

banded sediments suggests that the gray layers accumulated in forest swamps and the red to buff bands may have been deposited on flood plains in open country.

If these data have been interpreted correctly, it is significant that most Paleocene sediments in the Rocky Mountain region are drab whereas most Early Eocene formations are red-banded, for the situation suggests that forests were widespread in the Paleocene epoch but during the Early Eocene savannahs and forests fluctuated to produce extensive variegated deposits.

Both Paleocene and Early Eocene floral assemblages consist of warm-temperate to subtropical types, indicating humid, lowland conditions in the basins. Moreover, the presence of the same species of Early Eocene mammals in more than one basin reveals that there were no continuous topographic barriers impeding migration of lowland animals. Nevertheless, Rocky Mountain structures were being actively deformed during this interval. Hence the continuance of a humid, lowland environment suggests either that erosion kept pace with orogenic uplift and maintained a mature stage of topography, or that deformation took place without important upward movement.

In the Big Horn, Bridger, Washakie, Uinta and Piceance Creek basins the extensive red-banded fluvial facies is conformably overlain by lacustrine deposits of Middle Eocene age. (In some areas the lake

sediments began to accumulate before the end of Early Eocene time). In marked contrast to the irregular, lenticular layers of red and gray shale in the variegated deposits, the lacustrine facies is characterized by alternating units of evenly bedded shale rich in organic matter and fine-grained sandstone. A synthesis of stratigraphic sections of the Green River formation in southern Wyoming reveals that finely laminated oil shale accumulated at the center of the lake, while shoreward, the rich oil shale grades into a thinner, coarser shore facies composed of fine-grained sandstone in which freshwater gastropods and pelecypods abound, humic shale and lignite layers, and ostracode-bearing marlstone and low-grade oil shale. This facies in turn interfingers with fluvial "Wasatch" and Bridger deposits at the margin of the basin. The Tatman formation in the Big Horn Basin is very similar to the shore facies of the Green River Formation, and probably was deposited in the open waters of a shallow lake and in forest swamps that displaced the lake from time to time.

The persistence of a lowland, warm-temperate to subtropical flora in the basins through the Middle Eocene demonstrates that Laramide deformation effected no pronounced change in the topography or the climate of the Rocky Mountain region in early Cenozoic time.

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## SCIENTIFIC BOOKS

### THE HOPI WAY

*The Hopi Way.* By LAURA THOMPSON and ALICE JOSEPH. Lawrence, Kans.: Haskell Institute. Chicago: University of Chicago Press. 151 pp. Illustrated. 1944. \$3.00.

THIS volume is the first published result of a series of studies of American Indian tribes, conducted and sponsored jointly over a three-year period by the U. S. Office of Indian Affairs and the Committee on Human Development of the University of Chicago. As the Honorable John Collier, until recently commissioner of Indian Affairs, explains in the foreword, the project has for its aim the shedding of light on many of the administrative problems confronting the members of the Indian Service.

To a considerable degree the light generated by the authors of "The Hopi Way" comes from a merging of two techniques. Dr. Laura Thompson, an anthropologist, provides a summary of Hopi culture based on standard ethnological works; and Dr. Alice Joseph, a physician and neuro-psychiatrist, presents an analysis of Hopi personality as revealed by a number of psychological and psychiatric tests. The subjects

tested were children, aged six to eighteen, from the pueblos situated at First and Third Mesas in Arizona. A total of 190 boys and girls were investigated in the field, representing about 12 per cent. of all Hopi children in the age group under consideration.

The book begins with a comprehensive but concisely written account of Hopi life and custom, placed against a background of the tribe's history and geographical environment. There then follow a group of portraits of Hopi children and a series of psychological analyses, and the work concludes with an interesting retrospect in which Dr. Thompson skilfully combines the ethnological and psychological data into an integrated picture of Hopi culture and personality.

Throughout the volume the authors are careful not to overstate their claims, emphasizing the fact that the present study "has been designed to serve as a basis for further research on the problem of Hopi administration," and humbly offering the work as a contribution "toward the development of a scientific method of cooperative social analysis. . . ." (pp. 13, 14). In view of such restraint it would ill become a reviewer to harp on the authors' mistakes; but since

the writers feel that "opposition to our findings will be more productive than inertia," the following comments are offered in a spirit of constructive criticism.

