ethane as his counting gas in order to introduce twice the amount of carbon into a liter-atmosphere of sample gas; counting 24 liter-atmospheres of ethane for 6 days allows him to measure, without isotopic enrichment, samples 60,000 years old. Unfortunately a very small amount of sample contamination is very significant in this range and may make statistical calculations of range purely academic. Badly needed for evaluating contamination is a series of samples extending from around 20,000 years, where C^{14} ages should be reliable, back to 75,000 years or beyond.

Finally, Oeschger (Bern) described a very small gas counter having a volume of 40 cm^3, designed to analyze CO_2 extracted from glacial ice. Even with so small a detector almost one ton of ice must be melted to yield sufficient CO_2 for radiocarbon measurement.

In the field of natural tritium measurement, it is often necessary to enrich the H^3 prior to counting in order to attain adequate sensitivity. Customarily this has been done by water electrolysis, one installation of which was described by Cameron and Payne (International Atomic Energy Agency, Vienna). Enrichment using thermal diffusion has lately been considered; the conference heard reports on this technique from Sellschop (South Africa) and von Buttlar and Wiik (Darmstadt). Enrichment by use of a gas chromatographic column was described by Smith and Ahktar (Tennessee) but is not as yet applicable to natural levels.

Isotopic enrichment is often unnecessary where bomb-produced tritium is sufficiently abundant. In this case proportional counting has been used without enrichment. Von Buttlar, Wohlfahrt, and Farzine (Darmstadt) generate hydrogen from natural waters and use it to hydrogenate inactive ethylene to ethane, which they count. Lal (Bombay) described a process to produce tritiated methane from water in one stage. His reactor is loaded with sample water, zinc metal, and inactive CO_2 gas; the net reaction is $CO_2 + 2H_2O + 4Zn \rightarrow 4ZnO + CH_4$. This same reaction can be used for C^{14} measurements, in which case the CO_2 is sample-derived and the water is inactive.

The conferees considered the question of the best half-life to use in reporting C^{14} ages to the journal *Radiocarbon*. A similar discussion was held during the 1962 Cambridge Conference as a result of three new measurements of half-life (*1*) that showed the accepted value of 5568 years to be low by 3 percent. Majority opinion in both the Cambridge (*2*) and Pullman (*3*) conferences was for retaining the old value for the sake of uniformity in publication while at the same time suggesting a correction factor of 1.03 to be applied for greater accuracy.

One of the highlights for many was the all-day field trip which provided a change of pace in the middle of the conference week. The itinerary included the Palouse hills of Pleistocene loess deposits, the channeled scablands where Pleistocene flood waters have exposed and scoured Tertiary basalt flows of the Columbia Plateau, and the Marmes Rock Shelter at the confluence of the Palouse and Snake Rivers. The latter has been excavated by Washington State University archeologists who have exhumed several human skeletons antedating the Mazama ash fall of 6500 years ago. Guides for the field trip were Richard Daugherty in archeology, Roald Fryxell in geology, and James Crosby in geohydrology.

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References

1. W. B. Mann, W. F. Marlow, E. E. Hughes, *Intern. J. Appl. Radiation Isotopes*, **11**, 57 (1961); I. U. Olsson, I. Karlen, A. H. Turnbull, N. J. D. Prosser, *Arkiv Fysik* **22**, 237 (1962); D. E. Watt, D. Ramsden, H. W. Wilson, *Intern. J. Appl. Radiation Isotopes* **11**, 68 (1961).
2. H. Godwin, *Nature* **195**, 984 (1962).
3. F. Johnson, *Science* **149**, 1325 (1965).

Forthcoming Events

December

20–21. **Molecular Transport and Rate Phenomena**, 32nd annual chemical engineering symp., Stanford Univ., Stanford, Calif. (A. Acrivos, Dept. of Chemical Engineering, Stanford Univ., Stanford, Calif.)

