an indescribable sense of isolation from the ordinary ways of life. Even the life of the past was only recorded twice in to-day's travel. Some old teepee poles on a small island where we were windbound, and an ancient stone spearhead that I found when following a caribou trail up a hill.



Johansen, Frits. 1926. "Observations of Canadian Freshwater-Crustacea Made in 1925." *The Canadian field-naturalist* 40(5), 92–96.

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