

predestined, times in particular places, and only there and out of certain cells alone? The simplest answer, and that long made the basis of almost all embryological research, has been that out of three primary layers of cells the embryo and all its parts take their origin. The working out of the details has largely been the labour of embryological investigation of the past fifty years.

The wealth of observation contained in the present memoir furnishes ample evidence that after all progress has been exceedingly slow.

We still do not know why a certain cell becomes a gland-cell, another a ganglion-cell: why one cell gives rise to a smooth muscle-fibre, while a neighbour forms voluntary muscle. The prolonged researches of Prof. His, often of far-reaching import, and always carried out with exceeding care, afford typical instances of investigation on the lines of development by epigenesis. The author himself states that as a solution of all, or even many, of the great problems of histogenesis they have disappointed his hopes.

It would appear to be quite possible that numbers of embryological problems incapable of any fundamental solution may exist. The range of human mental vision may have been reached with the limitations of microscopic lenses. However that may be, it is daily becoming more apparent that epigenesis with the three layers of the germ furnishes no explanation of developmental phenomena.

"There is no coming into being!"—"Es giebt kein Werden"—wrote Haller long ago. And this is emphasised by Weismann when he informs us that an epigenesis is an impossibility. But there is an evolution or unfolding. Development, even in lowly forms of animal life, is a complicated study. With three germ-layers as its basis no advance in its interpretation is possible. Nothing like all the cells present at the close of the egg-cleavage are destined to share in the formation of the future embryo. Many of them—often the majority of them—are merely larval or transient in character. Still others, the greater number of those remaining, are charged with the duties of handing on the "stirp," in Galton's sense, to future generations.

The chain of life from generation to generation is of exceeding intricacy. The unravelling of the tangle and the true interpretation of the many important links in it both serve to increase the magnitude of the embryologist's task. The day is not yet when this approaches completion.

OUR BOOK SHELF.

The Scientific Memoirs of Thomas Henry Huxley. Vol. iii. Edited by Sir Michael Foster and E. Ray Lankester. Pp. xi+622. With thirty plates, maps and text illustrations. (London: Macmillan and Co., Ltd., 1901.) Price 30s. net.

THIS magnificent volume will be to the working naturalist the most welcome of the three now published. It contains 38 memoirs, papers and addresses, covering, in all, 608 pp., as against 50 with 508, and 37 with 591 for volumes i. and ii. respectively. It embodies the scientific work of Huxley at his best. As memorable may be cited the great memoir on the bird's palate, which marked an epoch in comparative osteology; and that on the ossicula auditus, in which recent research has discovered a hidden treasure,

and of which one of the leading conclusions, viz. that of the primary nature of the union between the hyoid and the columella auris, has but lately been shown (long opposition notwithstanding) to be developmentally confirmed. Particularly noteworthy are the series of memoirs and papers upon the Dinosauria, and the series of addresses and philosophic memoirs on the ethnology, archæology and distribution of mankind in various parts of the globe, which will ever rank among their author's best achievements.

As regards the general get-up of the book, the editors have spared no pains to render perfect their labour of loyal devotion. One or two of the plates are, perhaps, a little lacking in sharpness—printed, in the copy before us, a little lightly—but all that is important is definable.

It is with a feeling of considerable relief that we note the incorporation of the Geological Survey memoir upon the Structure of the Belemnitidæ; for this, in respect to certain details, contains the most accurate description to-day available, and will ever hold its original high place in the literature of zoology. Our expression of relief is due to the fact that this great essay, together with five of those afore-mentioned in anthropology, the two papers upon the lowly plant organisms which close the present volume, and one or two other items, were entirely omitted in the first-published table of "contents," put into circulation on the announcement of the work. The reason for this is not difficult of demonstration, and while we would convey to the editors our gratitude for having, as their labour advanced, made perfect the definitive list up to the period embraced by the present volume, we would remind them that, so far as the said "contents" table affects the volume to come, the great Survey Memoir on the Elgin Crocodilia, the Rede Lecture on Animal Forms, delivered at Cambridge in 1883 and duly reported at some length in our own pages (*NATURE*, vol. xxviii. p. 187), with the "Further Notes on Hyperodapedon" (*Quart. Journ. Geol. Soc.*, vol. xliii., which was the last zoological paper that issued from Huxley's hands, were similarly not included.

In the production of this monumental series of volumes, publishers and editors are incurring a debt of gratitude on the part of the present and future generations, and carrying out a labour of love in a spirit becoming in its dignity the original memoirs themselves.

Fact and Fable. By Effie Johnson. Illustrated by Olive Allen. Pp. 117. (London: Chapman and Hall, Ltd., 1901.) Price 6s.

THIS is a pleasingly-written and attractive little book, containing a series of short tales and sketches, the first and largest of which relates a boy's visit to an ant-hill, his adventures, and what he found there. Another tale relates the adventures of a young bee; while most of the others consist of allegorical or symbolical presentations of various phases of human life. As the authoress admits, the descriptions of the events in ants' nests are taken from different species, and the large queen is a Termite. But the story may serve to interest young readers in ant-life and lead them to read other books on the subject.

Science and Mediaeval Thought. By Prof. T. Clifford Allbutt, F.R.S. Pp. 116. (London: C. J. Clay and Sons, 1901.) 2s. 6d. net.

THE brilliant character of the Harveian oration delivered before the Royal College of Physicians last October by Prof. Clifford Allbutt could be judged by the abridgment which we published a few days after the delivery of the address (vol. lxii. p. 630, October 25, 1900). The complete address is given in the volume before us, with a few additions and notes, and we cordially commend it to every one who desires to read an inspiring account of the evolution of mediæval into modern thought.