

OUR BOOK SHELF

Life and Her Children: Glimpses of Animal Life from the Amœba to the Insects. By Arabella B. Buckley. (London: Edward Stanford, 1880.)

AFTER light came life, and with that life there came its two great functions—growth and development. With the simplest as with the most complex forms there is the same eager race to be run, to increase in size, to multiply, and thus replenishing this earth, to die. "Life and Her Children" is a praiseworthy and admirable attempt to tell us something of the Children that Life sends forth, and of their history. Its main object is to acquaint young people with the structure and habits of the lower forms of life; but in our deliberate judgment it will do a great deal more. None will read its introductory chapter without advantage, and few will read the volume through without enjoyment. Within its narrow limits of 300 small pages no candid reader would expect to find all the details that might be wished for, or all the illustrations that might be desired. What constitutes the book's chief charm is the marvellously simple yet quite scientific style which runs through it, the food for thought and future study which it affords, and the truly philosophic glow which lights up its every page. The volume gives a general account of Life's Simplest Children, the Protozoa. The word "slime" does not seem to us quite a happy term by which to designate the living protoplasm of these creatures; this word conveys the idea of a something adhesive or glutinous, or of a something thrown off a living organism—a something without a structure (sordies, eluvies)—and there seems somewhat of a "contempt for nature," a thought certainly never present in the author's mind, in the use of such a word. Jelly would seem a more appropriate word, as conveying the idea of the consistency requisite for life, and would have the sanction of use. Thus the Noctiluca, called in this volume "tiny bags of slime," were described, if we mistake not, by their discoverer as "tiny spherical gelatinous bodies," and Prof. Huxley says, "Noctiluca may be described as 'a gelatinous transparent body about the one-sixtieth of an inch in diameter.'"

The chapter on "How Star-fish Walk and Sea-Urchins Grow" is excellent. The story of how the five curious little oval jelly bodies swimming about by their jelly lashes in the depths of the smooth water in some English bay—ended in becoming respectively a lily star, a brittle star, a starfish, a sea-urchin, and a sea-cucumber, is well told, and woodcuts, though they make one see as in a glass darkly, help in their own way to make the meaning plain. In the "Outcasts of Animal Life" a difficult problem is treated of. It need not surprise one that it is not solved. The last four chapters tell of "the Snare-Weavers and their Hunting Relations (spiders)"; the Insects which change their coats but not their bodies, and those which remodel their bodies within cover of their coats; "the Intelligent Insects with Helpless Children, as illustrated by the Ants." This volume thus tells of the greater part of the living invertebrate animals as they are spread over the earth to fight the battle of life. "Though in many places the battle is fierce and each one must fight remorselessly for himself and his little ones, yet the struggle consists chiefly in all the members of the various brigades doing their work in life to the best of their power, so that all while they live may lead a healthy, active existence. The little bird is fighting his battle when he builds his nest and seeks food for his mate and his little ones; and though in doing this he must kill the worm, and may perhaps by and by fall a victim himself to the hungry hawk, yet the worm heeds nothing of its danger till its life comes to an end; and the bird trills his merry song after his breakfast, and enjoys his life without thinking of perils to come. So Life sends her Children forth; and it remains for us to learn something of their history.

If we could but know it all, and the thousands of different ways in which the beings around us struggle and live, we should be overwhelmed with wonder. Even as it is, we may perhaps hope to gain such a glimpse of the labours of this great multitude as may lead us to wish to fight our own battle bravely and to work and strive and bear patiently, if only that we may be worthy to stand at the head of the vast family of Life's Children."

The work forms a charming introduction to the study of zoology—the science of living things—which we trust will find its way into many hands. E. P. W.

LETTERS TO THE EDITOR

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The Editor urgently requests correspondents to keep their letters as short as possible. The pressure on his space is so great that it is impossible otherwise to ensure the appearance even of communications containing interesting and novel facts.]

Prof. Tait and Mr. H. Spencer

As Mr. Spencer has already got the length of calling some of my statements "fictions, pure and absolute," it is time that this discussion should cease. But it is necessary that I should at least show my reasons for having made the statements in question. They will be found ample.

Mr. Spencer's pamphlet, which originated this discussion, and in which I am the first subject brought up for vivisection, bears on the title-page that it deals with *Criticisms*.

The only passages of mine which Mr. Spencer quotes, which can possibly have the slightest reference to himself, and which can in any way be construed into criticisms, are but two in number. In these, or in one of them, the cause of his attack on me must be sought.

The first is mainly a verbal transcription from Mr. Kirkman, and as such it is none of mine; but in introducing it I inadvertently (though correctly) spoke of the "Formula of Evolution" as a *definition*.

The second is a passage from a different part of my article on Sir E. Beckett's book, and its application is to materialists and agnostics in general.

This latter passage did not appear to me capable of having roused the vivisection-instincts of so calm a philosopher as Mr. Spencer, especially as it was not applied to any one in particular. Of course, then, I at once assumed that the former passage contained the offence which was to be expiated; and I was confirmed in this idea by the way in which Mr. Spencer put his formula alongside of the Law of Gravitation. I could not have ventured to suppose that Mr. Spencer "*did not even know that he was in the habit of saying formula rather than definition.*" This naïve confession cannot but be correct. Had it been made in Mr. Spencer's pamphlet, I should not have thought it necessary to say a word. It explains at once his frequent entire misapprehensions of my meaning. So I give up my plausible theory of the origin of Mr. Spencer's attack on me; and shall, henceforth, ascribe that attack to my having made a singularly apt and telling quotation from Shakespeare!

With regard to the other parts of the discussion, I feel that I need not add anything to what I have already said; except on one point, an important one.

Mr. Spencer has employed an old remark of Prof. Huxley as to what mathematics can, and cannot, do; but he has not employed it happily, for the question at issue is really this:—Is it correct to speak, at one time, of force as an agent which changes a body's state of rest or of motion, and again to speak of it as the time-rate at which momentum changes or as the space-rate at which energy is transformed?

I answer that there is not the slightest inconvenience here; except, perhaps, in the eyes of those metaphysicians (if there be any) who fancy they know *what* force is. Such phrases as "the wind blows," or "the sun rises," though used by the most accurate even of scientific writers, would otherwise (on account of their anthropomorphism) have to be regarded as absolute nonsense. P. G. TAIT