

EXPLANATION OF PLATES.

PLATE XIII.—Right fore-limb of carnivorous dinosaur; one-eighth the natural size.

PLATE XIV.—Fig. 1. Natural cast of integument of *Protosaurus belli* shewing large, polygonal, plate-like scales; natural size.

Fig. 2. Cast of large scale with a rounded outline; natural size.

Fig. 3. Cast of large scale probably polygonal in outline; natural size.

Fig. 4. Cast shewing transition from small tubercle-like scales to larger polygonal ones; natural size.

Fig. 5. Cast of polygonal scales; natural size.

Fig. 6. Mould of the same; natural size.

PLATE XV.—Natural mould of integument of *Trachodon marginatus* from the side of the body; natural size.

PLATE XVI.—Natural mould of integument of the same individual from the side of the tail; natural size.

PLATE XVII.—Skin impression (mould) of trachodon from the Edmonton formation; natural size.

MEETING OF THE ENTOMOLOGICAL BRANCH.

Held at the home of Mr. Arthur Gibson, January 8th, 1913. Present: Rev. Dr. Fyles, W. H. Harrington, J. M. Swaine, V. Kitto, Bro. Germain, Bro. Martial, G. Beaulieu, N. Criddle, A. Halkett, F. W. L. Sladen, J. W. Baldwin, J. I. Beaulne, J. R. Fryer, E. H. Strickland and A. Gibson.

Dr. Fyles gave a charming account of his first visit to Gomin Swamp (near Quebec City), over fifty years ago, in search of the interesting butterfly *Eneis jutta*, a swamp-loving species. He also described the life-history of the insect. In a small case specimens of the adults were exhibited as well as specimens of *Eneis macounii* and *O. katahdin*. This latter is given varietal rank in Dyar's List of N. A. Lepidoptera. Attention was called to the large number of forms placed in this list under *norna*. Mr. Gibson spoke of his first experience with *O. jutta* at the Mer Bleue, near Ottawa, mentioning the habit of the butterfly of resting on dead branches and trunks of trees, where it is protected considerably owing to the resemblance of the under side of its wings to the bark.

By holding plates XV, XVI and XVII upside down the concave surfaces appear convex, giving a vivid representation of the scale pattern as it was in the living animal.

Mr. Harrington showed twigs of oak from Meach Lake, Que., from which he had reared the cerambycid, *Elaphidion parallelum*. The larva tunnels the twigs for several inches and pupates therein, finally emerging through the base of a broken twig. This beetle is a close relative of the well known Oak Twig Pruner, *Elaphidion villosum*, which was quite injurious to oaks on the St. Lawrence Island Parks in 1912 and 1913. The well known habit of these larvæ in girdling the twigs, causing them to drop and owing to which injury they are broken during wind storms, was discussed.

Mr. Swaine exhibited specimens and work of Ambrosia-beetles collected by him the past summer in British Columbia, and briefly discussed the habits of the genus *Gnathotrichus*, and of a new species of the genus *Platypus* from the West Coast. Tunnels of *G. sulcatus* Lec. were shown from Western Hemlock. Their black tunnels, about the size of a pencil lead, penetrate the wood for about six inches, and give off lateral branches parallel with the wood surface. Along the sides of the tunnels egg-niches are cut, in which eggs are laid. The grubs enlarge the niches to a length slightly greater than their own when mature, and pupate therein with the head towards the tunnel. These short larval tunnels are known as larval or pupal cradles. After transformation the young adults enter the egg-tunnel, and after remaining a longer or shorter time in the tunnels or in the cradles, they emerge in early summer through the entrance tunnel cut by the parent beetles to attack fresh logs and stumps or dying trees. The chief food of the larvæ, and an important food of the adults, is a species of fungus which grows in a dense glistening layer on the tunnel walls. Mr. Swaine has recently worked out the life-history of several of these interesting and little known fungi. The fungus is carried by the beetles to new tunnels and rapidly spreads over the fresh wood of the tunnel sides and upon the walls of the larval cradles. The fungus stains the walls of the tunnels black for several millimetres. The habits of the species of *Platypus* are somewhat similar to the above, but the eggs are deposited free in the tunnels.

