

ABSTRACT

PRETREATMENT OF WOOD AND CHAR SAMPLES

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It has been shown that contamination from humic acids, chitin, fungal products, etc., contributing young carbon, and from bitumen and carbonate, contributing old carbon, may not be completely removed from wood and char samples by the usual hydrochloric acid and sodium hydroxide pretreatments of the samples. A procedure is offered for the isolation of a pure chemical substance from such samples, cellulose from wood and uncombined carbon from char, that must represent the original material. Cellulose is prepared by boiling the resin-free sample in 1.25% H_2SO_4 and 1.25% NaOH , adding Schweitzer's reagent, filtering, and precipitating from the filtrate by acidification. Uncombined carbon is separated from char samples as the flocculant precipitate remaining after boiling in 70% HNO_3 , followed by settling overnight from a large volume of 6M HNO_3 . A simple procedure for the chemical examination of char samples is also offered for the estimation of the amounts of bitumen, carbonate, combined, and uncombined carbon in char.

In a particular example, wood and char samples from the Cape Krusenstern, Alaska site dated at Bern with no pretreatment (B-267A,B: 2500 B.P., Bern II) and at the University of Pennsylvania after an alkali pretreatment (P-404: 2850 B.P., P-400: 3700 B.P., from E. K. Ralph, unpublished) were dated by counting methane made from cellulose extracted from the wood and from uncombined carbon extracted from the char. The fractions so measured are coeval, with a mean age of 4600 ± 400 B.P.

Experimental details are contained in the Ph.D. Thesis of Hyman Schultz, The Pennsylvania State University, 1962. Microfilm copies may be obtained from University Microfilms, Inc., Ann Arbor, Mich. A fuller account has been submitted to *Analytical Chemistry*.

REFERENCE

Bern II, Gfeller, Oeschger, and Schwarz, 1961, Bern Radiocarbon Dates II: Radiocarbon, v. 3, p. 15-25.