shorter than 27 days, but any one can judge for himself.

Obviously, if two or more solar areas are highly active simultaneously, for a time which includes several rotation periods, we may have several pairs of (unconnected) storms separated by approximately constant time intervals, which might happen to be approximately sub-multiples of 27 days.

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July 29.

Prof. Labbé's Production of 'Allomorphs' by the Action of increased Hydrogen Ion Concentration.

PROF. LABBÉ, in a series of recent papers (*C.R. Acad. Sci.*, Paris, 1924, t. 178, p. 132, 594; t. 179, p. 928; 1924, *Arch. Zool. Exp.*, t. 62, p. 401), has communicated the results of observations made on the Salines of Croisic, and the conclusions he draws therefrom as to the nature and stability of species would, if substantiated, seriously shake the foundations of systematic zoology. For example, he asserts that, from the eggs of a parent form *Canthocamptus minutus* O.F.M. exposed in the ovisac to the influence of a high P_H, he has obtained a mixed progeny consisting of:

(*a*) *C. minutus* (typical).
(*b*) 'Allomorph' *Mesochra* (*Wolterstorffia*) *blanchardi* Rich.
(*c*) 'Allomorph' *Canthocamptus lucidulus* Rehb.
(*d*) 'Allomorph' *Mesochra salina* n. sp.

From these and other results Labbé draws very far-reaching conclusions which will, no doubt, receive serious consideration from all concerned with biochemical investigations; and it is possible that many will accept the premisses on which the conclusions rest without the close critical study which is the province of the systematist. For this reason the following remarks may be justified. I will take only the example given above of *C. minutus* and its 'Allomorphs.'

(1) 'Allomorph' *C. lucidulus* Rehb. In the first place one may observe that *C. lucidulus* is a common *fresh*-water species; secondly, the descriptions and figures given (*Arch. Zool. Exp.*, 62) are sufficient to show that the specimens described did not remotely resemble *C. lucidulus*. The antenna figured (Fig. 17) is unlike that of any Harpacticid of which I can find a description, since in all 8-jointed antennæ [1] the æsthete or "organ of Leydig" is borne by the fourth joint, which is followed by four more small joints; whereas in Labbé's figure it is borne on the fifth, and followed by two joints only. The fifth legs of both male and female (Figs. 28 and 29) are not only totally unlike those of *C. lucidulus* but have no parallel among Harpacticids. I can only call to mind two examples of a fifth leg having a two-jointed exopod—*Misophria pallida* and the male of *Microthalestris forficula*. It is conceivable that Labbé's figures are inaccurate drawings of swimming legs of immature individuals; but they are quite certainly not those of the fifth leg of *C. lucidulus*. Lastly, the operculum of his allomorph is, as he admits himself, quite different from that of *C. lucidulus*.

(2) 'Allomorph' *Mesochra blanchardi* Rich. Fig. 31 of the fifth foot bears some resemblance to that of *M. blanchardi*, but those of the antennæ, the furca and the first leg do not. The antennæ, if correctly drawn, can only be interpreted as monstrosities.

[1] Labbé's figure shows seven joints only, though all species of the genus have eight. The legend of the figure is "Canthocamptus minutus O.F.M. ♀ Antenne antérieure gauche de l' 'allomorphe'" and presumably is intended to represent that of "Allomorphe Canthocamptus lucidulus Rehb."

(3) 'Allomorph' *M. salina* n. sp. Here there is no question of alleged identity with a known species, but Labbé states that it differs from *M. blanchardi* only in the structure of the fifth legs. Curiously enough Fig. 32, which is said to represent the fifth leg, is so nearly like the *first* leg of *M. blanchardi* that (apart from a discrepancy in the proportional length of the joints) it might represent that limb, while Fig. 26 of the first leg represents an appendage described in the text as the fifth, but quite unparalleled among known Harpacticids.

Similar criticisms might be directed upon the Allomorphs' *Eurytemora affinis* and *E. lacustris*, while the remarks concerning *Artemia salina* are open to serious objection.

The experimental methods are so briefly described that any one acquainted with the difficulties of breeding Copepods without accidental introduction of the Nauplii of other species cannot fail to be sceptical of the results. Prof. Labbé's statement that the parents died on being placed in the new medium, but that their eggs were successfully hatched, leads one to doubt very much if the larvæ observed actually came from those eggs. In the brackish water such as fills the Salines at Croisic in winter, a number of Harpacticids may be expected to occur—*e.g.* species of Amphiascus and Nitocra—and it seems quite probable that the unsuspected presence of such species may have vitiated the results.

Having regard to the importance of the questions at issue it is essential that the foundation of fact should be impregnably secure, and it is to be hoped that, before Prof. Labbé's conclusions are accepted, he will be required to produce not only a detailed account of his experiments, but also accurate figures of his 'Allomorphs.'

I do not find anything at present in his writings which "fera malheureusement le désespoir des morphologistes classificateurs."

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Scattering of Electrons in Helium.

THE energetic relations in collisions between electrons and gas molecules have been made the study of a very large group of workers, all of whose results show the essentially unmechanical nature of the processes involved. Our picture of the nature of such a collision must remain incomplete, however, until the angular relationships of the electron and molecular paths are also known.

Such information as we already possess of the scattering of electrons is in the highest degree unexpected. The work of Ramsauer has shown that slow electrons in the rare gases possess free paths much longer than would be anticipated on the kinetic theory, while that of Davisson and Kunsman (*Physical Review*, **22**, 242, 1923), on the scattering in metal films is also of revolutionary character. Quite recently Langmuir (*Physical Review*, **27**, 806, 1926) has shown that inelastic collisions in several gases lead to very small angles of scattering. Elsasser (*Die Naturwissenschaften*, **13**, 711, 1925) has put forward an explanation of these results on the basis of the theory of de Broglie, in which a moving particle is associated with a 'phase wave,' the interference of which governs the scattering.

In the course of an investigation of the energy distribution of electrons after a collision with a gas molecule, it was found possible to study at the same time the angular distribution of scattering.