a Cinderella at this carnival of literary expansiveness." In this chapter is contained a note on so-called 'traumatic' neurosis, a subject on which, as the author says, a candid statement is long overdue. I do not remember seeing in any other text-book of neurology any emphasis laid on the fact that trauma *per se* does not cause neurosis. Judging from a considerable experience in courts of law, it would seem that judges, lawyers and medical men giving evidence think that 'traumatic' neurasthenia is as much an entity as measles. It is high time that they became better instructed.

Useful chapters are included in the book on bromide intoxication (a condition which is so often unrecognized) and some general observations upon the treatment of nervous disorders in which what can and what cannot be hoped for are candidly set out. The book ends with an excellent and simple scheme for the examination of the nervous system.

I can recommend the book to the student and practitioner alike in the sure confidence that they will both profit from a study of it and also obtain considerable pleasure in the process.

C. M. HINDS HOWELL.

THE STUDY OF LYMPH

Lymphatics, Lymph and Lymphoid Tissue

Their Physiological and Clinical Significance. By Prof. Cecil Kent Drinker and Dr. Joseph Mendel Yoffey. (Harvard University Monographs in Medicine and Public Health, No. 2.) Pp. x+406. (Cambridge, Mass.: Harvard University Press; London: Oxford University Press, 1941.) 4 dollars.

THIS book is good reading since it shakes convictions and stifles beliefs; and, exposing our ignorance, it will stimulate research. The first chapter is coldly anatomical, but warm argument soon begins. In the second chapter, the authors have to consider the permeability of capillaries in order to account for the composition of tissue fluids and lymph. Here there is difficulty with the albumins and globulins often present in lymph: it is agreed that they are derived from the plasma of the blood, but how do they leak out of the capillaries? The stand is taken that they pass through the endothelial cells under a pressure of a few centimetres of water: but can molecules having molecular weights of many thousands enter, pass through, and emerge from the cytoplasm of endothelial cells where equally large molecules are abundant? If this be the way, there ought to be differential filtration, the smaller albumin molecule passing in greater abundance than the globulin, and yet, as the authors show, the ratio is approximately the same in lymph and plasma. The other

way is between the endothelial cells, where there is discontinuity in structure between cytoplasm and intercellular matrix, surely a likely place for leakage. When we come to the passage of these proteins into the lymphatics from the tissue spaces a further difficulty arises: here there is no positive pressure to help the passage, and so some easier way than through the cytoplasm of the endothelial cell of the lymphatic vessel seems especially to be required.

Such interesting questions as these are excellently dealt with in the first 150 pages of the volume.

The rest of the volume deals with the function of lymphoid tissue and of lymphocytes. Lymphoid tissue composes about one per cent of the human body: it is a tissue especially well developed in mammals, and yet we do not know its function. The situation is unique: here is the physiologists' Cinderella.

It is a pleasure to record that this mystery remains the subject of hot debate and a playground for the investigator.

The fate of lymphocytes which enter the blood stream from the lymphatics is of interest. In the case of a dog of 10 kgm. about five thousand million enter the blood stream, via the thoracic duct, per day, sufficient to replace the circulating lymphocytes twice. Where do they go? Many possibilities are considered, but one, I think, has been somewhat overlooked. Not only do lymph glands produce lymphocytes, they also destroy them in large numbers by phagocytosis by macrophages. Perhaps production does no more than equal destruction; if so, the fate of great numbers would be accounted for, as well as a means of maintaining constancy in numbers.

In dealing with the effect of X-rays, the authors have missed an important finding. If a rat be given a very small dose of X-rays the lymphocytes fall to about 50 per cent: if then a second small dose be given no further fall occurs: if one waits until numbers have returned to normal, then a second dose produces again a 50 per cent reduction. There are therefore two kinds of lymphocytes in the rat: measurement of size shows that it is the small lymphocytes which are susceptible and the large resistant to X-rays. It seems possible that results might be more easily interpreted if we separated the large from the small, instead of considering them together. Advance has often been kept back by improper classification.

The final section of the book is entitled "Practical Considerations", and will be of special interest to pathologists and clinicians. Here such subjects as oedema, hypertension, shock, lymphatic obstructions and anaesthetics are discussed from the points of view of the lymphatic system.

J. C. MOTTRAM.