

(8) It is probably true that the fishes fly more freely in sunshine than in dull weather, but they do fly under an overcast sky as successfully as in sunshine. They are also known to fly at night, especially when they are disturbed by artificial light.

A good deal of unnecessary mystery seems to have been made about the flying fish's flight. The real mystery is the acquisition, by this one small group, of a fin and tail structure adapted to 'flight' and a singular adroitness in using it.

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July 27.

Structure of the Proboscis in Blood-sucking Diptera

WITH reference to Dr. B. Jobling's letter¹, I wish to point out that, as already mentioned², the hypothesis advanced by me concerning the feeding mechanism in blood-sucking diptera was of a tentative character, and that the object of my communication was not to generalise, but to report certain

observations made by me on the feeding mechanism in one species of blood-sucking fly, namely, *Stomoxys calcitrans*. As a matter of fact, I have since carried out a large number of dissections upon specimens of several species of *Culicines* after feeding them on a strong solution of eosin sweetened with sugar, and while in a few instances no staining was found to have occurred in any part of the proboscis, in others it was the labrum-epipharynx that was found to have taken the stain along the whole of its length, indicating that the food-channel in insects of this class is probably formed by the apposition of the labrum-epipharynx and the hypopharynx.

As to the salivary duct in *S. calcitrans*, it terminates, as already mentioned, at the base of the hypopharynx, the lumen of the latter being a groove running centrally to near its tip.

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¹ NATURE, 136, 145, July 27, 1935.
² NATURE, 135, 915, June 1, 1935.

Points from Foregoing Letters

FEEDING experiments on animals, carried out by Dr. O. Rosenheim and T. A. Webster, have shown that the immediate precursor of faecal coprosterol is not cholesterol but cholestenone, arising presumably from a primary oxidation product, cholestene-diol. The possible role of cholestenone in the conversion by the animal body of cholesterol into bile acids and certain sexual hormones is discussed.

The interest of statistical tests for scientific workers, Prof. R. A. Fisher writes, lies in their use in rejecting certain hypotheses incompatible with observations. He agrees with Mr. Buchanan-Wollaston that the logical fallacy of believing a hypothesis to be true merely because it is not contradicted by the available facts, does frequently occur.

The type and succession of prehistoric stone implements (Chellean, Acheulean) found in East Africa (Uganda) are compared by T. P. O'Brien with those from South Africa, recently described by Prof. Dreyer and by Prof. van Riet Lowe, and their bearing on the geological age of Dr. L. S. B. Leakey's Kanjera man is critically discussed.

The number and energy distribution of positive electrons emitted by thorium-active deposit agrees with the view that the electrons are produced by the materialisation of γ -rays of thorium C", according to measurements by Prof. A. I. Alichanow, A. I. Alichanian and M. S. Kosodaew. The graphs show a residual effect ascribed by the authors to the production of positrons accompanying negative electrons (β -radiation).

The critical supersaturation at which drops of heavy water are formed (by adiabatic expansion) has been determined by Dr. L. Tronstad and H. Flood. They point out that if the value obtained is to agree with Volmer's theory of the formation of nuclei, the surface tension of heavy water must be greater than that reported by Selwood and Frost. (H. Lachs and J. Minkow have actually reported, in NATURE of August 3, p. 186, a higher surface tension for heavy water.)

Spectrographic investigations by Dr. Sunao Imanishi of the violet bands of gold hydride indicate the absence of a gold isotope of mass 199; his findings are in agreement with the negative result obtained by Dempster with the mass-spectrograph.

Drs. D. J. G. Ives and H. N. Rydon, from the results of equilibration experiments in dilute 'heavy water', deduce that purely intramolecular mechanisms for three-carbon tautomerism are not acceptable.

To account for a black-eyed offspring of the freshwater shrimp *Gammarus chevreuxi* of two red-eyed parents, K. W. Yarnold assumed that some sperms from a previous black-eyed mate had remained behind and fertilised the new eggs. As such an occurrence would render doubtful all genetical work done with that species, Mrs. E. W. Sexton gives a full account of the mating habits of *Gammarus*, indicating that no such successive fertilisation can occur.

The location of various species of parasitic nematodes in the small intestine of the sheep has been investigated by J. H. Tetley. It is concluded that the site of infection is determined during the larval stage, and that the stimuli determining the position arise in the duodenum at the point of entrance of the bile and pancreatic juice.

Dr. R. O. Hall finds that straightening and steaming certain animal (guard) hairs with supernormal curvature at the tip results in further contraction. This evidence, he maintains, opposes the three alternatives put forward by H. J. Wood to the 'weathering' hypothesis suggested to account for the apical curvature of those hairs.

Observations on the flying fishes off the West African coast are reported by Dr. E. L. Gill. The fishes fly through the air by repeatedly dipping the lower blade of the tail in the water in order to propel themselves, using the fins as planes.