Surveying and Mapping: A Manual of Simplified Techniques. ROBERT F. G. SPIER. Foreword by George and Louise Spindler. Studies in Anthropological Method. New York & London: Holt, Rinehart & Winston, 1970. x + 84 pp., figures, suggested reading, index. n.p. (paper).

Reviewed by CHARLES C. KOLB
Bryn Mawr College

Spier's manual, demonstrating the "basic simplicity of a technical process," was designed for amateurs and neophyte professionals as a handbook for archeologists, ethnographers, demographers, etc. Subheadings comprise: "A Place in Space" (definitions), "Sticks and String" (instruments), "Styles of Survey" (procedures), "Many Hands" (assistants), "Survey and Plotting Accuracy," "A Sample Survey," "Graphic Display of Data," and "Conclusion." These are basic, clear, reasonably concise, common-sense essays accompanied by fifty-six line drawings.

Instruments detailed (24 pp.) include magnetic compasses (Army lensatic, Silva, Forester/Geologist, Brunton), sighting boards, alidades (ruler, traverse, telescope, riflescope), angle prisms, plane tables, levels (hand, Abney, Brunton, pendulum clinometer), leveling rods, and distance measures. The latter range from simple pacing, pedometers, cyclometers, and range finders, to standard tape measures. Lamentably, there is no consideration of transits, and Spier noted "anyone who is able to so equip himself has little need for our counsel" (p. 9). Nothing is said of the plane table angle swing arm and plumb-bob attachment, or of surveyor's chain. In "Styles of Surveying" (30 pp.), techniques of indirect height determination, proportional triangles, offsetting, leveling traverse and contours are presented. There are healthy discussions of chain survey, compass traverse, sketching traverse, and plane table surveys. Excavation layout methods are not considered. Five final subheadings (20 pp.) contain elementary materials, and the "Recommended Reading" includes only four items.

A chapter on areal photos and other base maps would be invaluable. U.S. Geological Survey topographic maps and British Ordnance Survey Sheets are disclosed in passing, while O.A.S./P.A.U. aerophotos and maps are not mentioned. The text does contain many procedural hints and discussions about constructing equipment at home.

The manual is primarily for Americanists and valuable for field methods courses, since standard texts do not deal with many topics or methodologies presented. Old World specialists may find it useful, but will probably continue to prefer Detwiler's *Manual of Archaeological Surveying* (1948).

Reference Cited

Detwiler, A. Henry
1948 Manual of Archaeological Surveying. New Haven: American Schools of Oriental Research.

Ice Ages: The Nature and Effects. IAN CORNWALL. New York: Humanities Press; London: John Baker, 1970. 180 pp., figures, illustrations, maps, tables, glossary, bibliography, index. $9.50 (cloth).

Reviewed by KARL W. BUTZER
University of Chicago

The scope of Ian Cornwall's *Ice Ages* is best measured from the diversity of its contents. The first chapter gives an outline of glacial legacies, including moraines, outwash, certain structure-soils, loess, as well as information on glacial-eustatic sea-level changes. The second chapter considers the impact of deglaciation—specifically, proglacial lakes and varvites—and of a succeeding interglacial, with incision of old periglacial valley accumulations, soil development, and isostatic rebound. With chapters 3 and 4, the author attempts to give a synopsis of the course of the Pleistocene, essentially focused on Britain and organized around the framework of the Soergel-Zeuner radiation chronology. Two further chapters present some of the physical and biological criteria for climatic change, while chapter 7 is devoted to Pleistocene man. In the closing sections geochronology is presented as a matter of fitting Milankovitch's radiation curve, while the primary cause of the Pleistocene Ice Age is perused.

All in all, Cornwall is to be commended for brevity and elegance of presentation. The photographs are quite outstanding, and com-

pensate for the crude diagrams and maps. However the basic content is generally dated and seldom goes beyond the state of the art in the 1940s and 1950s. There are negligibly few errors of fact—if we define fact as the best available information— primarily since the discussion is kept at a very simple and general level. The primary shortcomings are sins of omission and the rather traditional selection of materials, closely following the precedent of F. E. Zeuner's *The Pleistocene Period* (First edition, London, 1945) and charting little or no new ground. Equally perplexing is the uncritical adherence to the radiation curve. Altogether, *Ice Ages* is a well-written and attractive book for the lay reader or freshman, that should whet his appetite for more. However, despite the claim of the dust jacket, it is rather less suitable—in both spirit and content—for the student of either the natural sciences or archeology.