The Last Deglaciation: Absolute and Radiocarbon Chronologies. Edited by Edouard Bard and Wallace S. Broecker. Nato ASI Series I: Global Environmental Change, Vol. 2. Proceedings of the NATO Advanced Research Workshop, Erice, Sicily (Italy), December 9–13, 1990. New York 1992 Springer-Verlag, 344 pages, $159.00.

As with many topics in the Quaternary sciences, chronology limits our ability to understand the complicated relations among events that occurred during the termination of the most recent ice age. Although abrupt changes in oceans, atmosphere, biosphere and cryosphere are inextricably linked in ways that now appear to have global consequences, we are not yet able to resolve critical questions about the precise order in which the changes occurred. This useful book brings together a diverse but focused collection of papers in three sections dealing with (I) radiocarbon and absolute chronologies, (II) past changes in cosmonuclide production, and (III) climate changes during the last deglaciation.

Section I contains papers by Kromer and Becker (tree-ring ^{14}C calibration); Johnsen and Dansgaard (flow-model dating of ice cores); Bjorck *et al.* (Swedish varve chronology); Lotter *et al.* (annually laminated sediments from Switzerland); Rozanski *et al.* (annually laminated sediments from Poland); Zolitschka *et al.* (varve-dated records from Germany); and Bard *et al.* ($^{230}Th/^{234}U$ and ^{14}C dating of corals from Barbados, Galapagos and French Polynesia). Section II has papers by Lal (variations in global production rate of ^{14}C); Raisbeck *et al.* (^{10}Be variations in 50,000 years of the Vostok core); Beer *et al.* (^{10}Be peaks in polar ice cores); Salis and Bonhommet (geomagnetic field intensity from 8–60 ka); and Mazaud *et al.* (geomagnetic calibration of the ^{14}C time scale). Section III includes Broecker (strength of the Nordic heat pump); Sarnthein *et al.* (^{18}O meltwater anomalies in the North Atlantic; Duplessy *et al.* (a new method to reconstruct sea-surface salinity); Southon *et al.* (past ocean-atmosphere ^{14}C differences); Jouzel *et al.* (evidence of a "Younger Dryas" event in Antarctica); Fisher (ice-core evidence for an early Holocene freshwater cap in the Atlantic); Gasse and Fontes (climate changes in northwest Africa during the last deglaciation); and Peteet (palynological evidence for the Younger Dryas in Europe and North America). The chapters are unusually concise and to-the-point, with key conclusions supported well by data and figures. Because the papers were typeset camera-ready by authors, they vary in font and format; nevertheless, printing is of high quality and most chapters are easy to read.

The first two sections include discussions of such topics as 1) the plateaus in ^{14}C ages that occur at 10,000, 9600 and 8800 BP, according to dendrochronologic data, and at 12,700, 10,000 and 9500 BP, according to data from annually laminated Swiss lake sediments; 2) the duration of the Younger Dryas, which is measured as 260–400 yr (Swedish varves), 450 yr (Greenland ice-core chronology), 680 yr (annually laminated lake sediments from Switzerland), and at least 1200 yr (annually laminated lake sediments from Poland); 3) estimates for the absolute age of the Younger Dryas/Holocene transition, which vary from 10,630 cal BP to ≥11,090 cal BP; 4) support for the accuracy and precision of $^{230}Th/^{234}U$ age determinations (dating of corals); and 5) stratigraphic markers that may be reliably used to date ice cores.

Chapters in the third section are interesting and provocative. All in all, this book provides first-hand insights that are both fascinating and useful – to this reader, at least. Despite its $159.00 cost, many Quaternary scientists will be pleased to have this book readily available.

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