

the errors in this book are trivial, but a few are of importance and should be corrected in any subsequent edition. On page 12 there occurs one of the classic editorial errors of Egyptological literature, here enlarged and expanded to Miltonic proportions. This is the "correction" of *Nomarch* to *Monarch*. Ancient Egypt was divided into a series of districts or provinces which the Greeks called "nomes," the governor of one of these nomes being a "nomarch." Since this rare noun is almost never included in English dictionaries, it has become a matter of course for editors to smile and transpose the first and third letters of this noun, thus elevating a provincial governor to royal rank. In the present instance the editorial boner has created a new king, Dhutihotep, to add to the already complex list of kings.

The reference on page 27 to two small reliefs in the Metropolitan Museum as "among the best specimens of sculpture" from the reign of Zoser (Dynasty III) is no longer valid, for these unusual pieces are now believed to be archaizing work of late date. In any case the reliefs in Turin from Heliopolis of the reign of Zoser are far finer. It is a pity that the romantic idea of the Libyan origin of one of Cheops' chief queens (page 125) must be adversely criticized. A splendid representation of her with blue eyes and blond hair led the great Reisner to develop the theory of a Libyan strain in the royal family from which much could be inferred. That imaginative piece of scholarship has been thoroughly eradicated by W. Stevenson Smith some years since, to his and our regret. One must also hesitate to agree (page 237) that in Cush (Sudan) during the New Kingdom "local industries had reached a high level." The paintings in the tomb of Huy quoted as proof of this actually show very clearly that Cush was expected to supply the raw materials only; the finished objects depicted are clearly of Theban manufacture. Indeed, despite long colonization by the Egyptians and considerable aping of their culture, the land of Cush remained remarkably provincial and produced almost nothing to rival the great craftsmanship of the Egyptians.

It is curious that on page 242 the learned author restates an error of identification from the early days of Egyptology. Far to the south in Cush near the Fourth Cataract are the similar sites of Zuma and Tangasi, each with a considerable number of earth mounds

varying greatly in size and height and interspersed with circular pancake-like burials. The early travelers described them, as does Fakhry, as pyramids and even Lepsius went along with this description. And from a distance these mounds do give the impression of ruined pyramids, not unlike the remains of brick pyramids of the Middle Kingdom. Even a cursory inspection explodes the pyramid theory, for the mounds are of earth, artificially constructed, with a surface scattering of local stones of natural shape placed there to reduce surface erosion. Excavations at similar sites, mainly in northern Cush, during the past three decades give ample basis for dating these mounds to the X-group people. Excavations at Tangasi by the Sudan Antiquities Service in 1953, while disappointing so far as finds were concerned, did show conclusively that these structures had no connection with pyramids.

Several broader criticisms can be made of this work. A more comprehensive treatment of the royal tombs of Dynasties I and II would be useful. It is true that these structures were never pyramidal, but they were the predecessors of the pyramid, and the account of them in this work is hardly adequate. The discovery in recent years of a series of vast mastabas at Saqqara North is barely mentioned, and the controversy over their identity is passed by. The distinguished excavator of these mighty structures, Walter Emery, believes them to be the tombs of the earliest kings. His arguments are strong, and many scholars agree with his ideas; other scholars are not convinced and, in any case, the excavations have not been finished. In a very few cases the description of the interior of a pyramid is inadequate; that of Sesostri III at Dahshur is an example. The references (page 221) to the monuments of this king at Abydos seem inaccurate, for they mention a "small pyramid and temple." A temple of Sesostri III does indeed exist at this site, apparently in relation to the mysterious rock-cut structure, perhaps a cenotaph, which is of great interest as a variant form of royal tomb. The pyramid presumably is that usually, if uncertainly, ascribed to early Dynasty XVIII, and here it would have been instructive to quote the text of Ahmose, which seems to refer to this pyramid. Much more of interest could have been recorded of the pyramid fields of Cush and of the splendid finds that have come from

them. These exotic constructions were excavated by Reisner and have been splendidly published by Dunham. With these great publications at hand it would seem that one could dispense with the adventurous works of Budge.

One defect, obviously no fault of the author's, is that the text has been so extensively edited, presumably in a mistaken ideal of grammatical accuracy, that Fakhry's vivid personality is not evident. He is an ebullient, witty, and vivacious individual, and one wishes that the editors had allowed more of his style to prevail, grammar notwithstanding.

## Tursiops-side-down World

**Porpoise and Sonar.** Winthrop N. Kellogg. University of Chicago Press, Chicago, Ill., 1961. 177 pp. Illus. \$4.50.

**Man and Dolphin.** John C. Lilly. Doubleday, Garden City, N.Y., 1961. 312 pp. Illus. \$4.95.

The authors of these two books have one common purpose, which they display with undisguised enthusiasm. It is to convey the fascination, privilege, mystery, and sense of high adventure of their own apparently quite unrelated and separately conducted researches during the past decade on *Tursiops truncatus*, the shallow-water or bottle-nose dolphin. But how differently they do it.

