both sexes are equally affected. Symptoms are malaise, low fever, and abdominal pain. A mass is usually felt. Twenty-two of these 34 patients underwent major bowel resection because of uncertain or mistaken clinical diagnosis, including three of six Europeans who were thought to have carcinoma of the caecum. Three characteristic pathological presentations may be distinguished: (1) In the acute phase a worm track is found leading to an abscess in or near the bowel wall. The contents are thick, odourless, sterile pus, and, often, a live parasite. (2) After some weeks the worm dies, the cavity is walled off and the histological appearances come to resemble caseating tuberculosis quite closely. (3) Eventually a fibrous mass results in which eosinophils remain prominent. It is likely that with increasing numbers of people travelling to, and returning from, the tropics these helminthic pseudotumours (helminthomas) will have to be considered in the differential diagnosis of intra-abdominal masses and inflammatory conditions.

The Measurement of Circulating Ferritin A. JACOBS, M. R. BEAMISH, AND M. ALLISON (*University Hospital of Wales, Cardiff*) Ferritin can be measured in serum by immunometric essay. The mean level in normal men is 69 ng/ml and in normal women 35 ng/ml. Patients with iron-deficiency anaemia have concentrations below 10 ng/ml and these levels are always associated with iron deficient erythropoiesis.

The concentration of ferritin in serum gives a quantitive measure of storage iron both in normal subjects and those with iron overload. In patients with Hodgkin's disease the fall in the serum iron concentration is associated with a rise in the serum ferritin levels.

Symposium I

The lymphoreticular system

The Lymphoreticular System: Morphological Organization KRISTIN HENRY (*Department of Pathology, Royal Postgraduate Medical School, London*) At both a functional and anatomical level lymphoreticular tissue can be horizontally divided into central or primary lymphoid organs such as thymus and the avian bursa of Fabricius, and peripheral or secondary lymphoid tissue such as lymph nodes, spleen, and gut-associated lymphoid tissue. Peripheral lymphoid tissue functions in an executive capacity subserving both cell-mediated immune reactions as well as antibody production, and also for clearing the blood, lymph, and tissue of particulate matter. Thus, these tissues are specifically organized and

equipped for antigen capture and processing, for antibody production, and for non-specific, ie, non-immunological, phagocytosis. Structural differences between these peripheral lymphoid tissues exists according to location, but all are characterized by their lymphocytic nature, the presence of primary lymphoid follicles and highly complex germinal centres, an intricate vasculature, and a framework of supporting cells and reticulin fibres between which are found the executive cells. According to their light- and ultrastructural features, the component nucleated cells of peripheral lymphoid tissues have been allocated to one of the following categories: (1) the lymphocyte series (T- and B- cell lines); (2) the dendritic (reticular) cells; (3) cells of the mononuclear phagocyte system; (4) endothelial cells; and (5) the supporting 'reticular' cells. The thymus differs in many respects from peripheral lymphnoid tissue, but on a purely morphological basis can be distinguished by its unique lympho-epithelial structure and by a virtual absence of any morphological expression of local immune responsiveness. In the adult, bone marrow is the source of the stem cells for both central and peripheral tissues, and not the reticulum cell as previously supposed.

Lymphoreticular System: Functional Organization I. ROITT (*Immunology Department, Middlesex Hospital Medical School, London*) We now recognize two major lymphocyte populations, one dependent on the presence of the thymus gland (T cells) and the other controlled by the bursa or its equivalent in mammals (B cells). B lymphocytes mature to form the antibody-secreting cells, of which the plasma cell represents an end stage, and are therefore responsible for *humoral immunity*. T lymphocytes, when appropriately sensitized, confer a state of *cell-mediated immunity* on the host which affords defence against certain intracellular facultative organisms such as tubercle and leprosy bacilli and certain viruses including those of the pox group. Although not themselves capable of secreting immunoglobulins, T cells do cooperate with B cells in the antibody response enabling them to be triggered more readily by antigen. The other important functional characteristic of T lymphocytes is their ability to recognize and be activated by the surface antigens of viable 'foreign' cells of the same species and thence to transform into cytotoxic lymphoblasts capable of killing the target foreign cells in culture; this provides one important mechanism by which the host can reject homografts and presumably tumour cells which would be regarded as homografts if their specific neo-antigens were recognized as 'non-self'. Antibodies with specificities for surface markers on different lymphoid cells are providing increasing