carrying the story at least into the Enlightenment (when, for example, John Wesley's journals are full of similar material).

Roy Porter
Wellcome Institute

AIDAN and EVE COCKBURN, *Mummies, disease and ancient cultures*, Cambridge University Press, 1980, 4to, pp. x, 340, illus., £25.00.

Mummies are always of widespread interest. This has been intensified recently by a series of unwrappings of Egyptian mummies: in America by members of the Paleopathology Association, in England by the Manchester Mummy Research Team, and this year by Bristol University. *Mummies, disease and ancient cultures* is a collection of twenty papers, written by contributors to the Paleopathology Association's *Newsletter*. It is divided into four parts: Mummies of Egypt, Mummies of the Americas, Mummies of the world, and The study of mummies.

Mummies of Egypt includes an outline of evidence for methods of mummification and funerary practice, an excellent survey of palaeopathology by A. T. Sandison, and a brief account of dental health studies. The rest of this section describes the unwrapping of four mummies – PUM II, ROM I, PUM III, and PUM IV. Each follows a pattern of preliminary radiographic examination, autopsy, and detailed histological and biochemical examination.

Part II, *Mummies of the Americas*, includes surveys of mummies found in the southwestern U.S.A., the Aleutian Islands and Alaska, and Peru. Autopsies and palaeopathology are described. *Mummies of the world* contains a rather mixed collection of material: the magnificently preserved Danish bog bodies, mummies from Australia and Melanesia, mummies of Japanese Buddhist priests, and a miscellany from Libya, Siberia, the Canary Islands, China, and the Amazon basin.

The final section, *The study of mummies*, comprises seven papers on methods used for examining the mummies autopsied by the Paleopathology Association: methods for determining sex and age from the skeletal remains, preparation of mummified material for histological examination, application of electron microscopy (describing the remarkable preservation of intact red and white blood cells from PUM II), radiographic examination, studies of the temporal bone, biochemical analysis, and blood group testing of mummified tissues.

Mummies, disease and ancient culture is a fascinating book. It is nicely designed and well presented. The papers cover a wide range of interests. Several papers are particularly useful summaries of a great deal of information and experience in applying new techniques. These will be invaluable for future research. Inevitably, much of the book is about Egyptian mummies, but the editors have made great efforts to include material from other areas of the world. The book does, however, suffer from the drawback of most collections of papers by many authors. Individual contributions are variable in quality and the collection as a whole leaves some notable gaps in its coverage.

It is becoming clear from studies like these how modern pathology and biology can be applied to mummified human remains. But mummies are in fact only a small part

of the great storehouse of material remaining from populations such as the ancient Egyptians. Many thousands of skeletons survive as well. The dividing line between mummy and skeleton is not sharp. Most mummies are poorly preserved, often consisting almost wholly of skeletal material inside the wrappings. Similarly, dry desert environments frequently preserve some soft tissue in addition to skeletons, in burials where no deliberate attempt at mummification has been made.

Well-preserved mummies are a diminishing resource. Unwrappings decrease their number further. But what is impressive, in this book and from work published elsewhere, is what modern radiography can do non-destructively, and what histology, biochemistry, and serology can show from small quantities of mummified tissue. Could these techniques not be used to survey larger numbers of mummies without unwrapping them, to investigate small samples extracted with minimum damage, and to study the far larger collections of less completely preserved human remains?

Simon W. Hillson
Department of Classics and Archaeology, University of Lancaster

CHARLES F. MERBS *et al., Catalogue of the Hrdlicka paleopathology collection,* San Diego Museum of Man, 1980, 4to, pp. xii, 359, illus., [no price stated], (paperback).

This catalogue incorporates versions of the osteological descriptions and pathological diagnoses which Dr. Ales Hrdlicka had compiled for the San Diego Exposition of 1915, revised by Dr. C. F. Merbs. It provides a view of the pathology and cranial surgery of aboriginal America. However, some of the illustrations, unfortunately, are not completely satisfactory.

Collections like this, from a large group of a population, are very valuable in tracing the early history of a disease, or confirming its absence, provided that the diagnosis is based upon acceptable diagnostic criteria (cf. C. J. Hackett, *Sber. heidlb. Akad. Wiss.*, 1976, 4). With this in mind, I examined the illustrations for two diseases in which the bone changes are diagnostic. Of the twenty-three specimens labelled "syphilis" (a treponemal infection), nine are called "historic": of these four had changes diagnostic of the disease (one was from Mongolia), three probably so, and two had none. Another specimen labelled "prehistoric or early historic" showed similar changes. None of the "prehistoric" specimens had diagnostic changes. There is thus no acceptable evidence here of syphilis in the definitely "prehistoric" (pre-Columbian) specimens.

Similarly, there is only one very doubtful example among the forty-five labelled "osteo-myelitis" of a specimen with haematogenous pyogenic osteo-myelitis, a disease common in Europe before the advent of penicillin. However, two of its bones show similar changes to those labelled "syphilis", and came from the same skeleton which was dated "historic". The pyogenic micrococci that cause the characteristic changes of the disease were thus apparently not present in prehistoric America. In pre-European aboriginal Australian bones there is a similar complete absence of haematogenous pyogenic osteo-myelitis, although treponemal (yaws and treponarid) bone changes are frequent (C. J. Hackett, *Rec. S. Aust. Mus.*, 1978, 17 (No. 27): 387–405).