

Book Reviews

Blossoms of 100 Flowers in Soviet Genetics

Some Problems of Evolutionary Genetics and Darwinism. Yu. M. Olenov. U.S.S.R. Academy of Sciences, Moscow, 1961 (in Russian). 163 pp. 83 kop.

Communication between biologists of the East and West appears to be increasing apace. English translations of Russian periodicals are appearing with greater frequency in our libraries. In turn, our Russian colleagues are becoming more closely acquainted with what is being accomplished in the laboratories of the Western world, especially in fields which have been recently dormant or undeveloped in the Soviet Union. In the area of genetics and evolution, the 1948 party line is no longer binding, and Mao's hundred flowers are apparently encouraged to blossom. This policy obviously requires that information in many hitherto neglected areas be supplied to Soviet research workers. Indeed, as may be learned from the volume under review, texts by Brachet, by A. J. Cain, by Villee, and by Wagner and Mitchell have recently been published in Russian-language editions. Olenov's book itself is in the main directed toward bringing the reader abreast of the times in several important areas. It consists of five essays. The first two comprise a chapter headed "On the material basis of heredity." The remaining three, organized in two chapters, deal with speciation and several other questions of broad evolutionary significance.

The 90 pages of the first chapter provide a comprehensive, up-to-date review of a number of aspects of molecular biology, including such topics as the self-reproduction and synthesis of deoxyribonucleic acid and ribonucleic acid, the basis of antibody formation, the complex nature of genes and genetic regions, the various peculiarities of the hereditary apparatus of bacteria, the

epigenetic systems in cellular differentiation, and the like. That the purpose of this section is didactic and that molecular genetics is new to the U.S.S.R. is testified to by the fact that, out of some 350 bibliographic citations, 90 percent are of non-Russian origin. Of the 32 Russian references, 24 are dated 1958 or later. For that matter, some 90 percent of the foreign material quoted has been published, as might be expected, within the last decade.

The remainder of the book seems entirely unrelated to the first chapter, and the bibliography pertaining to the two essays in that chapter in no way overlaps with the more than 200 references cited in the concluding three. Here the proportion of Russian material runs to nearly a quarter of the total, but it may be worth noting that close to 70 percent of the foreign citations, contrasted with 20 percent of the Russian ones, are of 1951 or later vintages.

The main conclusion of the first two essays in the second section affirms the primacy of natural selection as an evolutionary force. Random drift is viewed as unproven and of unlikely significance, while geographical isolation is adjudged to be only an ancillary process to selection. In the course of developing these theses, much current literature is reviewed. The argumentation is always carried on within the framework of genetic and evolutionary evidence, and the discussion is at a high level of sophistication. Whether or not one agrees with the deductions reached, the author wins respect for his fair statement of the issues and the evidence.

The final essay deals with the question of whether or not organic evolution is a progressive process. The discourse is vaguer and less data-based than in the earlier parts, but even here the guidelines are more biological than philosophical.

The overall impression of this book

is a very favorable one. It originated in the Soviet Academy's Institute of Cytology, and the contrast in this institution's scientific level and methods of presenting ideas compared with those to be found in the publications of such a sister organization as the Institute of Genetics is refreshing. One would seek in vain in the present work (except for two lapses in citing a nonbiological authority) for the earmarks of dogma so universally found when Russian genetics lived in the penumbra of late-model Stalinism. In fact, instead of judging the validity of data by their canonical conformity, a characteristic of many biological debates of that era, there is an attempt here to bolster Darwin's own authority by appeal to modern data!

Whatever disagreement, with either details or the author's main conclusions, there may be, this work can only be saluted as one of the recent significant signs of the rebirth of Soviet genetics. It serves admirably to inform our Soviet colleagues of the developments in many areas of molecular genetics, which came to fruition while they were *hors-de-combat*.

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Psychopathology

The Myth of Mental Illness. Thomas S. Szasz. Harper, New York, 1961. xiii +337 pp. \$7.50.

Thomas Szasz's volume is enormously courageous and highly informative, and it makes fascinating reading for anyone with a serious interest in the problem of psychopathology. But it is a difficult book to review, because it involves a number of strong, more or less independent "themes" rather than a single sustained argument. Thus, in order to avoid quite serious logical complications but at the same time retain the sense of vitality which the book unquestionably has, I propose to examine it here, so to say, thematically, rather than as an organic whole.

"I submit that the traditional definition of psychiatry, which is still in vogue, places it alongside such things as alchemy and astrology, and commits it to the category of pseudo science" (page 1).

Coming as they do from the pen of

a distinguished professor of psychiatry (at the Upstate Medical Center of the State University of New York, in Syracuse), this and related statements set the tone of candor and criticism that prevails throughout. In the concluding chapter we read, in like vein:

"It is customary to define psychiatry as a medical specialty concerned with the study, diagnosis, and treatment of mental illness. This is a worthless and misleading definition. Mental illness is a myth" (page 296).

