such treatment. These results are in agreement with earlier results with VCN-treated human erythrocytes and lymphocytes, using various homologous and heterologous sera as well as plant lectins[4,9,10]. The presence of naturally occurring antibodies in human and various animal sera with specificities for β-D-galactosyl or lactosyl determinants raises an important question regarding their functional significance[10]. Results presented here demonstrate that these antibodies could be the product of an immune response to a discrete set of antigenic determinants present on the surface of some microorganisms. Low titres of such antibodies in normal sera may reflect a residual activity of a previous immune response, or mere contact of the host with the microorganism. It is of interest to note that β-D-galactosyl determinant is present on the surface of *pneumococcus* type XIV polysaccharide[14], while lactose is the immunodominant sugar of *Streptococcus faecalis*[15].

Various workers[10,11] have shown that these antibodies which react with VCN-treated cells are mainly of IgM class. Results presented here agree with these findings and demonstrate further that the immune response does not mature during the course of infection so far as the switch from IgM to IgG class of antibody synthesis is concerned. IgM synthesis is generally considered as T-cell-independent response, and it is possible that some of the polysaccharide determinants of *L. enriettii* membrane are T-cell independent in nature in guinea-pigs. Similar type of IgM response is characteristic of several other polysaccharide antigens[16–18].

The lack of any striking correlation between the FAT and HA titres (Table I) demonstrates the heterogeneity of the antigenic determinants of the system. Guinea-pig immune response was probably directed against a variety of determinants of the parasite, only a few of which were being picked up by the hemagglutination assay system described here.

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Vermipodia – a New Type of Cell Process

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Summary. A new kind of cell process is described in leukemic cells in two cases of histiocytic malignancies. They were evident both with light microscopy and scanning electron microscopy. As they have a tubular, worm like appearance, the name vermipodia has been given to them.

During the course of our studies on two cases of histiocytic malignancies we have observed an unusual and hitherto undescribed variety of cell process in the leukaemic cells in the peripheral blood (Figures 1–3). The morphology of malignant histiocytosis[1,2] and histiocytic lymphoma[3,4] has been previously described, including the scanning electron features[5] but cell processes such as those shown here were not noted.

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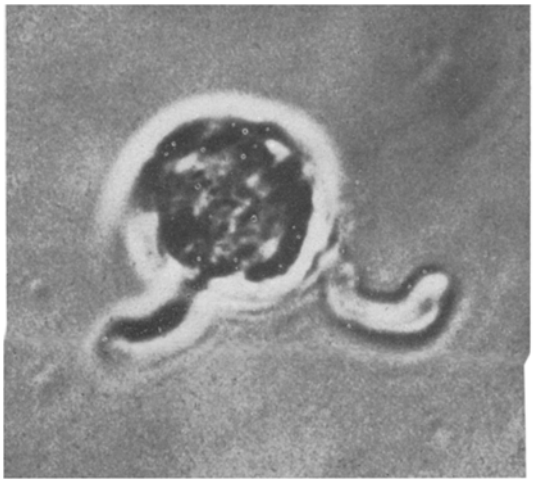

Fig. 1. Vermipodia as seen in a wet preparation. × 950.

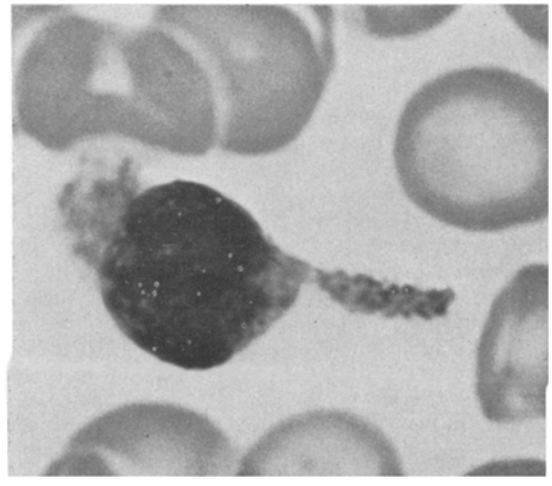

Fig. 2. Wright-Giemsa stained blood smear showing a leukaemic cell with a vermipodium. × 2,700.

