

buffalo would come near enough to scent this, there was a stampede for it and the ones behind would literally climb over the front ones and trample each other to death. Prairie fires also were the cause of many buffalo bones at the bottom of cliffs, and it is well known here that in the early days the Indians themselves used to stampede herds of buffalo over the cliffs."

This account of the behavior of western cattle under the conditions described, and the mass destruction of the buffalo when acting under stampede excitement, gives an insight into phases of animal behavior which may have been a factor in the formation of some fossil bone beds. It may be that the Alberta dinosaurs of Cretaceous times when famine came, like the Alberta cattle of today, sought a common dying ground.

E. M. KINDLE.

VESPULA DIABOLICA.—During the past summer (1920) *Vespula diabolica* was extremely abundant in northern Frontenac County, Ontario. In August and September there were hundreds of this species about my camp at Lake Missanag, where during the last four years only a few individuals had been present. Anything sweet which was exposed even for a few minutes became a rendez-vous for these wasps and was soon a mass of buzzing black and yellow. In the woods they were everywhere in evidence. From various sources I have heard of the great abundance of "hornets" in the northern districts of Ontario during the past summer, and in all probability these reports refer to the present species.

The statements in the literature concerning the nest of this species are conflicting. According to Ashmead it nests in stumps. Lutz, after describing the nests of *Vespa crabro* and *Vespula maculata*, says: "The remainder of our species, the Yellow-jackets, usually make smaller nests and place them either near or under the ground." Plate 3 in "The Hymenoptera of Connecticut" shows a small paper nest of this species apparently attached to a beam. I came across several nests of this species and all were suspended from the limbs of trees; they are large paper structures, and

seem to be almost identical with those of *Vespula maculata*.

The larvae are 12 mm. long and 5 mm. in diameter at the widest part, whitish in colour, and hang head downwards, suspended by the sticky disc at the posterior end of the body. The pupae at first are white, with black eyes; later the thorax becomes dark, and the black bands appear on the abdominal segments before the wings have developed beyond the wing-pad stage.

Vespula diabolica exhibits a considerable variation in size and marking. Different individuals range from 13 to 16 mm. in length. In some individuals the black bands on the anterior portion of the abdominal segments are very wide, in others they are comparatively narrow. In some the black point on the first abdominal segment projects much further back than in others, sometimes almost cutting the yellow posterior border of that segment in two. I found such a difference in respect to marking that I sent three specimens to Dr. L. O. Howard for confirmation of identification. Dr. Howard reports that Mr. Rohwer determines them all as *V. diabolica*. Two of these specimens were taken from the same nest.

This species appears to feed very largely, if not entirely, upon vegetable substances. Sweetish sap of any kind is taken with avidity. Fruits are bitten into and the pulp devoured or carried off. Kernels of corn in the late milk stage are cut into and pieces about a millimetre square are carried off. The material carried off is probably food for the larvae, although I was not able to prove this point conclusively.

Vespula diabolica does not merit its specific name by reason of its disposition, since it is not at all pugnacious as far as man is concerned. Unlike some of the other Vespoidea no amount of striking at it seems to arouse its ire, and one individual crawled up my sleeve and came out at the neck of my shirt without stinging. In fact only if seized or crushed does it sting. Its sting is not particularly severe, the burning sensation soon passing off and leaving an itching which persists for a couple of days. It is capable of stinging twice in rapid succession. They are rather quarrelsome among themselves, and when

many individuals are taking food from a common source they have frequent combats, two individuals grappling, rolling over and over, and using their mandibles but never their stings.

This species finds its food by the sense of smell, as was shown by a few experiments which I performed. Food hidden from its sight was readily discovered, but similarly-coloured objects without odour were not visited.

A. BROOKER KLUGH.

A GULL IN NIAGARA RAPIDS.—On the afternoon of February 16, 1921, at Niagara Falls, Ontario, I was watching through binoculars (x3) Herring Gulls, (*Larus argentatus*, Pont.) and Ring-billed Gulls (*Larus delawarensis* Ord.) which were picking bits of food out of the rapids of the Niagara River. So skilfully did they do their work that they seemed to receive on their plumage not even a drop of spray as they dipped repeatedly to the surface of the rough water. But one adult Gull, of which species I cannot say, must have made an error as he sought to obtain some object in the rapids just above the brink of the Canadian Falls, for, while I watched with my glasses focussed on him, he was suddenly seized by the foaming river, and in a flash he disappeared beneath the surface. I concluded that his career was ended and that in a few moments more he would go over the falls. Hardly had I had time for the thought, however, when, several feet down-stream from the place where he had been submerged, the Gull reappeared and succeeded in taking flight. Apparently the rough handling which he must have received while beneath the surface of the rapids had forced water into his usually water-proof plumage, for, as he flew slowly away, he was seen to shake himself vigorously, as a dog will do on coming out of the water.

HARRISON F. LEWIS.

THE GREATER SNOW GOOSE.—Most recent writers on the water-fowl of north-eastern North America speak of the Greater Snow Goose (*Chen hyperboreus nivalis* (Forst.)) as a rare bird in that area and appear to pay little or no attention to the fact that Mr. C. E. Dionne, on pages 109-

110 of his book, "Les Oiseaux de la Province de Québec" (1906), states of this subspecies that it "is very common and often occurs in considerable flocks in spring and fall in certain places on our shores, notably at St. Joachim, where I have seen flocks of three or four thousand individuals, on the Island of Orleans, and as far as the Sea-Wolves' Batture". The three points mentioned by Mr. Dionne are within sight of one another. In their vicinity probably all the Greater Snow Geese in existence in a wild state gather each spring and autumn. From the independent statements of various careful observers, I should conclude that their number is now about five or six thousand. When I visited St. Joachim on March 31, 1921, I saw about two thousand Greater Snow-Geese there and was told that the maximum number would be present about ten days later. They are well protected by a resident warden maintained by the Cap Tourmente Fish and Game Club.

HARRISON F. LEWIS.

THE TOWN OF YARMOUTH, N.S., BUYS A BIRD SANCTUARY.

The municipality of the Town of Yarmouth has purchased a Bird Sanctuary. This was not an area suitable for a park or other similar purposes, but was the Island in Lake George where the colony of Great Black-backed Gulls nest. It is of use for Bird Sanctuary purposes only, and this colony of Gulls, so ably described by Mr. Harrison F. Lewis, will now be protected, and will serve as an additional attraction for bird-lovers in the Yarmouth vicinity.

The publication of Mr. Lewis'¹ article in the "Naturalist" assisted in crystallizing local public opinion on this question for it was extensively quoted in the Yarmouth press at the time that the matter was under consideration.

The only step necessary to complete the Sanctuary will be the formal setting aside of the area by the provincial authorities.

Large cities have parks where land birds find refuge and may be studied by the student; these are bird sanctuaries with-

¹ Canadian Field-Naturalist, Sept. 1920.



Klugh, A. B. 1921. "Vespula diabolica." *The Canadian field-naturalist* 35(2), 34-35. <https://doi.org/10.5962/p.338029>.

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