clearly misrepresents John Dewey's views on education in relation to social change. To charge that Dewey was a conformist, a "swimmer with the stream," represents a gross misunderstanding of his educational theory and of him as a man. Dewey was noted for his personal espousal of minority political and social causes.

In conclusion, setting aside the inadequate treatment of Dewey, one must say that this is an important book. While contemporary trends in education have their critics, most critics operate from too narrow a base of understanding and interest in education to be worth listening to. Bantock has a broad base of interest in the whole of the school population, though his knowledge may be seriously limited with respect to the working-class population. He has undertaken to develop a theory of secondary education based on the views of literary and humanistic scholars and to apply this theory to the entire youth population of an industrial society. His ideas about the importance of affective education and his suggestions for putting these ideas into practice deserve wide consideration.

Anthropology

The Swazi. A South African kingdom. Hilda Kuper. Holt, Rinehart, and Winston, New York, 1963. x + 87 pp. Illus. Paper, $1.50.

During the past few years Holt, Rinehart, and Winston has published a number of short case studies in anthropology which have achieved a considerable reputation for providing good succinct accounts of the lives of peoples of other cultures. *The Swazi* is a welcome addition to the series. It describes the people of Swaziland, a British protectorate bordered by the Republic of South Africa and the Portuguese territory of Mozambique.

The Swazi long ago developed a centralized state with a dual monarchy vested in the king and the queen mother. Hilda Kuper describes the delicate balance of power between the two and the way in which the monarchy impinges upon the Swazi nation. In other sections she discusses the organization of family life in a society that is patriarchal and polygynous and the educational system, especially the organization of regimental age classes, which provide both a formal indoctrination in Swazi values and a method of recruiting labor for public work. The religious beliefs, those that stem from the past and those that are introduced by Christian proselytizers, are shown as they work within the framework of the kingship and the general organization of Swazi life.

Most of the material upon which the account is based comes from Kuper's early work in Swaziland during the 1930's and 1940's. But this is no static account of the Swazi as they were three decades ago. In more recent years, Kuper has made extended visits to Swaziland, and a continued close contact with Swazi outside the country has enabled her to keep abreast of recent trends. This perspective permeates the book but is most apparent in the final section in which she discusses the impact of recent economic and political trends and the growth of Swazi political parties that seek to modernize the state and to free it of external control. Here she brings the account up to 1962, the time of her last visit to the country.

Kuper is an artist with words as well as a fine anthropologist and a sensitive observer. In 84 pages of text she has succeeded in creating a vivid and coherent picture of Swazi organization and values through the decades. It can stand by itself, but I hope it will lead readers back to her earlier books on the Swazi: *An African Aristocracy* and *The Uniform of Color*. The first is notable for having the finest account known to me of the ritual of African kingship. The latter is a sympathetic study of the clash of blacks and whites, a study that is relevant not only for an understanding of Swaziland but also for understanding what is happening in South Africa.

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Amateur Scientists

Wanted: Amateur Scientists. Robert Froman. McKay, New York, 1963. xviii + 102 pp. Illus. $3.25.

On its dust cover, this little volume is described as a new book for teenagers. It *is* a good book for youngsters, but it is also good for anyone, at any age, who has never known science as a personal adventure or who has strayed into the administrative wilderness of professional science. Froman writes as if he himself were an amateur scientist, as if he thoroughly understands the satisfaction of making observations or measurements that give him a firm grip on a segment, however tiny, of reality; observations or measurements that may, in the hands of others, contribute to an understanding of a larger and more complex area of natural science.

The author defines "amateur" only by implication. The amateur scientist is one who "loves" to do scientific research without pay. He may be too young or too old for gainful employment, or, if in between, he will derive his income from something other than scientific research—even science administration or teaching—and will pursue his investigations outside of official hours. It is indeed correct that "the true spirit of science is the spirit of amateurism" and that "nearly all amateur research is pure research, the seeking of knowledge for its own sake." The taint of incompetence attached to the word "amateurish" is unfortunate, for it should be a proud adjective connoting idealistic, self-sacrificing effort, sometimes less productive than professional work only because of lack of time, facilities, equipment, and assistance.

Froman points out briefly (there are 11 chapters) what amateurs are doing and can do in the physical and biological sciences to obtain new information, and how in some instances amateurs are organized so that their combined observations become valuable raw data for the use of professionals. The interest of the book is enhanced by examples of the work of individual amateurs. And there is wisdom and advice in it from some of the leaders of professional science.

It is astonishing how well the author estimates the opportunities for amateurs in every field. In the chapter on entomology, a field in which I have had some experience, the author has listened to J. F. G. Clarke, of the Smithsonian Institution's Department of Entomology, and has reported accurately and persuasively the great opportunities for original work on insects and other arthropods. However, I doubt very much that amateur entomology lags in the United States because insects are repulsive to some people or because entomologists are sometimes regarded as odd (some of them are!). I believe amateur entomology is "the unpopular science" because, in America, professional entomologists have not taken the time and trouble to

encourage and organize the amateurs.

