Rediscovery of the Ophiuroid Genus *Ctenamphiura* Verril

On September 10, 1874, H.M.S. *Challenger*, while dredging at Station 188, at the western end of Torres Strait, obtained from 28 fathoms two specimens of an amphiurid which afterwards became the genotype of the monotypic genus *Ctenamphiura*, receiving the name *Ctenamphiura maxima* (Lyman, 1879). It is remarkable among amphiurids for its robust build, the fact that the outer oral papillæ far exceed in size the infradental pair, for its very large tentacle scales, tumid disk and thick arms bristling with erect arm-spines arranged in dense comb-like masses. It has never since been seen, nor has any related form been discovered so far as I can determine. Of the only two specimens extant, one is in the British Museum, the other in the Museum of Comparative Zoology, Harvard.

Through the courtesy of Captain A. Black, Mr. W. H. Dawbin, of this Department, was able to dredge in Pelorus Sound in December 1951, when he obtained three specimens of an amphiurid, the affinities of which were not at first obvious. It differed remarkably from any other known New Zealand form. I now find that the Pelorus specimens (which were taken in 25–30 fathoms) conform in most respects with *Ctenamphiura maxima*, differing chiefly in the fact that the under surface of the disk is partly naked, and in the presence of only a single very large tentacle scale; also the massive arm-combs diminish in size on the proximal few plates. There seems no doubt that the species must be closely related to *C. maxima*, and, as the distinguishing features mentioned are diagnostic, it may take the name *Ctenamphiura dawbini* sp. nov. The type will be placed in the museum of this Department, and a full description, with figures, will appear in the "Zoology Publications from Victoria University College". Fortunately, the species comes from an accessible locality, from which, therefore, there is every likelihood of further material being obtained in the near future. It is hoped that at least a limited amount of material will soon be available for distribution to those museums which maintain important echinoderm collections.

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Correlation Study of Bovine Erythrocyte Antigen *A* and Butterfat Test

Ferguson[1], in a discussion in a paper entitled "Heritable Antigens in Erythrocytes of Cattle", raised the possibility that certain of these cellular antigens may be used as 'markers' in a study of the inheritance of complex physiological characters such as milk production. Filmer (personal communication) suggested that the most logical antigen production factors to test would be antigen *A* and butterfat test, because of the direct correlation between high frequency of antigen *A* and of high butterfat test in Jersey, and low frequency of antigen *A* and low butterfat test in Friesian cattle. Owen *et al.*[2] reported that 87·6 per cent of a group of Guernsey and 46·1 per cent of a group of Holstein Friesian cattle carried antigen *A*. Stormont (personal communication) mentioned that the frequency of antigen *A* in Jersey cattle is similar to that of Guernsey cattle. Results from New Zealand showed a frequency of antigen *A* in Jerseys and Friesians of an order similar to, but lower than, Owen's Guernsey and Friesian frequencies.

A survey on the lines suggested by Dr. Filmer was carried out in 1951. From nine herds of pedigree Friesian cattle, 95 blood samples were obtained from the 5 per cent of each herd with the highest butterfat test and the 5 per cent of each herd with the lowest butterfat test. Test records for the season 1949–50 were supplied by the New Zealand Dairy Board.

Results.

Highest 5 per cent of each herd had a butterfat test of 3·9 per cent or more.

Lowest 5 per cent of each herd had a butterfat test of 3·7 per cent or less.

Average test of all cows from which samples received, 3·84 per cent (range 2·8–5·0 per cent).

Number of animals with high butterfat test, 45. Frequency of antigen *A*, 0·27. Average butterfat test, 4·33 per cent (3·9–5·0 per cent).

Number of animals with low butterfat test, 50. Frequency of antigen *A*, 0·22. Average butterfat test, 3·36 per cent (2·8–3·7 per cent).

Overall frequency of antigen *A*, 0·24.

Cows with antigen *A*, 23 cows. Average butterfat test, 3·88 per cent (3·2–4·4 per cent).

Cows with high butterfat test, 4·23 per cent (3·9–4·4 per cent).

Cows with low butterfat test, 3·51 per cent (3·2–3·6 per cent).

Cows without antigen *A*, 72 cows. Average butterfat test, 3·82 per cent (2·8–5·0 per cent).

Cows with high butterfat test, 4·38 per cent (3·9–5·0 per cent).

Cows with low butterfat test, 3·34 per cent (2·8–3·7 per cent).

The test serum (Wallaceville anti-*A*) gives similar reactions to the Wisconsin *A*, kindly supplied by Dr. C. Stormont, but is less sensitive, that is, it does not react to quite so many bloods as does the Wisconsin *A*.

From the results, it appears there is no direct correlation between antigen *A* and butterfat test in the Friesian cattle under test. Even though the number of animals is small, it is likely that these results can be applied to Friesian cattle in general.

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[1] Ferguson, L. C., *J. Immunol.*, **40**, 213 (1941).
[2] Owen, R. D., Stormont, C. J., and Irwin, M. R., *J. Anim. Sci.*, **3**, 315 (1944).

Toxicity of Methylene Blue to *Leptospira icterohæmorrhagiæ*

Yanif and Avi-Dor[1] have reported that very low concentrations of methylene blue (0·5 μgm./ml.) inhibit the growth *in vitro* of *Bact. tularense*, but that this dye had no effect *in vivo*; "doses of 0·5 gm. [0·5 mgm. ?] each, applied intraperitoneally for three successive days, did not protect mice infected even with low doses (1–10 LD_{50}) of the bacterium".

So once again methylene blue has been found useless as a chemotherapeutic agent; and yet, in a sense, it may be regarded as the foundation stone of modern chemotherapy. As early as 1871 Ehrlich, the father of chemotherapy, had found that methylene blue preferentially stained malaria parasites, leaving the red blood cells and other tissues unstained; and in 1891 Guttmann and Ehrlich[2] reported that it had a slight anti-malarial action. Their finding was the starting point of the investigation that led to the