Taxonomy of Flowering Plants. C. L. Porter. Freeman, San Francisco, 1959. xii + 452 pp. Illus. $6.75.

This handsomely illustrated volume is expressly designed to help fill the gap "between texts that are really reference books for advanced students and much abbreviated texts that have had much of the meat of the subject deleted from them." Porter's work is not intended to win new beachheads in the advancement of plant classification. The average student of applied botany might use the book for his first (and probably only) taxonomic course without discovering that there is more to the subject than identification by morphological characters. For those who are interested, however, the quietly planted leads and excellent, selective bibliographies should enable them to penetrate as far as enthusiasm carries.

The book is divided into three sections: the first deals succinctly with the history, methodology, and traditional theory of the subject, the second with some 19 orders and 23 families of monocotyledons, and the third with 35 orders and 80 families of dicotyledons. The author is tacitly neutral on questions of phylogeny. Selection of groups is clearly intended for a North American audience, and the well-illustrated description of families is stressed. If some choices of arrangement, of taxonomic concept, and of nomenclature are open to debate, these matters will not trouble the students to whom the book is addressed.

I find the volume refreshingly clear, straight-forward, unassuming, and unpretentious. The author has succeeded most admirably in attaining his worthy, if limited, objective.

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Russian Diary. Gaylord P. Harnwell. University of Pennsylvania Press, Philadelphia, 1959. 125 pp. Plates. $3.75.

Russian Diary is just that—an entertaining and instructive account of a busman's holiday. Gaylord Harnwell was a member of one of the cultural exchange groups (this group was made up of college and university presidents) going to the Soviet Union to obtain firsthand knowledge about higher education there. The diary covers about 2 weeks during the summer of 1958 and about 5000 miles of travel within the Soviet Union.

The diary is simply written, and its general flavor of good humor conveys the author's pleasure in the experience. The diary is human in that it reflects a good observer's frank curiosity toward life behind the Iron Curtain. Harnwell found much to interest him besides the organization and structure of higher education and scientific research in the U.S.S.R.: the arts, the culture, and the day-to-day living experiences available to the visiting group in their busy schedule of travel that ranged from Leningrad and Moscow to Tashkent, Samarkand, and Alma-Ata. One particularly interesting feature of the book is its frequent mention of the food and drink enjoyed by the group under various circumstances, suggesting that the busman's holiday had its compensations and anticipating the inevitable questions on the care and feeding of the inner man in terra incognita.

In condensed form, Harnwell gives the basic concepts and operations of higher education in the U.S.S.R. His own background in science, research direction, and university administration led to his particular focus of interest and to his selection of material from the vast Soviet educational effort that has been and is being studied by our specialists from various fields. Harnwell noted particularly the relation of the Soviet Academy of Sciences to the educational institutions and to the laboratories that it operates, as well as the breadth of knowledge that it includes. Indeed, the Russian word translated freely as "science" is far broader in its meaning than the English word, and the Soviet Academy in its composition and operations reflects this broader concept of higher learning.

The diary includes a short section dealing with advanced degrees—Kandidat and Doctor, but does not make clear that both degrees are under the central control of the Higher Attestation Commission. This centralized authority for granting higher degrees is a feature of unusual interest to educators in the United States.

Another unusual feature of Soviet higher education is that engineering is taught in separate institutes, not in the universities. Although the diary describes the Leningrad Polytechnic Institute, an outstanding engineering school, attention is not directed to the novel relationship between the engineering schools and the universities.

Harnwell's *Russian Diary* has the merits of brevity, substance, and entertainment, and it provides a pleasant as well as a rewarding evening's reading. The photographs add substantial interest. Those particular readers who have been to the U.S.S.R. will relive in the diary many common experiences.

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Prologue to Teaching. Reading and source material. Marjorie B. Smiley and John S. Diekhoff, Eds. Oxford University Press, New York, 1959. xvii + 590 pp. $5.75.

This is a text prepared for use in professional education courses at the undergraduate level. Because it is so different from traditional texts for these courses, and because the prospective teacher who studies these materials will be exposed to the writing of scholars and by this exposure, soundly introduced to a philosophical approach to modern education, the book seems worthy of review in *Science*. In a real sense this text material represents the substantial discipline which professional education could become.

The book consists of selections from writings about education by scholars from the time of Plato and Aristotle to Commager and Riesman. Included are selections by major educators such as Pestalozzi and John Dewey, and documentary materials from Supreme Court decisions, editorials, and prominent educational committees. The text is wholly exploratory. Competing viewpoints are presented so that the student may formulate from them his own philosophy of education. The editor's essays introducing each section should contribute to the understanding of the implications and the significance of the various quotations.

The authors and publishers indicate that the book could be used for a variety of purposes in education. The fact that this is true is perhaps one basis for criticism of current professional education courses. I suggest that this prologue, along with work in the psychology of

learning and human development and student teaching, could possibly become the basic course for teachers.

