

diate neighborhood, as listed in the classical Shapley-Ames *Catalogue* of 1932. One chapter, reprinted from an article published by Shapley in the *American Scientist* in 1956, reviews rather briefly the Harvard studies of the Clouds of Magellan.

Two chapters dealing with the diameters of the Galaxy and the distance to its center are, perhaps, not very relevant to the subject matter but are of more general interest and in line with the purpose of the book: to present a well-rounded account of all Shapley's main "galactic and extragalactic" studies. The final chapter deals with miscellaneous subjects related to the orientation and evolution of galaxies and tests for possible intergalactic absorption.

The line illustrations are adequate, but the plates are disappointing. This, however, is a rather minor defect, since this is not a "picture book." All students of the extragalactic field will be grateful to Shapley for this very valuable compendium of three decades of "trail blazing work," carried out under his direction at the Harvard Observatory.

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Russian-English Glossary of Nuclear Physics and Engineering. Russian-English Glossary of Solid State Physics. Russian-English Glossary of Electronics and Physics. Consultants Bureau, New York, 1957-58. 195 pp.; 90 pp.; 343 pp. \$10 each (series rate available).

These volumes represent a first step in the development of a complete Russian physics dictionary. A number of other specialized glossaries are still to be issued; ultimate publication of a single revised dictionary is envisaged. The present issues, then, are to be judged in the light of their rather transient character.

Within their defined scope, the glossaries appear to be first class. The compilers have avoided the common mistake of presuming that there is a one-to-one correspondence between Russian terms and English equivalents; often two, and occasionally three or more English terms are listed. The translations are realistic, and current terminology is used effectively.

Nevertheless, I was somewhat shaken by the enormous number of terms. These three volumes furnish more than 30,000; the completed text will probably have 100,000. That would make a rather large book to thumb through. Is such a large number necessary? My opinion is negative on this point. For example, *edinitsa* means "unit," and is so listed. It then is

followed by ten other phrases (such as length unit, mass unit, energy unit) each one of which is a literal translation of a pair of Russian words (*edinitsa dliny*, *edinitsa massy*, *edinitsa energii*, and so on). This practice adds nothing but length to the volume. One should take it as a fundamental rule that no phrase should be inserted in the glossary whose precise meaning can be found by a literal translation of its individual members.

One of the outstanding features of the *Electronics* glossary is a listing of American equivalents of Soviet vacuum-tube designations. This inclusion and that of a series of Russian abbreviations are exceedingly valuable features.

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Radiological Physics. M. E. J. Young. Academic Press, New York, 1957. x + 365 pp. Illus. \$7.50.

This book is intended for the use of candidates for diplomas in radiology from the Royal College of Physicians of London or the Royal College of Surgeons of England or of candidates for membership in the Society of Radiographers. The text is thus designed around the requirements for these examinations, but it should, nevertheless, be of value to the many workers who want a ready reference or who wish to review the status of medical physics.

The text is a well-written basic review of the field. Mathematical treatments of the subject matter are avoided for the most part. A useful feature is the group of examination questions at the end of each chapter.

Two introductory chapters review the fundamentals of nuclear physics, thermionic emission, vacuum tubes, and electronic circuits. The production of x-rays is reviewed in two chapters, which separate the subject into the energy region above and that below 400 kev. Chapters on the naturally occurring radioactive substances and the interaction of radiations then set the stage for subsequent chapters on diagnostic radiography, the chemical and biological effects of ionizing radiations, the therapeutic use of gamma radiations, and the production and medical use of artificial isotopes. The text concludes with a chapter on health hazards and radiological protection.

The volume should be well received by those who wish a nonmathematical introduction to the subject of radiological physics.

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Social Sciences

Pleistocene Man at San Diego. George F. Carter. Johns Hopkins Press, Baltimore, Md., 1957. xvi + 400 pp. Illus. \$8.

The dogmas that "early man" in the Americas dates back 10,000 to 15,000 years and that the American culture is an isolated tradition have been giving ground. The thesis of this provocative book is that man has lived in the San Diego region of California for some 30,000 years and perhaps 80,000 years and that he witnessed the changes in climate and sea-level of the Wisconsin glaciation. Evidence is developed from studies of geologic, geomorphic, and climatic phenomena and from 17 archeologic site areas, which are then placed within the suggested geochronologic framework.

Among the basic concepts considered are the eustatic theory of sea-level changes; stability of the area, particularly during the Upper Pleistocene; a time-sequence of soils and soil profiles; and correlation of the 25-foot subaerial terrace with the last interglacial of the Wisconsin, on the theory that there has been no sea stand higher since that time. The thesis is supported by data from other areas of California, from other parts of North America, and from other countries, and there is a variety of evidence.

The archeologic sequence is developed on the basis of early work of M. J. Rogers, one of the first systematic investigators in the area. Carter has reinterpreted the archeology on the basis of recent field work and of his knowledge of the region and adjacent areas; he has defined an older tradition and has greatly expanded the time scale of the occupation. Many details are presented, but archeologists generally will not be satisfied with the methodology. Detailed site reports and further analysis of the implements are still needed—a situation of which Carter is fully aware. It is regrettable that reports and artifacts from previous work were not accessible, so that details and comparative data on earlier finds could have been presented.

Stone-working techniques, as indicated by the artifacts and tool-manufacturing debris from the older horizons, are considered, and the need for more research is noted. Many archeologists have reserved judgment or have questioned the view that the workmanship is that of man, but the presence of associated hearths, charcoal, fire-broken rock, burned bone, and marine shells supports the view that the presence of the material in the valley fill and elsewhere is more than fortuitous.