Apart from a few minor factual errors, the chief fault in Dr. Thompson's description of Hopi culture is a tendency toward over-emphasis that leads to distortion. This is most marked in her discussion of Hopi free-will-within-the-law (pp. 37 and 41). Much of her argument rests on a single connotation of the word *náwakna*, which means praying, wanting, willing, desiring. Dr. Thompson interprets it to mean willing in the sense of volition, and is thus led to exaggerate the importance of free will in Hopi philosophy. Similarly, so much is made of a Hopi linguistic phenomenon which happens to coincide with some of the concepts of modern physics, that one is almost asked to believe that the Hopi are masters of that science simply because they have a word for it.

On the whole, however, Dr. Thompson's contributions to "The Hopi Way" are stimulating and well presented, and it is too bad that her collaborator's work does not quite measure up to the same standard. Every now and then, for instance, Dr. Joseph remarks that her tests have revealed some hitherto unsuspected aspect of Hopi culture or personality, but unfortunately these claims are not always justified by the evidence. Thus, in her study of Roger, Dr. Joseph tells us that all previous reports and casual observations "did not contain *one hint* [the emphasis is mine] of the possibility of deeper-lying conflicts in his personality. The tests . . . revealed with great clarity his conflicts . . . and his inability to cope with them" (p. 88). Yet, on page 71, numerous observations made without benefit of testing reveal that Roger's "facial expression is somewhat sullen"; his overt behavior "appears shiftless and unpredictable"; his teachers said that "it was difficult to crack his shell"; he pleaded "with both his parents to let him leave home for work"; and having got away from the reservation, he "expressed the wish never to go back home again."

In a somewhat similar connection, to cite but one of many possible examples, Dr. Joseph states that the emotional response test provides "some direct information regarding concern about death and sickness" (p. 98). This may be true, but practically every scrap of such information as is contained in her subsequent discussion is old stuff to Hopi ethnologists.

I have emphasized the shortcomings of the psychological approach in "The Hopi Way" primarily because there is a growing tendency among anthropologists to incorporate psychological techniques into their field methods. If this merger is to be fruitful (as I believe it will be in the long run), great care must be taken in this early period of experimentation to make sure that the new device really does add something significant to the older procedure. So long as psycho-

logical tests and psychiatric analyses do little more than confirm conclusions that may be reached by ethnological investigation, their actual value to anthropology must remain in doubt.

The publication of the remaining studies in this series, together with the supplements devoted to concrete administrative application, will unquestionably reveal more fully than could the pioneer volume the full significance of the entire project. In the meantime, the authors of "The Hopi Way" and their sponsoring organizations are to be congratulated for having ventured into a new and promising field of social research. The Office of Indian Affairs particularly deserves credit for its support of such an enterprise. We have come a long way from the days when, as Mr. Collier has pointed out, Indian commissioners regarded it as their duty to redeem "these benighted children of nature from the darkness of their superstition and ignorance."

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### AMEBIASIS

*The Etiology, Diagnosis and Treatment of Amebiasis.*

By CHARLES FRANKLIN CRAIG. 332 pp. 45 text figures. Baltimore: The Williams and Wilkins Company. 1944. \$4.50.

In 1934 Colonel Craig published his monographic volume on "Amebiasis and Amebic Dysentery." At that time the American physician and layman had recently become conscious of the hazards of this infection in the United States as a result of the epidemic of amebic dysentery in two Chicago hotels. The present volume is equally timely because of exposure of a large number of troops to this infection throughout most of the tropical areas of American military operations.

All the valuable information in the older treatise and much of the more recent data have been brought together in the new book. The subject indicates only a part of the material presented by the author, since it omits for purpose of brevity the aspects of epidemiology, pathology and symptomatology of the disease, all of which are adequately considered.

Colonel Craig has had nearly a half-century of experience with amebiasis in both its clinical and laboratory aspects. He is the one authority who could provide a proper balance between these two closely related phases of the subject. Thus, the volume is equally useful to the protozoologist and the physician. It is well documented, has good author and subject indexes, is well printed and is free of the typographical errors which frequently remain undiscovered by an author until after publication.

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