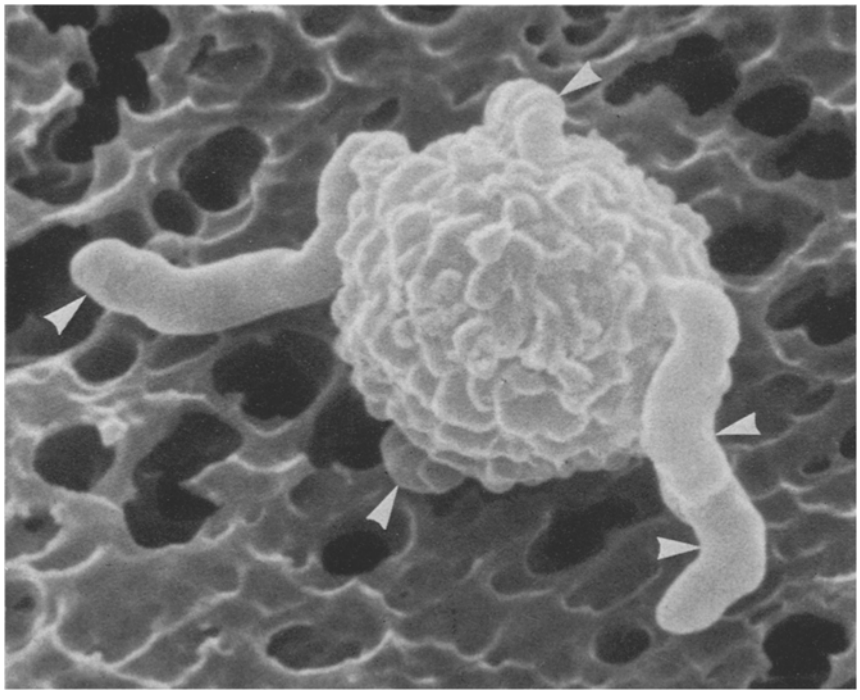

Fig. 3. Scanning electronmicrograph showing a cell with 4 or 5 vermipodia (arrowheads). × 7,400.

These new cell processes were observed by us in 1. wet preparations of peripheral blood (Figure 1), 2. blood films stained with Wright-Giemsa stain (Figure 2) and 3. in scanning electron microscopic preparations of leucocyte rich plasma fraction of freshly collected blood fixed in 2% gluteraldehyde (Figure 3).

As can be seen in Figure 3, these new processes are characterized by 1, their worm-like cylindrical shape, 2. their origin from a small area (base of the process) of the cell circumference and 3. the absence of microspikes on their surface or distal end. Their worm-like appearances leads us to suggest that these processes should be called 'vermipodia' (vermis = worm; pes = foot. L.) Occasionally only a single vermipodium was seen on a cell but more often 2 to 5 such processes were found arizing from a cell surface.

Vermipodia are clearly quite different from uropodia[4,6] which are solitary, broad-based, tapering processes which terminate in microspikes. Vermipodia also bear no resemblence to pseudopodia, which are blunt projections on the cell surface, used by cells such as neutrophil leucocytes and amoeba for locomotion and phagocytosis; nor are they akin to cilia or flagella which are slender, whip-like processes, or to microvilli which are small, slender, finger-like projections of the cell surface (for a full review of cell processes see reference[7]).

The exact nature, function and significance of vermipodia was not revealed by our study. The fact that they have been seen on malignant cells suggests, that they might be atypical or pathological alterations of the cell surface with little functional significance. The idea that they are an atypical locomotor organ, or feet is conceivable but there is no concrete evidence to support such a notion. It has been suggested[4] that some projections such as uropodia may serve to explore contact with other cells. Similarly one may argue that vermipodia may also serve such a function, for histiocytes and lymphocytes are known to establish intracytoplasmic connections[8–10]. But once again any direct proof that vermipodia subserve such a function is lacking.

Finally it is worth pointing out that ultrathin sections from pellets of these cells were examined with the transmission electron microscope but we could not confidently identify vermipodia by this technique. This is only to be expected for the chances of cutting such long contorted small-based processes along their entire length or even a major part of their length are very small indeed.

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