very high concentrations in the presence of adenine[10]. Hall[11] has reported the presence of N^6 aminoacyl adenines in hydrolysates of yeast RNA, but these are alkali-labile and in this study should have been eliminated during hydrolysis procedures. Thus the identity of the active compound or compounds remains unknown.

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Cutaneous Melanocyte System of the Indigo Snake *Drymarchon corais*

FOR many years it has been believed that the cutaneous pigment cell system of the so-called lower vertebrates—fishes and amphibians—is mainly a dermal one. As an effector system its function is primarily to show aggregated or dispersed melanin in different hormonal situations, and it does not significantly donate pigment to other tissues. On the other hand, the pigment cell system of birds and mammals has been considered to have primarily a cytocrine function, and to be effectively resident in the epidermis and its derivatives. Here the melanocytes function by donating melanin to contiguous epidermal cells in the integumental epidermis, or in the matrix of hairs or the collars of feathers. It is difficult to understand how the presumably dermal pigmentation of the ancestral vertebrates produced the very elegant epidermal system of birds and mammals, and little descriptive work on the reptile pigment cell system has proved of value in this connexion.

Routine histological sections of the skin of the indigo snake (*Drymarchon corais*) were taken in the course of another investigation. During their analysis, a very odd and apparently new phenomenon was noted. The melanocyte system appears to be mostly dermal although occasionally melanocytes may be seen in the epidermis. The shed skin is, however, quite darkly pigmented and it was considered that there were insufficient epidermal melanocytes to account for this. Close investigation of the histological sections revealed that many and perhaps most of the dermal melanocytes had fine processes which extended across the dermis above the melanocyte layer, through the basement membrane, and into the basal layer of the epidermis. Because of the fine and highly irregular nature of these dendrites, it is very difficult to demonstrate convincingly that any particular dendrite extends from a certain melanocyte up into the epidermis. Sometimes the thicker dendrites (Fig. 1) may be seen to do this, however, and they are occasionally found complete in one 7μ section.

The significance of this finding is rather difficult to assess. It is tempting to suppose that this condition may represent an intermediate between the situation in fishes and amphibians and that in mammals and birds. It has been shown by Szabo (unpublished) and by Hadley (also unpublished) that there is an epidermal melanocyte system in several North American frogs, so that the situation in this snake may be indicative of no more than a possible evolution from a dermal to an epidermal melanocyte system. Nevertheless it raises a number of questions about the presumed inviolability of the basement membrane of vertebrates, and provides a framework for the consideration of vertebrate pigment cell systems as a whole. Further investigations using electron microscopy are in process.

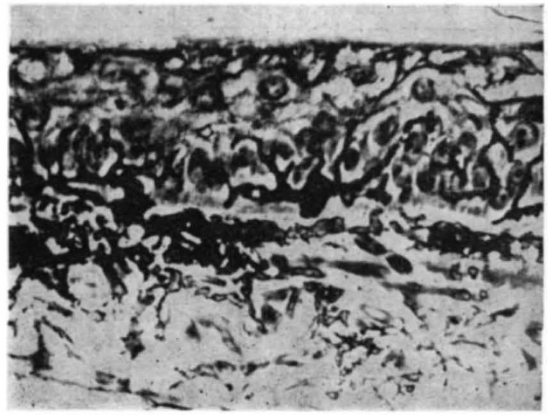

Fig. 1. Part of a 7μ section of *Drymarchon corais* dorsal skin. Dermal melanocytes (*D*) are seen packed with melanin, and parts of epidermal melanocytes (*E*) are sectioned. Note the processes extending across the basement membrane (*BM*)

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Echinoid Coelomic Cells

ECHINOID coelomic cells were first described in detail by Geddes[1], who studied the coelomic fluid of *Paracentrotus lividus* and *Echinus esculentus*. Since then, these cells have been the subject of numerous papers, principally descriptions of the cell-types in various species[2–9].

The main coelomic spaces of a regular echinoid are the perivisceral and lantern coeloms and the watervascular system. The perivisceral coelom alone occupies 40–50 per cent of the volume enclosed by the test of a *Psammechinus miliaris* 2–3 cm in diameter, and 70–80 per cent of an *Echinus esculentus* of about 12 cm diameter. The coelomic cells are suspended in the coelomic fluid within these spaces, but some of the cells are amoeboid and are found in other tissues, notably in those of the haemal system. Coagulation and phagocytosis of "foreign" material are two known functions, and other important functions have been attributed to the coelomic cells; however, as has been recently stated[10], their role has not been entirely elucidated.

The present report is based on a cytological study of the cells found in the perivisceral coelomic fluid of *Diadema antillarum* and *Psammechinus miliaris*. The cells can be divided into three morphological types.

(1) Bladder amoebocytes. These are cells usually about 25μ in diameter, with a central mass of endoplasm containing the nucleus. The endoplasm is surrounded by labile bladder-like processes which become filiform as an irreversible coagulation change. Such cells are phagocytic but, as they are so readily involved in coagulation changes, information on taxes or any locomotor activity is difficult to obtain.

(2) Spherule amoebocytes. These are active amoeboid cells about 35μ long when extended. They contain numerous spheroidal inclusions which move freely in the cytoplasm as does the nucleus. In all echinoids studied there were two types of amoeboid cell, one with unpigmented—termed colourless—inclusions, and one with