Mr. Criddle spoke upon certain phases of his investigations into the habits and life-histories of the various species of June Beetles (*Lachnosterna*) which he had been studying as a field officer of the Division of Entomology. He related how the different species were often quite local in distribution owing to each having preferences in matters of soil and moisture as breeding places. Thus, *L. dubia* was taken in all its stages within an area of a few feet and the duration of its life cycle probably discovered in a single day. He also spoke upon the hibernating habits of the larvæ, instancing how some species remained

within a foot or two of the surface while one, viz., *L. rugosa*, was found at depths varying from 47 to 91 inches. Mention was also made of the remarkable manner in which skunks sought out the larvæ for food, thus doing much good. An interesting discussion followed on the habits and food of skunks in general.

Mr. Sladen exhibited twelve species of wasps of the genus *Odynerus* taken in the Ottawa district and described the habits of *O. spinipes*, a European species. It provisions its cell with small green caterpillars. The egg is attached to the roof of the cell by a thread so that it is not disturbed by the wriggling victims. He also showed a parasitic bee, *Coelioxys rufitarsus*, with its host, *Megachile latimanus*, a leaf-cutter bee, and explained how, according to Graenicher, the parasite pierces the leaves lining the cell of the *Megachile* by means of its conical sharp-pointed abdomen, and inserts its egg. The *Coelioxys* larva is at first provided with enormous mandibles with which it kills the *Megachile* larva, but after the first moult the mandibles are of the small size found in other bee larvæ, and thence forward it feeds entirely on the pollen that the *Megachile* has provided. Mr. Harrington remarked that in Ottawa, as in England, *Megachile* is very fond of cutting circles out of the leaves of the garden rose to line its cells. It also often chooses maple leaves. He had noticed that if the surroundings of a solitary bee's or wasp's nest were disarranged the insect could not find its way in. It seemed to have committed to memory every detail; this was done by circling round the spot many times. Mr. Sladen said that queen bumble bees he had got to lay eggs in captivity, when allowed to fly, never returned, though they marked the spot carefully, and he believed they lost the power to learn the position of their nest as soon as they began to lay.

Mr. Strickland spoke upon the subject of parasites in *Simulium* larvæ. After briefly describing the aquatic habits and structure of the early stages of the Black fly, and pointing out the interest that is centred upon this fly as the possible carrier of the human disease Pellagra, he gave an account of the parasites he had found infecting their larvæ in the streams in the vicinity of Boston, U.S. These consisted of a worm and various protozoa, all of which were fatal to their larval host, and occurred in sufficient numbers to be of considerable economic value. The worm is a species of *Mermis* that inhabits the abdominal region of the body cavity, where it lives coiled up and almost motionless absorbing the body fluids of its host, till the latter is full grown. It then ruptures the skin and escapes, killing the larva in the process. When the worm only is present it is 3 cm. long, or about three times the length of its host. As many as 12 were found in one larva, in which case they all

remained small. The most interesting effect of this parasite is that it stops all growth of the external adult organs (legs, wings, etc.) in the larva. In a normal larva these organs are well developed at the time of maturity and are readily seen through the transparent skin of the thoracic region. The parasitised larva grows to an abnormal size, as if at the expense of these organs. The protozoan parasites, with the exception of one, belong to the genus *Glugea* and are closely related to the Pébrine disease of silkworms. Several species were present in different larvæ. All of them form large masses of parasitic material in the body cavity, which, at maturity, are resolved into innumerable minute spores, which spread the disease in the water upon the death of the host. The other protozoan proved to be a *Gregarine* that formed a vast number of small cysts in the body cavity, from which, later, motile "spores" escaped.

