them cited in the book under review—for example (p. 287), a speech by Chou En-Lai in February 1963.

2. Editorial in *Renmin Ribao*, "Sweep away all monsters," reprinted in *Peking Review*, 3 June 1966. Concerning my assumption that our reviewer can ignore the oscillations of the party line, see note *6*.
3. Table C-38 in "Federal Funds for Research, Development, and other Scientific Activities," vol. 14, *National Science Foundation Publ. 65–19* (1965).
4. The others: L. A. Orleans, "Professional Manpower and Education in Communist China," *National Science Foundation Publ. 61–3* (1961); S. H. Gould, Ed., *Science in Communist China* (AAAS, Washington, D.C. 1961).
5. Mao Tse Tung, "Where do man's correct ideas come from?", *Current Background* (Hongkong), No. 740 (31 Aug. 1964).
6. The argument I have attributed to the imaginary reviewer concerning the relative priorities of social practice and theory, as well as my assumption that he is free to utter the argument, is based on actual events in China. A hard core of scientists and engineers engaged in some major basic and applied research projects in China has not, so far, been affected by the shifts in party line mentioned earlier; and during the last few years a number of them have carried on in the party's theoretical journal *Hung-ch'i* and elsewhere an intense debate on such issues as: which is primary in the natural sciences—the criterion of practice, the experiment, or the theory? How can one be at the same time "professionally expert and politically red"? For the best review of the debate on the first question, see Ho Tsu-hsiu (described on page 435 of the book under review as a member of the Institute of Atomic Energy and the Institute of Mathematics—both in the Chinese Academy of Sciences—and of the Laboratory of Theoretical Physics in the Joint Nuclear Research Institute at Dubna, U.S.S.R.); "More on the question of the criterion of practice in the study of natural sciences," *Hung-ch'i*, No. 10, 23 May, 1964. In this article, Ho Tsu-hsiu sharply attacks those who deny the relative truth of theories. His conclusion that "practice is the criterion for the testing of truth, and practice can accurately distinguish the correct and mistaken knowledge . . . Practice, knowledge and again practice. . . . This is precisely an important law in the development of truth," is the basis of my imaginary reviewer's argument.

   All of this debate is carried on in Marxist terminology by prominent scientists who are both red and expert. One startling Marxist conclusion is to be found in an article by the historian of science Yin Mei-ch'in headed "Can we defend the viewpoint of 'only professionally proficient but not politically red' by citing Newton's case?" (*Chun-Kuo Ch'ing-nien Pao*, 3 Apr. 1965). Yin debates there against two physicists who have suggested that Newton was, after all, a good scientist, though he was not politically red. To this Yin replies: "Newton indeed knew nothing about Marxism-Leninism because he died before Marx was born. It is precisely because it was improbable for Newton to learn thoroughly and master the Marxist theory of dialectical materialism that his contributions—however impressive and significant—had their serious limits."
7. C. M. Li, *The Statistical System of Communist China* (Univ. of California Press, Berkeley, 1962).

Food Crops in India

Introduction to Agricultural Botany in India (vol. 1. Asia Publishing House; Taplinger, New York, 1965. 480 pp., illus. $18), by G. V. Chalam and J. Venkateswarlu, was written as a textbook for use in Indian agricultural colleges, and as a supplementary reference work for graduate students and research workers who need information about crops grown in India. In the first of the two projected volumes, three chapters, encompassing 81 pages, are devoted to the basic principles of reproduction in plants, to genetics in relation to plant breeding, and to the plant-breeding procedures used in crop improvement. A glossary at the end sets out the meanings of over 530 terms.

The main body of the book is devoted to chapters on rice, wheat, barley, oats, maize, sorghum or great millet, and to other members of the family Gramineae (Bajra or pearl millet, ragi, Italian or foxtail millet, barnyard millet, little millet, proso or hog millet, and kodo millet). Each of these chapters contains a great fund of information on the history, origin, taxonomy, morphology, physiology, cytology, inheritance, breeding, and special aspects of the respective crops. In addition to treatment of the basic principles, much attention is given to summarizing and tabulating existing knowledge, and many literature citations are included. For example, the chapter on rice contains a 3-page tabulation of mutations and a 14-page listing of the early, medium, and late varieties grown in the various Indian states, which gives the parentage, sowing season, duration, yield, and quality of rice produced. The chapter on wheat contains a 9-page table setting out the main improved varieties of wheat grown in India, and their origins, regions and conditions of suitability, and main characters. The book is well illustrated with textual drawings and a useful series of halftone plates.

Volume 2, now in process of publication, will contain chapters on oilseeds, pulses, fibers, spices, and tubers. Thus in the two volumes there will be brought together a summary of much that is known of the major crops of India and of what has been done to improve their productivity. These volumes should be most useful to anyone preparing for or undertaking plant-breeding work in India or in any other country where similar crops are grown.

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The Nature and Functions of Sleep

During the past several years there has been a marked increase in research on the phenomena of sleep. The increase can be traced to the now widely known discovery by Aserinsky and Kleitman [*Science* **118**, 273 (1953)] of rapid conjugate eye movements (REM's) during sleep and to the subsequent series of studies by Dement and Kleitman [*Electroencephalog. Clin. Neurophysiol.* **9**, 673 (1957); *J. Exp. Psychol.* **53**, 339 (1957)] which led them to conclude that REM's reflect visual scanning activity in dreams and that REM periods might be used as an objective definition of the dream state.

One manifestation of the high level of interest which these proposals stimulated is the impressive list of relatively up-to-date books now available summarizing various aspects of research on sleep. **The Psychology of Sleep** (Scribner, New York, 1966. 281 pp., illus. $6.95), by David Foulkes, and **Sleep** (Coward-McCann, New York, 1966. 335 pp. $5.95), by Gay Gaer Luce and Julius Segal, are the most recent additions to the list.

The volume by Luce and Segal is a popular discussion of research on sleep. It is a much expanded version of an earlier monograph written by Luce for the National Institute of Mental Health and summarizes recent research findings in the area of sleep for the public and interested scientists. Its scope is broad, beginning with a discussion of biological clocks and including useful, up-to-date summaries of material on the biological, psychological, and medical aspects of sleep. It emphasizes the future—the kinds of practical applications which may one day develop from the basic research now in progress. There is some degree of oversimplification and overgeneralization present, but remarkably little for a book of its type. The book is obviously the product of skilled science writers who are as devoted to educational objectives as they are to the interests of their general public.

Foulkes's book is concerned primarily with "sleep mentation"—reports of dreams, thoughts, and images described by subjects after being awakened in the laboratory. Great emphasis is placed on comparisons among sleep onset, REM sleep, and non-REM sleep in terms of the relative frequency with which awakenings elicit