20–21. **Nuclear Medicine**, 2nd natl. congr., Tel Aviv, Israel. (P. Czerniak, Israel Atomic Commission, Soreq Nuclear Research Center, Doar Yavne)

20–22. British **Biophysical** Soc., 20th winter meeting, London, England. (R. E. Burge, Physics Dept., Queen Elizabeth College, Campden Hill Rd., London W.8)

20–22. American **Physical** Soc., Los Angeles, Calif. (W. Whaling, California Inst. of Technology, Pasadena 91109)

26–31. **American Assoc. for the Advancement of Science**, annual, Berkeley, Calif. (R. L. Taylor, AAAS, 1515 Massachusetts Ave., NW, Washington, D.C. 20005)

In addition to the 20 sections of the Association and five AAAS committees, the following organizations have arranged sessions at the AAAS annual meeting 26–31 December at Berkeley:

Mathematics

American Mathematical Soc. (R. S. Pierce, Univ. of Washington, Seattle)

Association for Computing Machinery. (H. D. Huskey, Univ. of California, Berkeley)

National Council of Teachers of Mathematics. (J. D. Gates, 1201 16 St., NW, Washington, D.C.)

Society for Industrial and Applied Mathematics. (J. H. Griesmer, IBM, Yorktown Heights, N.Y.)

Physics

American Astronautical Soc. (P. B. Richards, General Precision, Little Falls, N.J.)

Chemistry

American Chemical Soc., California Section. (R. L. LeTourneau, Chevron Research Co., Richmond, Calif.)

Astronomy

American Astronomical Soc. (G. C. McVittie, Univ. of Illinois, Urbana)

Geology and Geography

Association of American Geographers. (M. Mikesell, Univ. of Chicago, Chicago, Ill.)

National Geographic Soc. (R. Gray, 17th & M Sts., NW, Washington, D.C.)

National Speleological Soc. (G. W. Moore, U.S. Geological Survey, Menlo Park, Calif.)

Zoological Sciences

American Fisheries Soc. (H. K. Chadwick, California Dept. of Fish and Game, Sacramento)

American Soc. of Zoologists. (A. G. Richards, Univ. of Minnesota, St. Paul)

Animal Behavior Soc. (E. M. Banks, Univ. of Illinois, Urbana)

Herpetologists' League. (F. B. Turner, Univ. of California, Los Angeles)

Society of Systematic Zoology. (J. G. Rozen, Jr., American Museum of Natural History, New York, N.Y.)

Zoological and Botanical Sciences

American Soc. of Naturalists. (C. Hubbs, Scripps Inst. of Oceanography, La Jolla, Calif.)

Ecological Soc. of America. (G. M. Woodwell, Brookhaven Natl. Laboratory, Upton, L.I., N.Y.)

Western Soc. of Naturalists. (J. M. Craig, San Jose State College, San Jose, Calif.)

Psychology

Western Psychological Assoc. (G. A. Mendelsohn, Univ. of California, Berkeley)

Social and Economic Sciences

American Economic Assoc. (R. R. Nelson, RAND Corp., Santa Monica, Calif.)

American Political Science Assoc. (J. F. Triska, Stanford Univ., Stanford, Calif.)

American Soc. of Criminology. (C. Newman, Univ. of Louisville, Louisville, Ky.)

American Sociological Assoc. (W. Form, Michigan State Univ., East Lansing)

Metric Assoc. (R. Fischelis, Ohio Northern Univ., Ada)

National Inst. of Social and Behavioral Science. (D. P. Ray, 863 Benjamin Franklin Station, Washington, D.C.)

Population Assoc. of America. (E. S. Lee, Univ. of Pennsylvania, Philadelphia)

Society for the Scientific Study of Religion. (C. Y. Glock, Univ. of California, Berkeley)

History and Philosophy of Science

Philosophy of Science Assoc. (C. W. Churchman, Univ. of California, Berkeley)

Society for General Systems Research. (H. Thal-Larsen, Univ. of California, Berkeley)

Science Courses for Baccalaureate Education Project. (V. L. Parsegian, Rensselaer Polytechnic Inst., Troy, N.Y.)

Medical Sciences

Alpha Epsilon Delta. (M. L. Moore, 7 Brookside Circle, Bronxville, N.Y.)

American Assoc. of Bioanalysts, Western Region. (M. Menesini, 1287 Rudgear Rd., Walnut Creek, Calif.)

American Physiological Soc. (R. M. Iverson, Univ. of Miami, Coral Gables, Fla.)

