bubble. The principle involved, which is most familiar in its application to the design of the aeroplane wing, is explained in elementary text-books on aerodynamics. Owing to the presence of the beetle, the velocity of the water immediately surrounding the beetle is increased relative to the velocity of the water in neighbouring regions. As a result, there is a reduction in pressure according to the Bernoulli equation $p + \frac{1}{2}v^2 =$ a constant. This reduction in pressure is communicated to the bubble. If the beetle is in a stream of water that has been saturated with air under atmospheric pressure, the water which enters the region of reduced pressure becomes temporarily super-saturated, with the result that some of its dissolved gases tend to pass into the bubble. The loss of nitrogen, postulated for the shrinking type of air bubble, does not apparently occur under these conditions.

The pressure of the air in the bubble was measured and the results are shown graphically in Fig. 2. It will be noted that above a certain critical velocity of the current, the pressure recorded in the bubble fell below atmospheric pressure. While not constituting absolute proof of the hypothesis put forward, it would seem that this result lends it a considerable support.

I thank Prof. J. E. Harris, University of Bristol, for discussions on this matter, and Mr. J. W. Balfour-Browne, British Museum (Natural History), London, for the identification of the beetle.

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A Predator on *Creontiades pallidus*, Ramb.

The mirid *Creontiades pallidus* is widely distributed throughout the Anglo-Egyptian Sudan; it is also recorded from Egypt and the Belgian Congo, where in both places it is a pest of cotton. Wilcox[1] reports that no parasites or predators of *C. pallidus* were known to him in Egypt; while Madame Soyer[2] found a geocorid bug to be the only predator of this mirid in the Congo. Since Soyer's paper, there appear to be no other references to the insects which attack *C. pallidus*.

For a number of years *C. pallidus* has been thought to be a pest of cotton grown in the Tokar Delta; Tokar is about a hundred miles south of Port Sudan and about thirty miles inland from the Red Sea coast. The insect occurs all along the coastal cultivations, which stretch from the northern border of Eritrea to a point approximately 175 miles north of Port Sudan. In all those places where *C. pallidus* was found on the coastal stretch, the predator *Chrysopa carnea* Steph. also appeared.

On January 18, 1952, and on two subsequent occasions on Tokar cotton, *C. carnea* larvæ were seen attacking nymphs of *C. pallidus*. The nymphs, although generally active, have the habit of resting within the bracts of cotton buds, and it was in these sites that the attacked nymphs were discovered. When confined in a specimen tube, a larva of *C. carnea* will readily feed on nymphs of up to the fourth instar. Once the predator's jaws are fixed in the prey, both insects can be killed in a cyanide bottle without the larva relaxing its hold. Two specimens prepared in this way are deposited in the British Museum (Natural History), and two more are to be found in the Collection Room of the Gezira Research Farm.

When reared through the last larval instar on a diet of *C. pallidus* nymphs, the predator pupated normally and adults emerged from the pupæ. Each *C. carnea* larva ate an average of 6·1 nymphs in the last larval instar of two days; while the greatest number of nymphs consumed by such a larva was thirteen in the space of five days.

While it is unlikely that *C. carnea* in the field subsists wholly upon a diet of *Creontiades* nymphs, it is probable this predator does check to some extent the multiplication of the mirid at Tokar.

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[1] Wilcox, F. C., and Bahgat, Said, "Insects and Mites Injurious to the Cotton Plant" (Pub. Royal Agricultural Society of Egypt, 1937).

[2] Soyer, D., "Miride du Cottonier, *Creontiades pallidus*, Ramb.". I.N.E.A.C. Pub., Ser. Sci., No. 29, pp. 15.

Purple Pigment and Protein in the Threads of the Sea Anemone, *Adamsia rondeleti*

The sea anemone, *Adamsia rondeleti*, produces coloured protein threads, from which a purple pigment can be extracted by means of distilled water. These protein threads are produced by special glandular cells of the body, and are excreted through special pores. They are used in obtaining food (small fishes or crabs), and perhaps for self-defence.

Up to now, it has not been possible to separate the pigment from the albumin with which it is conjugated without coagulating the protein, and at the same time replacing the purple colour by yellow. The purple pigment gives an intense blue fluorescence in ultra-violet light, the principal absorption maximum being at 555 mμ with smaller peaks at 465, 450 and 435 mμ. On heating, the aqueous solution becomes yellow. The purple pigment is unlikely to be 6-6′ dibromoindigotin, which has a quite different absorption spectrum. The pigment is changed to a colourless compound at *p*H 1·92 but persists at *p*H 12·36; addition of 0·1 *N* sodium hydroxide (*p*H 12·93), however, results in a yellow colour, and a smell of trimethylamine is noticed.

Vacuum desiccation transforms the aqueous solution into a micro-crystalline substance, and causes the purple colour to disappear, changing to yellow. In moist air the colour is restored.

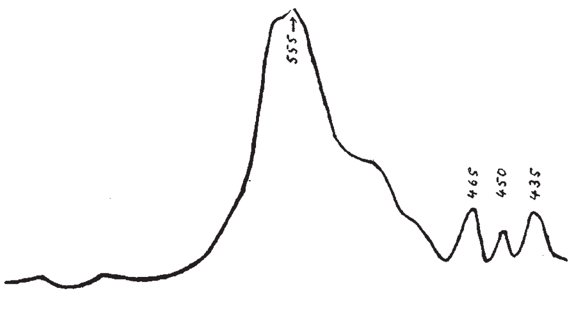

Fig. 1. Absorption spectrum of the purple pigment