

La Tunisie présaharienne: étude géomorphologique. ROGER COQUE. Paris, A. Colin, 1967. 476 pp., 85 figures, 4 folding maps. 59 photos.

The *chott* region of central ("presaharan") Tunisia includes three major salt lakes that occupy a syncline between the folded Atlas ranges to the north and the stable Saharan land mass to the south. The origin of these salt lakes has given rise to much speculation that is superseded by Coque's well-written and well-documented *thèse*. Although late Miocene to basal Pleistocene detrital beds underlie the halite and gypsum pans, the most prominent bedrock of the peripheral tablelands (south) and hill country (north) is composed of sandstones, shales, and limestones of Cretaceous to Eocene age. Variable resistance, combined with mid-Tertiary and early Pleistocene deformation, have produced a variety of impressive structural landforms.

In early Pleistocene times the *chott* region was occupied by a moderately deep lagoon of fluctuating depth and salinity, fed by artesian waters and not connected with the Mediterranean Sea; there is only limited and localized evidence of surface freshwater influx. After desiccation of this great lake, the basin was deflated and the middle and later Pleistocene were primarily characterized by several cycles of pediment-cutting, alluviation, and dissection affecting the basin margins. Pedimentation is related to moister (but "semiarid") climates, with aggradation marking the terminal stages of wetter conditions. Massive gypsum crusts, due to eolian, saline dust, cemented by rain waters, seal these pediment alluvia. The youngest contains Caspian artifacts (ca. 6500-5000 B.C.), the penultimate pediment mantle has Middle to Upper Paleolithic implements, while the penultimate pediment itself was demonstrably cut during the Würm-Wisconsin glacial. Contemporary pollen evidence points to a slightly cooler and moister Mediterranean steppe, at a time when the basin floor was occupied by a second lagoon, with a maximum depth of 65 m. This high lake was also fed by artesian waters. Subsequent deflation can be estimated at several centimeters per year.

This regional geomorphology provides much of the thematic interest for arid zone geomorphology: pediment origins, gypsum

crust and caliche formation, functional and relict forms. Equally valuable are the insights gained as to late Cenozoic paleoclimates in the northern Sahara, all evidence pointing to increasing aridity during the course of the Pleistocene, interrupted by intervals of slightly moister climate during the glacial periods.

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Earth Science. JOHN F. LOUNSBURY and LAWRENCE F. OGDEN. Harper and Row, Inc., New York, N. Y., 1968. vii and 373 pages, illustrations, photographs, maps, appendices, and index.

The text is prepared for a two- or three-hour course for the general education program as it occurs in most universities and colleges. The format presents a volume whose pages are 9×8 inches, with margins of just under three inches. In places the marginal area is used for diagrams and pictures but on many pages it is blank, and could be used for notes. To provide more space for photographs many pictures bleed to the edge of the page, giving the impression of attractive spaciousness. Accompanying the text is a laboratory manual and an instructor's guide suggesting projects and quiz questions.

The subject matter includes an introduction to astronomy, oceanography, geology, meteorology, climatology, and earth history. There is, of course, minimal coverage of these topics considering the volume of text material. The basically good information would have to be supplemented by the instructor. The continued use of the Köppen system might annoy those instructors who prefer other climatic classifications. The hydrologic cycle appears in the material dealing with subsurface water rather than with the elements of weather or climate. The water budget or energy budget systems analysis approach is not mentioned, indicating that the subject matter treatment is conventional and conservative, although the order in which it is presented may be atypical. As an example, the world climates are separated from atmospheric elements by the chapter on oceanography. The presentation of the text in substance and arrangement appears to be a sophisticated handling

of a series of lectures for a course in earth science. As a text for such a course it appears to have value, but it offers little to challenge the better student or the upper-classman. It could be used in a secondary course in earth science as well as in a college class.

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ECONOMIC GEOGRAPHY

Agricultural Development in China, 1368-1968. DWIGHT H. PERKINS. Aldine Publishing Company, Chicago, 1969. xv and 395 pp. \$12.50.

The Land Revolution in China, 1930-1934: a Study of Documents. TSOOLIANG HSIAO. University of Washington Press, Seattle and London, 1969. ix and 361 pp. \$12.50.

Land and agricultural problems have, for many years, been the main concerns of the ruling authorities of China. Before the twentieth century, China's economy was based almost entirely on agriculture. These two books are among the few available publications dealing specifically with China's agrarian systems.

Using a wide range of source materials including local gazetteers (*Fang-chih*) and various data kept for tax purposes by the Ming and Ch'ing governments, Perkins traces China's long-term agricultural development from the beginning of the Ming dynasty to the present. The central theme of the book is that by increasing the grain yield per *mou* and by expanding the acreage of cultivated land, China was able to cope with the problems of increasing population and stagnant agricultural technology during the past 600 years. Much pertinent data and many convincing arguments are found in the chapters on the development of improved seeds, crop patterns, farm implements, water control, fertilizer, and land tenancy. Of particular geographic interest are the two chapters on "Rural Marketing and Its Impact on Farm Output" and "Urbanization, Famine, and the Market for Grain" which depict lucidly the internal trade of agricultural commodities in terms of supply and demand differentials and the

shipment of grains. Fifteen maps, some showing trade routes, are included and this is unusual for a book written by an economist. Nine appendixes occupy about half of the book, each being a scholarly discussion of the data problems of population, crop acreage and yield, and grain consumption. Agricultural development since the Communist revolution is not particularly emphasized, but since there are many books on the economy of Communist China available today, this should not be considered a drawback. The great wealth of historical data and analyses of China's agricultural development included in this book should be of much interest to geographers who specialize in China's economy or agriculture.

Hsiao's book is an entirely different study based on 117 Chinese documents. It examines the agrarian policies and the systems of land ownership during the formative years of Chinese Communism. More than half of the book is devoted to the translation of 24 basic documents. The book has no introduction or conclusion. Unless one has a solid background in the Chinese Communist movement and is willing to read carefully the annotations of the documents, he is not likely to get a clear picture of the land revolution, but this book contains a number of important documents which are not readily available elsewhere. For those who are interested in China's agrarian struggle and intraparty power clash in the 1930s, the book is indispensable.

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HUMAN GEOGRAPHY

Human Geography. H. ROBINSON. MacDonald & Evans, Ltd., London, 1969. 203 pp., 24 illustrations, index. 12s 0d. (approximately \$1.50).

Harry Robinson's name is not a new one on the textbook scene in Great Britain or abroad. This book is a companion to earlier MacDonald & Evans Handbook Series offerings. The expressed purpose of the handbook is to provide the student with basic essentials of human geography for examination preparation. For this it is adequate. The handbook is divided into nine chapters: the