Paleoclimatology

Climatic Change in Later Prehistory. Papers from a conference, Durham, England, March 1981. A. F. HARDING, Ed. Edinburgh University Press, Edinburgh, 1982 (U.S. distributor, Columbia University Press, New York). viii, 210 pp., illus. Paper, $18.

Temporally parallel changes in paleoclimate and the archeological record have long led many workers to see (or to seek) cause-and-effect relations between the two sets of phenomena. At first glance, the title of this volume suggests more of the same. However, the tone of most of the contributions and of the editor's introduction is largely one of caution. There is welcome wisdom in Harding's remark that, given the abundance of changes recognized in both the climatic and archeological records, "success of some sort is assured" whenever one attempts to correlate them on a time scale. Closer examination of the ways in which an interpreted climatic change would affect human activities is warranted, and alternative explanations should be considered for changes in the archeological record that happen to coincide with a postulated climatic change. All this is very important for the period under consideration here, roughly 8000 to 2000 years ago, the Neolithic, Bronze, and Iron ages, which were times of increasingly complex social and industrial adaptations and of increasing manipulation of the environment by humans.

This collection of papers stems from an international conference organized by the editor, an archeologist. The contributors, however, are by and large not archeologists. The volume moves from a rapid review of how climate works, through palynology, Swiss lake history, Flandrian sea-level changes, beetles, peat bogs, and pedogenesis, to the complications of feedback between human activity and the paleoenvironmental record. Most papers concern the British Isles or central Europe, a contribution on the eastern Mediterranean region by J. L. Bintliff being the exception.

Implicitly or explicitly the Blytt-Sernander classification of postglacial climatic episodes defined on northwestern European pollen stratigraphy is used in nearly every paper. Only M. Magny, however, states explicitly that the B-S scheme seems to have validity as a chronological classification but not as a climatic one. (The Subboreal period is drier in Scandinavia but wetter in sub-Alpine areas.) The use of this scheme in the eastern Mediterranean is even more worrisome because that area lies in the zone of interaction between cyclonic Europe and the subtropical high pressure systems.

Both Magny and M. Joos are concerned with the vicissitudes of Swiss lake dwellers, from the points of view of pollen and lake-level curves, respectively. Pollen indicates that there were low lake levels and abundant lake dwellings during wetter Subboreal times, contemporary with low flood levels on major rivers (Rhone, Doubs) and with glacier retreat in the Alps. Joos believes that lakes are very sensitive climatic indicators, but Magny looks to more direct geomorphic controls on the lakes and only indirect climatic ones.

Concerning soils, H. C. M. Keeley relates the dominant trend toward podzolization, gleying, and peat formation to the strong influence of humans, for the replacement of forests with grasslands that is associated with this reduction in soil base status is not readily linked with climatic changes. P. J. Osborne observes that the disappearance of forest beetles is a clear result of forest clearance during the Neolithic and that dung beetles provide evidence of a climate in southern England somewhat warmer in the Bronze Age than now. J. R. Pilcher and M. Hughes review the state of dendrochronology in Britain, where the record now goes back as far as 7500 years with only three gaps totaling a mere 240 years. However, unlike tree rings from timberline and arid settings, those from temperate forests are not amenable to easy paleoclimatic interpretation, lacking modern forest analogs and an adequate climatic record for calibration.

Bintliff's contribution, imposingly titled "Climatic change, archaeology and Quaternary science in the eastern Mediterranean region," relies very heavily on the ideas of H. H. Lamb for a "far more powerful analysis" than reasoning from local or regional phenomena. Nevertheless, Bintliff's blind faith in Vita-Finzi's concept of a simple, post-Roman, "Younger Fill" in Mediterranean valleys should be weakened by local and regional studies indicating that the "Younger Fill" is neither monolithic nor contemporaneous in the very areas where Bintliff and Vita-Finzi have worked (Greece, Iran, Algeria).

A paper by K.-D. Jäger and V. Ložek documents an excellent example of positive feedback between climatic change (Subboreal dryness) and anthropogenic adaptation (deforestation) that leads to further environmental deterioration in central Europe. The final contribution, by A. Whittle, describes the difficulty in interpreting the changing patterns of sheep and cattle grazing in British uplands purely in terms of climatic change without a careful evaluation of other factors, such as grazing preferences of the animals and changes in stringency of shepherding practices, the races of livestock being raised, and herding strategies, for example transhumance or year-round pasturage.

There is much food for thought in these 200 pages, as well as a good review of indicators of environmental change. A clear trend emerges toward a more cautious interpretation of cause-and-effect relations between an apparent climatic change and social change, especially for the period in question. The book should be very informative to paleoenvironmental scientists and archeologists alike.

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Atlas of the Roman World. Tim Cornell and John Matthews. Facts On File, New York, 1982. 240 pp. $35.

Avian Biology. Vol. 6. Donald S. Farner, James R. King, and Kenneth C. Parkes, Eds. Academic Press, New York, 1982. xxiv, 490 pp., illus. $65.

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A Bio-bibliography for the History of the Biochemical Sciences since 1800. Joseph S. Fruton. American Philosophical Society, Philadelphia, 1982. 886 pp. $20.

Biochemistry of Mammalian Reproduction. I, Gametes and Genital Tract Fluids; II, Reproductive Endocrinology. Lourens J. D. Zaneveld and Robert T. Chatterton, Eds. Wiley-Interscience, New York, 1982. xviii, 562 pp., illus. $65.

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Chemistry in the Soil Environment. Proceedings of a symposium, Fort Collins, Colo., Aug. 1979. R. H. Dowdy and six others, Eds. American Society of Agronomy/Soil Science Society of America, Madison, Wis., 1981. viii, 260 pp., illus. Paper, $10. ASA Special Publication No. 40.

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The Design of Electrical Services for Buildings. F. Porges. Spon, London, ed. 2, 1982 (U.S. distributor, Methuen, New York). x, 310 pp., illus. $29.95.

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