Quickly, then, we pick up a second theme, or objective: "to redefine the problem of mental illness so that it may be encompassed under the general category of the science of man." Szasz is well prepared for such a large enterprise; for in addition to his basic training in medicine and psychoanalysis, he also shows himself conversant with the social sciences and with the history of medicine, philosophy, literature, and political theory.

Conceived in such a broad context, mental illness is seen as more a mode of "communication" than as an illness or disease in the proper medical sense of these terms. And this emphasis permits the author to identify conversion hysteria as the prototype for all forms of personality disorder, since it (and they) effectively translates "problems of living" over into the language of the body, thus giving only the *appearance* of genuine illness. Therefore, so-called mental illness is a "myth."

But the mythical emphasis is, in one way, overextended: it does not do justice to the reality of the suffering which is here involved or to the legitimacy of such suffering, considered in a moral and social context.

This oversight is all the more remarkable when it is realized that, in later parts of his book, Szasz devotes many well-reasoned pages to the necessity for social (moral) rules and the human necessity for rule-following. The book reaches its lowest point of coherence, from my point of view, when Szasz suggests that mental illness consists of an individual's being somewhat confused about the real rules of "the game" and "playing" according to distorted or idiosyncratic ones. This book would have a far greater over-all cogency if it concluded on the note that the "sick" person knows quite well what the rules are and that he sickens, not because of playing the wrong "game," but from *not* playing the game

which he knows perfectly well to be the right one. In other words, the basic problem would thus be "evil" rather than mere ignorance.

In short, then, the author is eminently bold and often brilliant in his devaluation of current psychiatric theory and practice, but he falls short of attaining a fully consistent and powerful alternative. As a *try*, it is decidedly in the right direction.

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Early Mathematics

Science Awakening. B. L. Van der Waerden. Translated by Arnold Dresden. Oxford University Press, New York, 1961. 306 pp. Illus. \$7.50.

For an earlier generation of graduate students, Van der Waerden's *Algebra* was virtually a household phrase; more recently the author's name has been recalled in connection with a scholarly and beautiful book on ancient mathematics. His *Ontwakende Wetenschap* (1950) was welcomed with justifiable enthusiasm [see *Mathematical Reviews* **12**, 381 (1951)], and the richly illustrated English version, *Science Awakening*, which appeared in Holland in 1954, was also warmly received [see *Scientific Monthly* **80**, 377 (1955)]. The format, illustrations, and text of the 1954 translation are virtually unchanged in this American printing (1961), and the title page makes no reference to the earlier version; but, in a revised "Preface to the English edition," the author refers to the present work as "the second English edition." There are, to be sure, a few changes in the exposition. On pages 73 and 79, for example, one finds new interpretations of two Babylonian problems; and on page 277 the modified description of Heron's *Metrics* no longer stigmatizes it as "a very childish little book." Nevertheless, these revisions do not substantially alter the sound judgments made almost a dozen years earlier. The book remains a model of historical-mindedness, a model in which opinions are independently arrived at from a critical reading of the best sources and authorities. The author, for instance, makes use of Neugebauer's recent valuable research on the role of Baby-

lonian methods in the development of Greek mathematics; but whereas Neugebauer concluded that "the traditional stories of discoveries made by Thales or Pythagoras must be discarded as totally unhistorical" (*The Exact Sciences in Antiquity*, Brown University Press, Providence, R.I., ed. 2, 1957, page 148), Van der Waerden argues (page 89) that this research "knocks out every reason for refusing Thales credit for the proofs and for the strictly logical structure which Eudemus evidently attributes to him." Here and there a reader may question a bold conjecture made by the author. Were the "inner causes" of the "decay of Greek mathematics" really the difficulty of geometric algebra and the difficulty of the written tradition (pages 264-266)? Not necessarily; but then, one of the virtues of this book is that Van der Waerden distinguishes clearly between the historical evidence and the thought-provoking conclusions that he has drawn therefrom.

Science Awakening is as attractively printed as it is accurately written, and only the title is infelicitous. The work is a clearly circumscribed and well-ordered history of pre-Hellenic and Greek mathematics; and while mathematics may be a handmaiden of the sciences, it is not itself—at least in the usual sense of the word—one of the sciences.

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Comprehensive Résumé

The Cell. vol. 2, *Cells and Their Component Parts.* Jean Brachet and Alfred E. Mirsky, Eds. Academic Press, New York, 1961. xiv + 916 pp. Illus. \$25.

This comprehensive treatment of cells and their component parts is volume 2 of a series evidently designed as a modern counterpart of E. B. Wilson's classic but now outdated *Cell in Development and Heredity*. The topics included in this volume are given a penetrating treatment by authors outstanding in their respective fields. The contents and authors include: "The cell membrane" by Eric Ponder; "Plant cell walls" by Kurt Mühlethaler; "Ameboid movement" by Robert Allen; "Cilia and