Both books are white-hot from the furnace of experience. Both authors are concerned to emphasize (quite justifiably) the importance to defense projects of their remarkable demonstrations that these dolphins emit underwater sonic impulses at frequencies up to 200 kilocycles per second and that at the least they use some part of these sounds as echo-ranging signals for navigation and orientation. Kellogg writes selflessly with apposite tables, diagrams, figures, experimental detail, careful index, and references, in the best style of a descriptive scientific text intended for the non-specialist reader. Lilly's book is as revealing about man—not any man, but one man, John C. Lilly—as about dolphin. It is undoubtedly one of the frankest and most egotistical accounts of a research project ever placed before a sensation-loving public. Many of his numerous photographs seem more suited to the family album than to an

account of scientific discovery. But these personal idiosyncrasies do not hide a great deal of valuable behavioral observation, psychological insight, surgical competence, and complex experimentation based on already well-established techniques, including cerebral probing. Yet in being so frank about his early failures, his treatment of the dolphins, and his personal sacrifices, it may be questioned whether he has not done his cause a disservice. It may be noted that Kellogg has deliberately eschewed vivisection with his dolphins, preferring to work with the whole mammal.

A substantial part of both sets of investigations was based on training procedures similar to those which have been used with other animals, such as chimpanzees, dogs, rats, and fish. It seems that dolphins, like dogs and humans, have temperaments, and that account must be taken of these, as Pavlov did, when interpreting the results. Derivative support for the validity of their conclusions on sonar ranging and dolphin vocalization is sought by both authors in the large size of the eighth cranial nerve and the complexity of its central connections. Comparable though much simpler elaborations occur also in some fishes, for example, Triglidae and Mormyridae, and suggest that these may repay further study along these lines. Subjectively, the dolphin's vocalizations for finding and recognition in circumstances where visual localization is thought to be impossible are described as pings, clicks, or creaks. There is a further wide range of vocalizations which Lilly regards as a kind of "dolphinsese" language. Kellogg confines himself to his rigid examination of the dolphin's sonar system, but Lilly goes into vivid speculation, expressed graphically and with extreme self-confidence, that these dolphins, through their language and because of the known great size and complexity of their brains, may be the first nonhumans with whom man may learn to communicate. Here his book is more reminiscent of Algernon Blackwood's imaginative fantasies than of legitimate scientific inference; but—to quote his own expression—he "sticks his neck out" so deliberately and provocatively that it would be a pity to harm it, and it should indeed be taken as a warning, though perhaps not in the sense he intends.

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## Vistas of Anthropologists

**They Studied Man.** Abram Kardiner and Edward Preble. World, New York, 1961. 287 pp. \$5.

Indeed, they studied man, and from different points of view. This diversity of viewpoint is considered very desirable in this day when interdisciplinary (not multidisciplinary) studies are being advocated. Here, however, we see these representatives of the several disciplines studying man in their own ways, and their efforts are described as seen through the professional eyes of two scholars trained in, and practicing, psychiatry.

The authors state that their interest is not historical but that they "have attempted to relate the seminal hypotheses of the few great innovators in the development of a 'science of man' to the ethos of the times and to the specific lives of these innovators." Their innovations are seen by Kardiner and Preble as cultural responses to "collective interests and needs," but also as "the products of idiosyncrasies and genius."

The word "They" in the book's title refers to the nine scholars Kardiner and Preble chose to discuss. These include Darwin, the evolution-minded naturalist, and Herbert Spencer, the English philosopher who championed such theories as that of orderly social evolution and social functionalism. Tylor, the "founder of modern anthropology," emphasized the psychic unity of man and the concept of animism in understanding primitive religions. In regard to Sir James Frazer, author of the monumental work, *The Golden Bough*, I am inclined to agree with the authors when they say "It is not easy to determine Frazer's reputation in the history of anthropology." The principal influence of the French sociologist, Emile Durkheim, was in terms of his basic functional approach in the study of culture and society. Franz Boas, trained as a physicist, "chose instead to study man." The authors point out, very correctly, that Boas' "methods and attitudes" have shaped the course of modern anthropology, particularly in the United States. Bronislaw Malinowski, also a functionalist, was a very controversial figure because he "did not simply disdain the usual customs and proprieties, he took a positive pleasure in violating them." Alfred Kroeber became, in fact, the dean of American

anthropologists. He was an accomplished field ethnologist and an authority on the theoretical nature of culture and culture change. Ruth Benedict, at once a poet and a scientist, was basically a functionalist, who emphasized the cultural configuration approach. I feel it can be fairly said that the work of Sigmund Freud had little direct effect on cultural anthropology. Rather, there have been strong indirect influences based largely on the concepts of the basic personality and the relation of psychodynamics to culture.

The authors suggest that there may be disagreement regarding "our selection of anthropologists." While each one of the scholars discussed had a strong influence on the development of anthropology, they were not all anthropologists. I wonder why such men as Lewis H. Morgan and Radcliffe-Brown were omitted.

One excellent feature is the biographical sketch, given at the beginning of the discussion, of each of the scholars. The book will be valuable to those interested in the social sciences, both students and laymen.

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## Broad-Brush Picture

**Pioneer Microbiologists of America.**

Paul F. Clark. University of Wisconsin Press, Madison, 1961. xiv + 369 pp. Illus. \$6.

*Pioneers* consists of 18 chapters arranged in five sections—Foundations of Early Bacteriology (4 chapters); The Atlantic Seaboard (8); The Central Valley (2); Our Western Lands (2); and Perspective (2)—plus 23 pages of bibliographic notes and an index of almost 1100 entries. Photographs of 37 of the many bacteriologists discussed utilize ten pages; the photographs are the more interesting because the age of the individual at the time the photograph was taken is given. Thus, the eager boyishness of Novy at 35 contrasts with the maturity of Vaughan at 59—two individuals, Thom and Karl Meyer, are ageless. Following 79 pages on the beginnings of bacteriology (abroad and in America) and on epidemiology and epidemics, the author discusses pioneer bacteriology in the East, including the contributions made