

Penicillin given by mouth is absorbed mostly from the duodenum, while in the lower reaches of the intestinal tract more is destroyed than is absorbed. The concentration of the antibiotic in the colon is negligible, while in the ileum the concentration may be a little higher. Can the drug, in such poor concentration, effect any far-reaching changes in the flora, either for good or ill? It has been proved that antibiotics of wider spectra have a tendency, with long-continued administration, to produce symptoms attributable to intestinal sterilisation and vitamin deficiency. Can the same be said about penicillin, whether given by mouth or by the intramuscular route? <sup>4</sup> In conditions like lung abscess and empyema, requiring prolonged administration of penicillin in large doses, these complications have not been evident, even when no vitamins were given.

On the question of a high-carbohydrate low-protein diet being responsible for the production of inimical microflora, I wish to observe that the Brahmins of South India commonly eat this type of diet; and I have come across only a very few cases of megaloblastic dyshæmopoietic anæmia in this community. The majority of them are strict vegetarians.

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### SALT-WATER BOILS

SIR,—Deep-sea fishermen suffer from a septic condition of the wrists and forearms known as "salt-water boils." It is due to friction of oilskin sleeves on forearms sodden with salt water. An additional abrasive element, especially in the case of bosuns, is sludge brought up with the catch from the sea bed. I am collecting information in order to obtain:

(a) Official recognition as an occupational disease in the schedule.

(b) Uniform medical certification in the interests of sufferers.

(c) Adequate treatment at sea in accordance with the Ministry of Transport's *Ship Captain's Medical Guide 1946*, amendment no. 4.

I shall be grateful if any doctors handling these cases would write to me.

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### CHROMATOPHOROTROPIC HORMONE

SIR,—Dr. Sulman <sup>5</sup> has lately given his opinion on the identity of the chromatophorotropic hormone. He assumes that A.C.T.H. contains several factors, one of them being chromatophorotropic.

The mechanism of the so-called Konsuloff reaction was discussed in a recent article.<sup>6</sup> In 1934 Konsuloff <sup>7</sup> suggested that the melanophore hormone in the urine could serve as a reliable pregnancy test; and this test, based on the colour change of the hypophysectomised frog (*Rana esculenta*) after injection of urine, has been widely adopted in the Netherlands. What is the substance in the urine of pregnant women that causes the frog's melanophores to expand? Which organ, during pregnancy, produces this substance in excess—the hypophysis or the placenta? Is the long-known hypophyseal chromatophorotropic hormone (C.H.) identical with the hormone in pregnancy urine? Is the latter substance identical with choriongonadotrophin?

The identity of C.H. from pregnancy urine with choriongonadotrophin (Ch) (which, in view of the close parallelism in excretion of C.H. and Ch had suggested itself very forcibly) was rejected in 1949, among other reasons because impure 'Pregnyl' (Organon), a Ch-containing preparation, had a lower minimal effective dose for C.H.

activity than very pure pregnyl. Contamination of pregnyl by a substance with C.H. activity might explain this discrepancy. When at the beginning of 1951 a small quantity of A.C.T.H. ('Cortrophin,' Organon) was placed at our disposal, it became clear to us that with this preparation (which is not free of other hypophyseal factors) expansion of the frog's melanophores could be brought about. The contaminant of pregnyl might, then, be A.C.T.H. As we did not have at our disposal "crystalline" hypophyseal hormones we tried to determine the minimal effective dose of several hypophyseal gonadotropic preparations and that of A.C.T.H.<sup>8</sup>

For reasons that we are explaining elsewhere, the identity of C.H. with luteotrophin (Squibb) (prolactin) or luteinising hormone (L.H.) did not seem improbable. Therefore we determined the minimal effective dose of luteotrophin, cortrophin, and pregnyl (a very pure Ch put at our disposal by Messrs. Organon Ltd.). The results were as follows:

Preparation	Strength	Minimal effective dose (µg.)
Cortrophin .. ..	50 I.U. (16 mg.)	0.2
Luteotrophin .. ..	1000 I.U. (54 mg.)	5.4
Pregnyl .. ..	20,000 I.U. (43 mg.)	4.0

This shows that the C.H. activity of the preparation containing prolactin (luteotrophin) might be due to contamination by 5-10% A.C.T.H. That the pregnyl used contained this amount of A.C.T.H., is disclaimed by the manufacturers, who say that at the most traces might be found.

Even more important was the observation, which had hitherto escaped our notice, that the type of colour change was different, according to whether A.C.T.H. or pregnyl was injected. After injection of A.C.T.H. the whole body of the frog becomes dark. After injection of pregnyl (Ch) the hind legs of the frogs become dark, in contrast with the upper part of the body, which remains bright. This colour pattern cannot be brought about by giving cortrophin. The same colour change is also obtained with urine and blood-serum of pregnant women, 'Gestyl' (Organon) (pregnant mare's serum), and a watery extract from the frog's hypophysis. 'Ambinon' (Organon) (thyrotrophic-gonadotrophic hormone), gonadotrophin (Squibb), and luteotrophin gave the colour change of the type given by A.C.T.H. That we were indeed dealing with two substances with C.H. activity in the two groups was furthermore proved by our finding that the C.H. activity of our substances giving a colour change of the pregnyl type disappeared after half an hour's boiling at pH7, whereas the C.H. activity of the group which gave the colour change of the A.C.T.H. type appeared to be proof against this treatment.

Konsuloff's pregnancy reaction, then, in our opinion, is based on the presence of choriongonadotrophin in pregnancy urine. The chromatophorotropic activity of the hypophysis may be caused by A.C.T.H. on the one hand, or on the other hand by a substance which we think must be identical with prolactin and/or luteinising hormone. Experiments in which hypophyseal preparations are stripped of C.H. activity of the A.C.T.H. type, while the C.H. activity of pregnyl (choriongonadotrophin) type is preserved have confirmed the existence of two substances with C.H. activity. Injections of deoxycortone acetate 1 mg. and of cortisone ('Cortone,' Merck) 0.25 and 1 mg. did not give any colour change. Deoxycortone made the frogs ill. In our opinion the physiological significance of the C.H. activity of A.C.T.H. is not yet fully understood.

Treatment of prolactin with alkali<sup>9</sup> destroys the A.C.T.H. We injected prolactin treated in this way in frogs, and we found a positive Konsuloff reaction and a negative Galli Mainini spermiation test. In our opinion this suggests that prolactin possesses chromatophorotropic activity.

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8. Stolte, L. A. M., Bakker, J. H. J., Verboom, E., Dauvillier, P. W. *Ned. Tijdschr. Geneesk.* 1952, 96, 2068.

9. Morris, C. J. O. R. *Lancet*, 1952, i, 1210.

4. Foy, H., Kondi, A., Hargreaves, A. *Brit. med. J.* 1951, i, 380; *Ibid.*, p. 1108.

5. Sulman, P. G. *Lancet*, 1952, i, 1161.

6. Mighorst, J. C. A., Stolte, L. A. M., de Roo, P. H. M., Creutzberg, F. *Acta endocr., Copenhagen*, 1949, 2, 97.

7. Konsuloff, St. *Klin. Wschr.* 1934, 21, 776.