It is hard to find any nits to pick in this book. The kidney-produced protein mentioned in the caption of the next to the last illustration is renin, not resin. The *AIBS Bulletin*, which attempts to cover all the biological sciences, should not be listed under "Herpetology, Ecology, etc." (p. 92). The headquarters of the Entomological Society of America were moved in 1960 from 1530 P St., NW, Washington, D.C., to 4603 Calvert Road, College Park, Md. (p. 95).

This book is not a compilation of science fair projects, but it should be read by every student who wants to devise a worthy exhibit. It will give him incentive and encouragement, and it may win him for science after the fairs are over. From it, older laymen can learn why the pursuit of science is absorbing.

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Molecular Models

Chemistry in Three Dimensions. Louis F. Fieser. Published by the author, 1963 (order from Macalaster Scientific Corp., Cambridge, Mass.). vi + 122 pp. Illus. Paper, $1.50.

Louis Fieser has developed an inexpensive plastic copy of André Dreiding's popular, stainless steel, molecular models. A good idea of the models and of this book is given in an article by Fieser, published in the *Journal of Chemical Education* [**40**, 457 (1963)], in which he states that the book is intended "to promote use of the models in high schools. . . . It presupposes no previous knowledge of chemistry and develops principles of the structure and stereochemistry of organic compounds largely by prompting the student to discover these principles by study of models of his own construction." Although Fieser hopes that "for some readers it may be self-teaching," the abbreviated style will probably make supplementation by a teacher desirable.

This lively volume is primarily addressed to students rather than to the author's colleagues. Purists may object to the chatty, informal style, which involves the use of the first and second persons, direct questions, and the currently condemned [*J. Chem. Educ.* **40**, 561 (1963)] anthropomorphism and teleology of atoms, but the author, who is obviously having fun, should communicate a spirit of excitement to the student. One section leads almost effortlessly to another; by the time the student has digested the 113 pages of text, which consists largely of excellent photographs and drawings of models, structural formulas, and apparatus, he has acquired a broad, if somewhat shallow knowledge of an amazing variety of fundamental topics in organic chemistry—isomerism (optical, geometric, and structural), valence, atomic and molecular weights, homologous series, nomenclature, natural products, polymers, conformation, resonance, and clathrate complexes, to mention only a few.

This is an active book, filled with directions, problems, and experiments, not armchair reading. Representative experiments include the solvent extraction of lycopene from tomato paste and its purification by adsorption chromatography and the isolation of oleic acid from olive oil by preparation of the urea inclusion complex. Smatterings of history and odd facts such as word derivations, occasionally so irrelevant that they almost smack of free association, serve to enliven the text and to exhibit the author's encyclopedic knowledge.

Although it was designed for use with the author's models, the book can be adapted for use with other models. If used without models, it would undoubtedly lose much of its effectiveness, especially in the fairly detailed sections on cycloalkanes and polycyclic systems.

Even though the subject matter is confined to organic chemistry, a fact not indicated by the title, Fieser should have made it clear to students that the carbon atom has no monopoly on stereochemistry. An introduction might have referred to configurations for coordination numbers other than four. In a broader treatment, the student could have used models to convince himself by isomer counting that the configuration of the carbon atom is not square planar but tetrahedral. Asking the student to accept this, the cornerstone upon which both the models and the book are built, merely as an act of faith seems contrary to the do-it-yourself spirit of the book.

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Perturbation Theory

Methods of Quantum Field Theory in Statistical Physics. A. A. Abrikosov, L. P. Gorkov, and I. E. Dzyaloshinski. Translated from the Russian and edited by Richard A. Silverman. Prentice-Hall, Englewood Cliffs, N.J., 1963. xvi + 352 pp. Illus. $16.

This book deals with the use of some methods of quantum field theory in statistical mechanics. The methods under question are essentially the perturbation theory techniques of many particle systems. There are various forms of the perturbation theory in such a context. Fortunately, the book is not just about the methods, as the title may indicate, but about their actual applications to some of the most important problems in statistical physics and many body systems. Throughout the volume, the authors use one particular method, the most convenient one for the purpose at hand, namely the method of Green's functions.

The first chapter begins with an excellent discussion of the general properties of many particle systems at low temperatures based, phenomenologically, on the frequency spectrum of lattice vibrations (phonons) as a function of the wave number. It also includes a simple form of the perturbation theory applicable to weak interactions where a few terms of the perturbation series would give satisfactory results, such as the problems of dilute Bose and Fermi gases. A more sophisticated form of perturbation theory is necessary in cases of stronger interactions where one has to sum up whole sequences of terms. These techniques which use the so-called Feynman diagrams have been very successful in quantum electrodynamics and are discussed (in chapters 2 and 3) for the two cases—temperature $T = 0$ and $T \neq 0$, respectively. Of course, there are some differences in the way the diagrams occur in quantum field theory and in statistical mechanics. In the first case one considers the scattering of particles, and the diagrams give all possible virtual processes that occur in the intermediate states; in the latter case the diagram expansion is used in evaluating the expectation value of an exponential operator, the grand partition function.

In the remaining chapters (more than half of the book) there is a detailed discussion of the application of these methods to the following problems: theory of the Fermi liquid (in-