to disappear into a well-deserved obscurity. It is surely no longer necessary, for example, to discuss the possibility that the rods and cones are derived from the cilia lining the optic vesicle, since these are now known to disappear long before there is any sign of the developing visual cells.

The chapter on retinal photopigments is unexpectedly weak. Except for the discussion of Kolmer's droplets and their possible constitution, this chapter is based entirely on the work of Hecht and Wald, and the very important and fundamental work of Lythgoe and his colleagues on visual purple and the products of its bleaching is not so much as mentioned. Even the description of Wald's results is confused, although perhaps Detwiler should not bear the whole blame for this, since there are several discrepancies between Wald's earlier and his later papers which have never been properly cleared up. Attention must also be directed to the statement on p. 122 that "[Wald] showed—that the spectrum of pure rhodopsin (visual purple) corresponds in form and position with the spectral sensitivity of human rod vision computed at the retinal surface". Since no other name is mentioned in this connexion the implication is that Wald was the first to demonstrate this correspondence, yet the figure used on p. 121 to illustrate the point was actually published by Trendelenberg so long ago as 1904.

For the rest, the book is excellent and thoroughly reliable. There is a very clear and concise account of Polyak's investigations of the nervous structure of the retina, which is especially welcome since this worker's results are of the most fundamental importance to our understanding of the nervous physiology of vision and are by no means so widely known as they should be. The illustrations consist largely of photomicrographs, many of them made from the author's own preparations and most of them very good.

KATHARINE TANSLEY.

LANGSTROTH, THE APIARIST

The Life of Langstroth

By Florence Naile. Edited, with a Foreword and an Introduction, by Prof. Everett Franklin Phillips. Pp. 215. (Ithaca, N.Y.: Cornell University Press; London: Oxford University Press, 1942.) 15*s*. 6*d*. net.

BEEKEEPERS have waited a long time for a life of Langstroth, but Miss Naile has now produced a pleasantly written and well-arranged volume, attractively got up, which contains all that has been known about Langstroth and a good deal (especially about his ancestry and early years) which will be new to her readers. Prof. E. F. Phillips, professor of apiculture at Cornell University, has supplied the foreword and introduction, and the volume may be regarded as the official American 'life' of Langstroth.

The book has, however, been published during a great war and in consequence has suffered markedly from undue compression. We hope that if a second edition appears it will include more about Langstroth the man, as distinguished from the beekeeper. We should like to know more about him as a preacher, to see a photograph of him in the midst of his family and to know more about his wife and his children; at present the volume seems lacking in human feeling.

In other respects, too, lack of space seems to have made itself felt. When the controversy about Langstroth's patent was dealt with, the position as regards frames should have been explained, and the omission is the less excusable as Colonel Walker discussed the matter fully in a series of articles in the *British Bee Journal* of June 1, 1922, and reprinted in "Beekeeping New and Old", vol. 1, p. 126. Munn, too, and his hive should have been mentioned, as he was a friend of Dr. Bevan, that medical man whose portrait reminds one irresistibly of Pickwick, and whose "Honey Bee" was the best book about bees in its day (in the English language) and seems to have been the source from which Langstroth obtained his first ideas about systematic beekeeping.

Another point worth noting is that a frame is surrounded by six bee spaces; Langstroth first discovered the one above the frame and, later on, those at its base and ends; those on each side had been hinted at by Thomas Wildman (1768 Edn., p. 53).

On November 29, 1851, the *Gardeners' Chronicle* remarked of the American hives exhibited at the 1851 Exhibition, "North America is as fertile in rubbish as the mother country itself", and we think it is correct to say that Langstroth's service to his own generation was the simplification and partial standardization of the design of hives, which, by making them boxes for containing movable frames, enabled the beekeepers of that day to deal with the larger bee moth which, at that time, was reducing American apiaries to ruin. Later generations are inclined to regard him as the man who made extractors, comb foundation, swarm control and other essentials of modern beekeeping possible.

Langstroth's statement about "a small book, the author of which seemed to doubt the existence of such a thing as a queen bee" (p. 64) was quite correct but scarcely did justice to the first bee book he possessed. Jerome V. C. Smith, the author of "An Essay on the Practicability of Cultivating the Honey Bee in Maritime Towns and Cities", was a doctor of medicine who afterwards became mayor of Boston. The book is not a systematic treatise on the art of beekeeping, but it is extraordinarily suggestive and stimulating, and a comparison with the works of contemporary American authors will, we think, convince the reader that Langstroth was remarkably fortunate in his first bee book.

In conclusion, we venture to hope that Miss Naile will continue her study of Langstroth's life and work. We should like to see two more books on the subject from her. The list of Langstroth's library requires a good deal more emendation, and a booklet which dealt with it could be made very interesting. A study of "Langstroth on the Honey Bee" is also required. Americans should be helped to see how Langstroth showed capacity to discriminate between what was correct and incorrect in previous writers and whence he obtained his knowledge and, more especially, attention should be directed to any statements which appear to be original. The illustrations, too, should be examined. (The references are to the 1879 edition of Langstroth's book.) The picture of bees surrounding the queen which appears on the title-page was suggested by one which appeared on p. 48 of Dionysius Lardner (Museum of Science and Art, vol. 10, 1856); Fig. 65 on Plate XIII is Fig. 1 on Plate II of Dunbar's work and Fig. 55 is Dunbar's Plate IV reversed (The Naturalist's Library, vol. 6, Edinburgh, 1840); Fig. 51 on Plate XVI is Fig. V on Tab. XVII of Swammerdam (edition of 1758), and other examples would, no doubt, reward careful study.

H. M. FRASER.