being; but evolution of cosmic proportions is now recognized as well as the evolution of the living, and the marvelous development or responsiveness of a living organism is not unmatched in certain physical systems and machines. Yet Dubos is surely right in stressing the painful mistake of depending always upon the analytical method and never attempting a synthesis; and he is again surely right in urging that we recognize the existence of a feedback relationship between the organism and its environment.

The Spirit of Science

In the next-to-last lecture, Dubos cries out against the tendency, in writing about science, to dehumanize it. This has led not only to a misunderstanding of science and the scientist, but to outright contempt in such philosophers as Unamuno and Ortega y Gasset. How important it is to deal with the paths of discovery, the motivations of the scientist, including his childlike curiosity and enthusiasm, his errors, and his blindness! The experience of the Biological Science Curriculum Study during the past two years, while introducing into the teaching of high school biology as much as possible of this spirit and emphasis, indicates both what a profound effect it can have upon young students' attitudes toward science and also how hard it is to get some teachers to see the importance of this and to change their habitual emphasis upon science as a crystallized, authoritative, anonymous body of facts and concepts. It is indeed the "humanness of science" that we must depict, for science, as we tell the BSCS students, "is a social undertaking . . . a group activity, resting upon the labors of many men directed at a common problem. Where some fail, others succeed. Together they accomplish far more than even a genius working in lonely isolation is likely to achieve. What is more, any scientist today can build on the earlier as well as contemporary investigations of men of other races, tongues, and kinds of insight." Dubos points out that "when they are reduced to intellectual and technical presentations, humanistic studies are just as devoid of popular appeal as are scientific studies. . . . For the scientist a cultured attitude implies the ability and willingness to relate his field of work to historical developments, to emphasize its bearing on the future, and, more generally, to recognize its relevance to other human interests. . . . Unless he becomes concerned with social philosophy, the scientist will increasingly hear the words of Oscar Wilde applied to him: that he knows the price of everything, but the value of nothing." In doing so, says Dubos, a scientist might emulate Michael Faraday. Today he might well emulate Dubos.

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Fortschritte der Zoologie. vol. 14. Hans Bauer, Ed. Fischer, Stuttgart, Germany, 1962. ix + 547 pp. Illus. DM. 98.

This new volume in the excellent series of "progress reports," sponsored by the German Zoological Society, deserves the same praise as the previous volumes, and it should be on the desk of all those who teach graduate students in zoology or related fields. The well-written individual articles represent concise and complete coverage of the advances made in the last 5 to 10 years, a period of special importance owing to the increased use of the electron microscope. This German book has used advantageously many more simple, but excellent illustrations than comparable American publications do. However, the *Fortschritte* lacks an alphabetical subject and author index.

K. G. Grell (Tübingen) discusses the morphology, propagation, developmental physiology, and genetics of the protozoa; he gives special attention to the submicroscopical structure of cilia, flagella, and nuclei and also describes the various mating types in Paramecium. F. J. Gouin (Strasbourg) covers the morphology and the developmental aspects of the myriapodes and insects, with special emphasis on the structure of the eggs and of the chorion of insects. The report on the porifers, by H. V. Brøndsted (Copenhagen), includes a detailed discussion of polarity, of the skeleton including spiculae, as well as of cytotaxis and of gemmulae. O. Hess (Tübingen) is responsible for the chapter on the molluscs, which deals mainly with the early stages of embryonal development and with the development of the trochophora larvae. D. Brückmann (Göttingen) reports the complicated developmental aspects of the arthropoda (mainly of crustacea and hexopoda), with emphasis on the postembryonal development and the hormonal regulation of molting, growth, and regeneration. G. Szihak (Tübingen) treats the developmental physiology of the echinoderm, with special emphasis on biochemical aspects and the so-called animal and vegetative factors. The longest article (nearly half the volume, including a 90-page list of references), and the one that I found most interesting, is by K. Günther (Berlin-Dahlem), whose report discusses the many new, partially revolutionary discoveries and ideas which were made in the field of animal systematics and evolution during the period 1954 to 1959. He places special emphasis on the history of evolution and on the newer formulations of the species problem.

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Abridged Translation

Psychotherapy in the Soviet Union. Ralph B. Winn, Editor and Translator. Philosophical Library, New York, 1961. 207 pp. $6.

As the editor-translator states in his preface, this book is a set of translations of papers presented at a conference on psychotherapy, which was held in Moscow in 1956. The Russian-language proceedings were published as *Voprosy Psikhoterapii* (Questions of Psychotherapy) (Medgiz, Moscow, 1958). Because such a small amount of information is available in the United States about psychology and psychiatry in the Soviet Union, the book is distinctly a useful one, in spite of some imperfections.

Many of the papers deal with hypnosis. Both experimental findings on the physiology of hypnosis and therapeutic effects are reported. As a general rule, the attitudes of Soviet psychotherapists toward hypnosis are much more favorable than the attitudes prevalent in the United States. Therapeutic successes are reported in making childbirth painless, in regularizing the