

Survival

The author is a geologist who graduated from Harvard with an A.B., *magnum cum laude*, and later took a Ph.D. at Chicago University with the same label of excellence. He is a top flight writer who has furnished articles for such reviews of distinction as *The Yale Review*, *The American Mercury*, *The Forum*, *The American Scholar* and *Harper's Magazine*.

The volume is an excellent popular review from an evolutionary point of view of life in terms of the latest biological thought. Apparently the work is not intended for the scientific student, as it is neither indexed nor does it have a bibliography or a detailed table of contents. To the scientist reader it is even annoying at times because the author frequently uses brilliant suggestive or explanatory ideas which apparently are not always original, but which cannot be traced back to an earlier writer for a fuller explanation.

The popular form of the exposition is such through a rich and brilliant use of figures of speech and a sufficient inweaving of the emotional to keep the reader awake and even on his toes for fear he will miss some of the more thrilling incidents in this panorama of life. From the view of cold logic the author has overwritten his subject.

The contents run as follows:

"The Question and the Quest." After pointing out the conflict in biological philosophy between mechanism and vitalism the author suggests, "The student of earth history sees in retrospect what could never have been foretold. Life was a new experiment under the sun. A bit of jelly quivering to the surge of the sea might scarcely have been suspected of power to alter the earth. . . . If there is any meaning . . . in the restless drive of life, a billion years of living should contain it. To search those years for that meaning will be the object of this book."

Chapter I. "In the Beginning;" a discussion of Pre-Cambrian conditions. Chapter II. "The Other Side of Progress:" sedentary life. III. "The Mechanics of Success:" evolution and locomotion. IV. "The House Divided:" biological conflicts, plant life, herbivores, carnivores, food chains, over-population. "The house of life divided against itself stands only because it is divided." V. "Life Without Struggle:" the degeneracy of parasitism, with an interesting review of human social parasites. VI. "The Way of Love:" bisexual reproduction, maternal care, family life, co-operation. VII. "The Broader Brotherhoods of Flesh:" life at unicellular level, at coelenterate and colonial level at the level of herd life and at social levels. VIII. "The Tragic Rhythm:" death in too high specialization, other evolutionary trends, life only possible hand in hand with death and extinction. IX. "The Business of Growing Up:" various evolutionary "improvements" and their values. X. "Is Man an Absurdity? When Nature evolved modern man, she improved only the brain, the larynx and the hands and allowed all other essential gadgets to degenerate. . . . Man is an appalling hodge-podge of second-hand odds and ends," but "the gravest dangers for man as a species lie less in the crumbling beast than in the bungling god." XI. "The Embarrassment of Being Different. . . . No other creature has faced sterner problems with fewer guides to workable solutions, but solutions may come through man's unique feature of discontent with discontent. . . . Self-directed evolution so far as he knows, is an adventure without precedent in a billion years."

The exposition is full of minor errors of fact, many of which could have been caught by competent readers. We quote, p. 152, "Drone bees are so specialized as gigolos that they are incapable of any other pursuit. They are unable to gather pollen (*should be* nectar) because their tongues are too short. They are unable to work on the hive because they have no wax glands (*Should be* because of their nervous mechanism). They are unable to fight because they have no stings (*again* because of the nervous control of behavior). They would rather starve than collect food for themselves" (*anthropomorphic expression*). This careless writing disregards all previous careful observations and precise experimentation by scientists in general.

The volume is so full of highly suggestive ideas (though too frequently based on highly selected evidence) that we recommend it in spite of its numerous minor slips. It is interesting and actually absorbing page after page.—C. H. Kennedy.

Patterns of Survival, by John Hogden Bradley. 223 pp. New York, The Macmillan Co., 1938. \$2.25.