The book is well illustrated with photographs, maps, charts, diagrams, and

line drawings. This is a multidisciplinary approach which, when refined and applied to other areas, should result in further progress in the study of climate change, geomorphology, archeology, and geochronology.

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The Economics of Under-Developed Countries. Peter T. Bauer and Basil S. Yamey. University of Chicago Press, Chicago; Nisbet and Cambridge University Press, London, 1957. xiii + 271 pp. \$2.25.

This volume on the economics of underdeveloped countries is the most satisfactory introduction to the subject yet to appear. In 257 pages of lucid exposition the authors, with exceptional understanding and insight, review the major economic influences governing the conditions of life in low-income countries.

The treatment is presented in two parts. Part I, a descriptive and analytical section of ten chapters, is designed "to illumine certain features of the economic landscape of the underdeveloped world." It does more, for in chapters on natural resources, human resources, and capital, it discusses many of the basic requirements for economic growth and improvement. Part II deals with the place of government in promoting economic development. Here in five chapters are reviewed the role and special functions of government and some of the major policy issues relative to the encouragement of capital formation, agriculture, and manufacturing industry.

Because of the normative aspect of the policy conclusions the authors are explicit in stating their political and social criteria. They favor economic development based on diffused decision-making in private enterprise, encouraged by public policies that widen the range of alternatives open to producers and consumers. This rationale for limited government participation is well stated. It is a statement that will be informative to many of those who accept the philosophy as well as to those who do not.

The authors have treated the subjects covered so well, that economists and lay readers alike will wish that more consideration might have been given to several neglected aspects of the subject. The relationship between economic improvement and population growth deserves a fuller treatment than it receives. In view of the recognized importance to economic development of skills and education (page 129), not to mention science and technology, it is unfortunate that the role of these influences is not elaborated

and that the policy requirements are not developed. For this the authors may be excused in view of the inadequate state of knowledge about the matter. But even a little illumination would have made this dark corner more understandable.

Another neglected and difficult subject is what may be called the strategy of economic development. On what basis can men determine which things must be deliberately undertaken first and which later, by government or by private citizens, and which things can be left to follow in due course? The criteria for judging priorities have not yet been formulated, as those engaged in economic development well know. Yet, one senses that these authors would have something worthwhile to say on the subject, and one wishes that they had recorded it here.

But these reservations merely reflect the appetite for more. Within the range of subjects chosen, the authors have made an important contribution to a better understanding of economic development in the underdeveloped areas of the world. As stated on the flyleaf, the book is in fact "for the general student of affairs as well as for the economist."

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Year of Crisis. Communist propaganda activities in 1956. Evron M. Kirkpatrick, Ed. Macmillan, New York, 1957. xix + 414 pp. Illus. \$5.50.

As a sequel to the author's *Target: The World*, published in 1956, this study provides an extensive, if not exhaustive, analysis of near-current propaganda activities of communism. For clarity and refinement, it draws upon the earlier work as a point of departure. The analysis of the subject pivots upon the theory of Soviet propaganda as well as Soviet policy in relation to developments specifically ensuing from the 20th Party Congress. The organization and direction of Communist propaganda and the major world-wide themes stressed in 1956 are treated prior to a discussion of events within specific target areas and of operating media and channels of communication. Evron Kirkpatrick emphasizes the major situations which conspicuously shaped the course of Soviet propaganda activity in the period: (i) the redefinition of tactics and approach of world communism in Moscow; (ii) the de-Stalinization campaign; (iii) events in Poland and Hungary; (iv) the Near East crisis; and (v) the expanded role of Communist China as a source of propaganda and doctrine.

The editor apparently has attempted

to produce, in this sequel, a book which will be nearly beyond criticism from the standpoint of organization, method, and content; and as far as I am concerned, he has been demonstrably successful. Some exceptions, perhaps, should be noted. It is not clear, for example, why the word *socialism* is persistently set in quotation marks. The intent presumably is that of showing contrast with non-Soviet socialism, and thus an error in fundamentals results, since the so-called separate concepts are identical with respect to economic philosophy and nearly identical with respect to political philosophy; neither permits full expression of both political and economic democracy in the normative sense. This elementary confusion lessens, to some extent, the usefulness of the book as an instrument of political and psychological warfare.

In his discussion of the Moscow-Peking axis in propaganda activity with respect to increasing operations in the Asian target area, the reasoning of the editor is less than clear. The major struggle in southern Asia today is for the minds of the "overseas Chinese," since, for Peking, these groups provide built-in cadres for subversion. The gradual enhancement in prestige of the Free Chinese and the Government of the Republic of China—and their strong political warfare activity among the overseas Chinese—presents a vital challenge to the governing group on the mainland. The journeys of Chou En-lai in Southeast Asia during 1956 were essentially, although not wholly, for the purpose of engagement with the overseas Chinese. The editor, having failed to elucidate these facts of life in Asian propaganda activity, will elicit no especial laurels for his presentation of the case in point.

Some inaccuracies in Table 2 (page 82) should be corrected in any second printing. For example, depending on the editor's definition of a unicameral legislature, that of Laos is instead bicameral in a restricted sense rather than unicameral, with an upper-house *Conseil du Roi*; so, too, is that of Cambodia, with its *Conseil du Royaume*. The National Assembly (lower house) of each country is composed of 60 and 93 members, respectively, rather than of 39 and 257, as the table indicates. Several other errors may be noted, such as the simple mistake of stating that the Senate of the Philippines comprises 102 members and the House of Representatives, 24, instead of the reverse. Unfortunately, the incorrectness of this table is so marked that its usefulness is negligible, and this reflects on numerous other tables throughout the book.

Quite aside from such minor points, however, on balance Kirkpatrick has published a noteworthy volume, reveal-