Mr. Beaulieu, who is working on a monograph of Canadian Elateridæ, showed a collection in which there were representatives of the 25 genera found in our fauna. He also exhibited a specimen each of two new species, *Limonius venablesi* Wck., and *Corymbitis weidtii* Ang. The following figures, showing the distribution of the species of this interesting family, were given: Known species in the world fauna, about 5,500; American species, about 2,260; American species north of Mexico, about 500; Canadian species, about 190. Described genera, world fauna, 285; American genera, 129; American genera north of Mexico, 47; Canadian genera, 25.

Mr. Gibson exhibited his collection of Canadian arctiid moths of the genus *Apantesis*. These were shown in five large cases. Attention was directed to certain of the species which had been reared from the egg. In some of the series larvæ in all stages were present, and with many species adult larvæ and pupæ. These moths, known popularly as "tiger moths," are very beautiful insects. The larvæ are clothed with dense clusters of hairs, usually black or reddish. In spring they may often be found under pieces of board, etc., along railway tracks. Species which occur in the Ottawa district are *virgo*, *virguncula*, *parthenice*, *arge*, *celia*, *figurata*, *nais* and *vittata*.

Other interesting exhibits which were brought to the meeting were: by Bro. German, specimens of *Saperda concolor* and its work, and a hymenopterous parasite reared therefrom; also a rare beetle, *Carabus nemoralis*, taken at Montreal. This is supposed to be a European species, but Mr. Beaulieu stated that Dr. Lapouge, the French authority in the genus *Carabus*, considered that this was not the true *nemoralis*; by Mr. Kitto, a collection of Cerambycidæ and Elateridæ, taken in the Ottawa district, some interesting species were represented; by Mr.

Halkett, ants' nests from Germany, specimens of *Calosoma sycophanta*, and the Blind Worm, *Anguis fragilis*, also from Europe.

A. G.

NOTE ON THE AMERICAN MAGPIE (*Pica pica hudsonica*).

This bird appears to be rare north of the 53rd degree of latitude in central Alberta, and even 50 miles south of that line it is not by any means common. I have never seen it north of Camrose, nor does Mr. Spreadborough mention having seen it in his travels north from Edmonton down the Athabasca or McKenzie Rivers. On the west side of the mountains along the coast it is found as far north as the Arctic Circle. During the past twenty-two years I have only seen it three times, as follows: one near the Big Bend of the Red Deer River in December, 1894; two near Wolf Creek, north of Lacombe, in October, 1912, and one on September 28th, 1913, six miles west of Camrose, near Bittern Lake. I have known of several colonies breeding on the Knee Hill Creek, about 30 miles east of Olds, and I believe this to be the northern limit for nesting.

F. L. FARLEY, CAMROSE, ALTA.

THE FOLLOWING BOOKS, WHICH WILL BE OF INTEREST TO MANY MEMBERS OF THE CLUB, HAVE RECENTLY BEEN PLACED ON THE SHELVES OF THE CARNEGIE PUBLIC LIBRARY.

Earth Features and Their Meaning, by W. H. Hobbs. An introduction to Geology. (Ample treatment, of interest to those who care to be able to read, in the landscape, the history of the vicissitudes which the region under observation has undergone).

Influences of Geographic Environment, by E. C. Semple. (Amplified presentation of Ratzel's theories that geographic conditions are the chief factor in the physical, intellectual and social development of man.)

Climate—Considered Especially in Relation to Man, by R. D. Ward.

The Wanderings of Animals, by Hans Gadow. (Sketch of the distribution of the animals over the earth's surface. Cambridge Manual Series).

The Earth—Its Shape, Size, Weight and Spin, by J. H. Poynting.

The Non-Metallic Minerals, Their Occurrence and Uses, by G. P. Merrill. (Important work on minerals of value other than as ores of metals).

Natural Philosophy, by W. Ostwald. (Brief survey of the



Gibson, Arthur. 1914. "Meeting of the Entomological Branch." *The Ottawa naturalist* 27(10), 135–139.

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