

## BOOK REVIEWS

**The Lateral Geniculate Nucleus and Visual Histophysiology.** BY G. L. WALLS. 1953. Pp. 100, 13 figs, bibl. University of California Press, Los Angeles. (\$1.25.)

This is very detailed and important investigation into the reason for the lamination of the lateral geniculate body (nucleus).

It was Le Gros Clark's suggestion that the three-fibre unit of the optic nerve had to do with colour vision (with which indeed Walls does not agree) which gave the main impetus to the writing of this monograph. Walls sets the problem as follows:

Lamination, as a structural feature in neuro-anatomy, is more thoroughly characteristic of the visual system than of any other that comes to mind. The retina itself is laminated, whether richly and cleanly as in lizards and birds, or simply and untidily as in lampreys and turtles. The superior colliculus or optic lobe is likewise comprised of interleaved layers of grey and white matter. The visuosensory cortex (Area 17), with its Gennari stripe, is even more elaborately laminated than is the cortex as a whole.

The mammalian lateral geniculate nucleus is often also conspicuously laminated. But the significance of the laminary plan here is entirely different from what it is elsewhere. In the retina, in the superior colliculus, and in the cortex, most of the cells which stand at different levels are very different in their functions. The neat ordering of their bodies into layers, mainly according to type, makes room for intervening synaptic beds in which specific activities are carried on. Community of function results in a sort of micro-neurobiotaxis, and laminations are probably inevitable. With the LGN, there are no obvious rewards for lamination. The fibrous interlaminae are axon mats, not synaptic beds—and indeed, there is no proved instance of any intercommunication from lamina to lamina, across interlaminae, in the LGN of any mammal.

After a very wide search for evidence the author comes to this conclusion:

The three ipsilateral, or the three contralateral, laminae in Man do all differ among themselves, I am sure. But their differences are not so simple as to be within one modality like the differences between red, green, and blue. I have characterized the pile of laminae as a pile of "maps". I can now carry that analogy a step farther and assert that—say—human laminae No. 1, No. 4, and No. 6 are related to each other as are three maps of the same country, one of which is geodetic, a second climatological, and the third agricultural. Just as three maps are required to keep such kinds of information apart and intelligible, so also a mammal with highly differentiated vision requires a multiplicity of genicular maps if the cortex is to be able to make full use of the classified information the retina sends toward it. I consider this analogy so apt that I shall not mind if my theory comes to be known as "the cartological theory of geniculate lamination".

**Parson's "Diseases of the Eye".** BY SIR STEWART DUKE-ELDER. 12th ed., 1954. Pp. 606 465 figs, 22 col. pl. Churchill, London. (42s.).

The 12th edition of Parson's "Diseases of the Eye" has been brought up to date by Sir Stewart Duke-Elder by a complete revision and re-presentation of large parts of the previous edition. This has been necessitated by recent advances in aetiology, pathology, physiology, treatment—medicinal and operative—, and anaesthesia.

The book is well printed on good paper. The illustrations are of a high order, those of clinical conditions having been changed and many new figures added. The colour printing is well executed and very natural. With a full index, reference is an easy matter. The use of a fair amount of small type for the less important subjects enables the book to remain within what some foreign countries consider to be "pocket size".

The work is very readable and will be of the greatest assistance to students, general practitioners, and junior ophthalmic surgeons. It seems almost presumptuous to say that it can be highly recommended.