A preparation with a pure pressor effect was obtained when the ether solution used to remove fats and lipoids from the organ extracts was extracted with a 10 per cent sodium sulphate solution. After removal of the inorganic salts by precipitation with alcohol, the activity corresponded to about 0.1–0.5 μ gm. adrenalin per gm. of fresh tissue in spleen extracts. Further yields were obtained by repeated extraction of the organ extract with the ether solution of lipoids and extraction of this solution with a salt solution. In the remaining primary organ extract the biological action corresponded to 2–10 μ gm. adrenalin per gm. of fresh tissue.

The active pressor substance is dialysable and readily soluble in water and alcohol and also to some extent in a mixture of alcohol and ether. It is quickly destroyed by heating in normal alkaline solution, but is relatively stable to acids.

The biological actions of the purest preparations so far made are as follow: a rise in blood pressure of the cat in chloralose anaesthesia, enhanced by cocaine and reversed by ergotamine; inhibition of the isolated rabbit's intestine and the non-pregnant uterus of the cat after atropine, and stimulation of the isolated rabbit's uterus, and the frog's heart.

The biological reactions point to a sympathomimetic substance, and one is led to consider its relation to the "sympathicusstoff" of Loewi. The active extracts give colour reactions with ferric chloride of a similar kind to adrenalin and a strong Folin-Cannon-Denis' reaction with phosphotungstic acid. It has not been possible to obtain the colour reaction with iodine, however, though added adrenalin readily gave this.

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Presence of Reddish Pigment in Eggs and Ovarioles of the Desert Locust, and its Probable Phase Significance

I NOTICED some time ago that in the desert locust, *Schistocerca gregaria* (Forskål), several eggs had a reddish tinge owing to the presence of pink pigment superficially on the egg-chorion, while others lacked this pigment. Generally, in an egg-pod all the eggs are either pink or non-pink, though exceptionally both kinds may occur in the same pod. Hatchings from some 185 pink eggs (from five different egg-pods) and 406 non-pink eggs (from ten different pods) gave the following kinds of first-stage hoppers: (a) Pink eggs: 54 per cent *gregaria* (black pattern), 22 per cent intermediate and 24 per cent *solitaria* (green); (b) non-pink eggs: 25 per cent, 17 per cent and 58 per cent respectively. These proportions suggest that pink eggs produced a majority of phase *gregaria* hoppers, though it must be mentioned that hatchings from five pods (172 eggs) were contrary to this suggestion.

I also noticed that in some adult females the ovaries have, at the base of many ovarioles, a mass of orange-red pigment lying in the small basal follicle or pedicel which connects the ovariole proper with the egg-calyx. This pigment was found in both

solitaria and *gregaria* adults and in both 6- and 7-eyed-striped individuals (Roonwal¹), but was absent in fourth- and fifth-stage hoppers. It was also observed in adults of the rice grasshopper, *Hieroglyphus nigrorepletus* Bol., from a *microptera*. The fact that both the egg and ovariole pigments are soluble in acetone and acetic acid, weakly soluble in absolute alcohol, and insoluble in water, 40 per cent formaldehyde and glycerine, suggests their close similarity. Presumably the ripe eggs, while passing through the pedicel during oviposition, become invested with the reddish pigment.

Pink-red pigments play a considerable part in the desert locust. Künckel d'Herculais² first noticed it in the body-wall of young adults from swarms, while Johnston³ showed that the pink occurs only in the *gregaria* phase, the *solitaria* adults not acquiring it at any stage. Chauvin⁴⁻⁸ has further studied the adult pigments and also shown that a red pigment is ejected with the excreta. In *Locustana* and *Locusta* Faure⁹ has suggested the presence of a hypothetical substance, *locustine*, which is responsible for phase production and which can be transmitted from one generation to the next through the medium of the egg-substance. In view of the similarity, as shown above, of the reddish pigment of eggs and ovarioles, the suggestion may be made that this pigment is connected with Faure's *locustine*.

Full results will be published elsewhere.

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Zoological Survey of India.
March 8.

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⁴ Chauvin, R., *Bull. Soc. Hist., Nat. Afr. N., Algiers*, **29**, 249 (1938).

⁵ Chauvin, R., *C.R. Acad. Sci.*, Paris, **237**, 1018 (1938).

⁶ Chauvin, R., *C.R. Soc. Biol.*, Paris, **130**, 1194 (1939).

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⁸ Chauvin, R., *C.R. Soc. Biol.*, Paris, **132**, 397 (1939).

⁹ Faure, J. C., *Bull. Ent. Res.*, London, **23**, 293 (1932).

'Palolo' Worms in Pacific Waters

COMMANDER BURROWS' interesting letter¹ on the palolo worm prompts me to confirm his assumption that this annelid occurs elsewhere than in Fijian and Samoan waters. It exhibits a similar periodic rising at three points off the coast of Ulawa Islands in the Solomons, where its name is 'orku'², and it has also been observed from southern Espiritu Santo in the New Hebrides³. Specimens which I sent to the British Museum in 1936 from Ulawa were identified by Mr. C. C. A. Munro as *Eunice viridis* Gray, and this is clearly the same as the *Eunice virida* of Commander Burrows.

In Fiji the mbalolo was reported from Vanua levu as long ago as 1936⁴, so that this can be added to Ovalau and the Yasawas. As a matter of interest, a resident on Ovalau recently reported⁵ that no worms were recorded at Tokou in 1943; but they were seen in the Yasawas and at Savusavu, Vanua levu, in October and November 1943.

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Fiji Club, Suva, Fiji.
March 20.

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⁴ Robinson, A., *Pacific Islands Mnl.*, August 19, 1936.

⁵ Anon., *Fiji Times and Herald*, Suva, November 14, 1944.