UNUSUAL OCCURRENCE OF GYRINUS.

By C. A. Frost,
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My first specimens of Coleoptera collected in 1928 were taken about 1 P. M. on January 15, and, incidentally, their appearance indicates the unusual weather condition of the winter to date.

While walking around Farm Pond in Framingham I noticed a few Gyrinus resting or slowly swimming about near the shore. The pond had been covered with ice about six inches thick but the mild weather had melted large holes in it and along the shore the open water varied from two to twenty feet in width; the upper end of the pond was open over several acres. The only snow storm of account came on December 5th and deposited about two inches which soon vanished.

Where the Gyrinus were observed several large limbs had fallen into the water and in a crotch of the branches was a partly submerged mass of leaves and pond weeds. On disturbing this, two hundred or more beetles appeared. They swam about over the pebbles of the bottom where the water was from two to eight inches deep, and under the submerged limbs or clung to bits of the submerged pond weeds. Many of them came to the surface and played about a short time while a few scurried out into the pond several yards and remained up to the time I left half an hour later.

I took 36 specimens in my hand and these were very kindly determined by my friend Mr. K. F. Chamberlain, Assistant to the State Entomologist of New York, as *G. confinis* Lec., 17 males and 19 females.

The sky was generally cloudy with the sun occasionally peeping out while a cool north wind was blowing. The temperature of the air was 38° F. and the water in a neighboring reservoir was 35° F. at 7 A. M. the next morning.

As a further illustration of the abnormal season, I found on the under side of a bit of board near the shore two species of

Collembola, one spider, four yellowish cut-worm like larvæ, one Stenus and several specimens of an *Aleocharinid* beetle. The appearance of insects on the under side of sticks and stones does not normally occur much before April.

THE PROTOCOLEOPTERA.

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Tillyard (Proc. Linn. Soc. N. S. W. vol. 49 p. 429, 1924) proposed an order with this name, based on a fore wing from the Permian of Australia. The present note intends to show that the form there described has no distinctive characters of the Coleoptera, but is more probably to be credited to the Orthoptera, with the possibility that it may be nearer to the ancestor of the Hemiptera.

The fossil (fig. 1) is a fore wing of characteristic Coleopterous form, except in one extremely important point, the presence of a deep notch at the articulation, and a basally extended anal lobe. This is a common feature of the Orthoptera, being more or less obvious in all the families, even in the cockroaches; and is correlated with a depression or fold at the base of the wing, which tends to bury the roots of veins M and Cu (Crampton '27). In the Coleoptera there is no such fold, but the articulation of the elytron is direct, and the veins (except Sc) all start out more or less on a level.

Secondly, the venation is rich in branches of main veins, with a few obliquely directed cross-veins. This is a common Orthopterous condition, though as a rule the supply of cross-veins is also rich. Fig. 2 shows the fore wing of a Gryllacridid, with the basal notch (in this form open and filled by a triangular group of sclerites), several precostal veins, Sc and R branched, the latter richly, M and Cu branched, their branches anastomosing, but entirely free from the veins above and below; an ambilent vein, which passes over the end of the anal fold (Pl) without change of