

## REVIEWS

THE PROLONGATION OF LIFE. OPTIMISTIC STUDIES. *By Elie Metchnikoff.*  
*Translated by P. CHALMERS MITCHELL.* 8<sup>o</sup> pp. 334. Net \$2.50.  
New York. 1908. G. P. Putnam's Sons.

PROFESSOR METCHNIKOFF early made a reputation for himself as a scientific zoölogist, and his papers upon the morphology of various invertebrate animals are well known to specialists. During his later life he has followed quite a different tendency in his researches, having been connected with the Pasteur Institute in Paris, of which he is at present the subdirector. He is an accomplished and agreeable writer, and has succeeded in this new volume, as in his earlier similar one upon the "Nature of Man," in presenting with considerable literary art the various theories and hypotheses which he has developed. Every thoughtful man finds toward the close of his career that almost without planning, his mind has produced for him a certain set of views as to the conditions of life and the objects of existence. He almost inevitably assumes, as it were, an attitude toward life and its standard problems, which have ever occupied the sages of all ages. It is not necessary that such a philosophy of life should be profoundly reasoned out, or that it should be based upon profound study, in order to be very real and important to its holder,—it is such a system of views that Metchnikoff presents to us. The volume, although entitled "The Prolongation of Life," is really a collection of essays, more or less detached in substance from one another, and only in part dealing with the problem which gives its title to the work.

In his treatment of old age, Metchnikoff appears as a pleasantly optimistic naturalist, and it is this attitude of optimism which imparts to the volume such unity as one may find in it. His method of dealing with old age is characteristic. He treats it as a special, isolated condition. He does not in the least endeavor to determine the essential foundation of senility nor to reach conclusions by the thorough comparative study of the phenomena in various animals and plants. Comparisons he does indeed make, but they are so loosely thought that he has forged no chain of evidence, but only produced an agreeable discourse.

He lays great emphasis upon the large intestine and the fundamental changes which occur in it; and thinks that the ills of old age in man are largely attributable to the poisoning of the body which

proceeds from the large intestine. While it may very well be true that such a cause adds to the enfeeblement of age, it is a very shallow view which presents this as a fundamental fact, affording sufficient explanation of senility. What — one naturally asks — causes senility in the thousands of species of animals which have no large intestine? We may very well admit that as a hygienic measure the taking of lactic acid is sensible, especially for old persons, and yet think it preposterous to regard such medicamentation as a cure for senility. Those who wish to test the lactic acid treatment will perhaps be wise to follow the rules for the production of sour milk which the author gives on pages 180-181.

Metchnikoff's book is certainly well worth reading by those interested in the subjects he discusses, but the reader should not overlook the fact that he deals only with secondary and relatively unimportant details, and never in any part of the book shows ability to measure the full breadth of the biological problems upon which he touches, and never even discusses the essential fundamental phenomena of old age. As his view is narrow, so are his conclusions; and yet the book is enriched with a great number of curious and interesting facts concerning animals and plants in relation to age, longevity, and death, all of which are presented with charming skill.

The latter parts of the book deal with character inherited from apes; somnambulism; pessimism and its relation to health and age; even with Goethe and Faust and morality! and at the end is a chapter on orthobiosis, which he highly recommends. All these chapters are brief and written with a light touch, but in going through the volume I find that the deepest impression it has left upon me is that of the attractive character of the author. One feels that here is a man whom old age finds full of hope as a habit of mind, and very sanguine as to the happy future of mankind, which to him seems assured by the progress of science.

On the mechanical side there is the comment to be made that the illustrations are abominably printed. One is astonished that any reputable publisher would allow such conclusive evidence of lack of typographical skill to appear with his imprint. Finally, a word should be said in acknowledgement of the very admirable quality of the English translation of Mr. Mitchell. One could not ask for anything better.

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