All those interested in the modern education scene will find much pleasure in reading these excerpts and the editors' stimulating interpretations of them. As academicians become more involved in planning teacher education programs, this material can be a source of substantial information on the educational thought of all the ages.

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Relativity for the Layman. James A. Coleman. Macmillan, New York, N.Y. (reissue), 1959. x + 127 pp. $3.50

The ABC of Relativity. Bertrand Russell (revised edition, edited by Felix Pirani). Allen and Unwin, London; Essential Books, Fair Lawn, N.J., 1959. 139 pp. $3.50.

Both these books are intended to explain relativity to the layman. Both authors are competent to do so, and both books have sufficient merit and acceptability that one represents a revised version and the other a reissue. But there the similarity ends. Whereas James Coleman is an experienced teacher of physics at a university catering principally to undergraduates, Bertrand Russell is a veteran philosopher and mathematical logician, who addresses the highly educated and sophisticated layman.

Coleman devotes about three-quarters of his book to the special theory of relativity; in the remainder he discusses the general theory of relativity, cosmological implications, and unified field theory. For a first introduction, intended for persons not specializing in physics, this appears an altogether reasonable balance. The presentation is on the whole careful, although it is remarkable that, in his discussion of Lorentz transformations, Coleman avoids completely any discussion of simultaneous events. The explanation concerning the relative character of simultaneity, which is offered later on and which is based on the time of transit of light signals, is misleading, if not downright incorrect. Likewise the explanation of the twin "paradox" leaves much to be desired.

Probably the root of the difficulty in his handling of the twin paradox is an erroneous belief, shared by Coleman with many others, that the special theory of relativity deals only with objects in uniform motion or at rest, whereas the general theory of relativity deals with accelerated objects and systems. The fact of the matter is, of course, that the special theory deals with accelerated objects and is capable of using even accelerated (coordinate) systems, but only the general theory of relativity treats successfully the gravitational field and accelerations caused by gravitational forces. Accordingly, the twin paradox was stated and explained definitively by Einstein in his first paper on the special theory, dated 1905, long before he even came to grips with the problem of gravitation.

Though these are relatively serious criticisms, the readers for whom Coleman writes—the not-too-serious, nonscience majors in an undergraduate school—will probably not be led too far astray by these lapses, and they will profit from the author's style, which conveys some of the drama of scientific discovery without becoming pompous. The illustrations are whimsical, some of them instructive, and they will maintain the reader's interest in the proceedings.

Russell writes for an entirely different public. The first edition of the *ABC* appeared in 1925, when any nonscientist would read a book on relativity only because of intellectual curiosity, not because science might be good for something. Accordingly, Russell makes demands on his readers' intellectual cooperation, and he hardly bothers with "sweetening the pill." This is a serious book, which includes a discussion of the epistemological aspects of relativity, as well as of its relationship to quantum theory and to the remainder of physics and the natural sciences. Less than half of this book is devoted to the special theory, and several chapters are alloted to the philosophical and semiphilosophical issues. There is one passage of dubious validity that I noticed: It is claimed that the steady-state model is consistent with the conservation of energy, an assertion that is, at best, speculative. Otherwise the book is written elegantly, with Russell's usual felicity of formulation. For the truly intelligent layman, Russell's exposition, along with Einstein's own (*Relativity, the Special and the General Theory*, 1917) and that by Einstein and Infeld (*The Evolution of Physics*, 1938) remain my favorites. The revisions by Pirani have brought the book up to date, without destroying the continuity of contents and style.

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Scoring Human Motives: A Manual. John Dollard and Frank Auld, Jr. Yale University Press, New Haven, Conn., 1959. 452 pp. $9.50.

Anyone interested in the analysis of verbal productions, such as those used in psychotherapy, will find this book indispensable. Based on extensive research, it gives instructions for delimiting each unit and for ascribing conscious or unconscious motivations such as anxiety or hostility. Two chapters of evidence are presented in support of validity and reliability.

The main content of the manual comprises the coding categories, their definitions, and some extensive illustrations and practice exercises. There are 77 categories of classifications of the patient's productions; 15 of these are major categories, the others are permutations. There are only four important therapist's categories; this small number is probably the main weakness of the manual. Perhaps this may reflect restrictive aspects of the authors' therapy. However, the authors indicate, possibly as self-justification, that other investigators have devised numerous methods for analyzing the verbal activity of therapists, and that it is the client material which has not previously been well handled.

Hours of careful hypothesizing and validating are reported. Dollard and Auld have produced what is undoubtedly one of the best available classification schemes for analyzing client productions in psychotherapy. Whether the scheme can be used in nontherapeutic interviews is not easily determined, since the motives occurring in other types of interviews may constitute different patterns; it seems probable, however, that the method has fairly widespread applicability. Although the authors have reviewed the contributions of other investigators, an apparent oversight is the lack of reference to the classification scheme for motives devised by Henry