American Soc. for Microbiology, Northern California–Hawaiian Branch. (K. J. Taylor, Cutter Laboratories, Berkeley, Calif.)

California Veterinary Medical Assoc. (A. G. Edward, Univ. of California, Davis)

Society for Experimental Biology and Medicine, Pacific Coast Section. (E. L. Dobson, Donner Laboratories, Univ. of California, Berkeley)

Education

Commission on Science Education. (J. R. Mayor, AAAS, 1515 Massachusetts Ave., NW, Washington, D.C. 20005)

American Nature Study Soc. (H. E. Weaver, Univ. of Illinois, Urbana)

National Assoc. for Research in Science Teaching. (F. B. Dutton, Michigan State Univ., East Lansing)

National Assoc. of Biology Teachers. (H. K. Wong, Menlo-Atherton High School, Atherton, Calif.)

National Science Teachers Assoc. (A. F. Eiss, 1201 16 St., NW, Washington, D.C.)

Information and Communication

National Assoc. of Science Writers. (L. S. Zahn, Hill and Knowlton Inc., 150 E. 42 St., New York, N.Y.)

Society of Technical Writers and Publishers. (G. Marx, Illinois Inst. of Technology, Chicago)

Statistics

BIO: Biomedical Information-Processing Organization. (M. Woodbury, New York Univ. Medical Center, New York, N.Y.)

Biometric Soc., ENAR. (D. S. Robson, Cornell Univ., Ithaca, N.Y.)

Biometric Soc., WNAR. (S. W. Nash, Univ. of British Columbia, Vancouver, Canada)

Mathematical Statistics and Probability, 5th Berkeley symp. (J. Neyman, Statistical Laboratory, Univ. of California, Berkeley)

Science in General

Academy Conf. (J. T. Self, Univ. of Oklahoma, Norman)

Scientific Research Soc. of America. (D. B. Prentice, 51 Prospect St., New Haven, Conn.)

Sigma Delta Epsilon. (Miss A. Hanson, Univ. of Minnesota, Minneapolis)

Society of the Sigma Xi. (T. T. Holme, 51 Prospect St., New Haven, Conn.)

27–29. Academy of **Management**, New York, N.Y. (P. P. LeBreton, College of Business Administration, Univ. of Washington, Seattle)

27–30. **Differential Equations and Dynamical Systems**. Univ. of Puerto Rico, Mayaguez. (Center for Dynamical Systems, Brown Univ., Providence, R.I.)

27–30. **Phi Delta Kappa**, Professional Education Fraternity, Univ. of Oklahoma, Norman. (M. Bemis, Phi Delta Kappa, 8th and Union, Bloomington, Ind. 47402)

28–30. Indian **Medical** Assoc., 41st conf., Baroda (Gujarat). (Indian Medical Assoc. House, Indraprastha Marg., New Delhi 1)

29–4. **Pugwash Conf. on Science and World Affairs**, Addis Ababa, Ethiopia. (J. Rotblat, Pugwash Continuing Committee, 8 Asmara Rd., London, N.W.2, England)

January

4–7. **Solid State Physics**, conf., Manchester College of Science and Technology, Manchester, England. (S. F. Edwards, Dept. of Physics, Victoria Univ. of Manchester, Manchester 13)

5–8. National Soc. of **Professional Engineers**, winter mtg., Bal Harbour, Fla. (NSPE, 2029 K St., NW, Washington, D.C. 20006)

6–7. Society for **General Microbiology**, 45th general mtg., London, England. (P. H. Clarke, Biochemistry Dept., University College, Gower St., London, W.C.1)

6–10. International Council of **Scientific Unions**, 11th general assembly, Bombay, India. (Intern. Council of Scientific Unions, Via Sebenico 2, Rome, Italy)

7–8. **Surgical Research** Soc., winter mtg., London, England. (A. P. M. Forrest, Cardiff Royal Infirmary, Newport Rd., Cardiff, Wales)

10–13. **Radioactive Isotopes** in Clinical Medicine and Research, 7th intern. symp., Bad Gastein, Austria. (R. Hofer, Second Medical Univ. Clinic, Garnisongasse 13, Vienna 9)

11–12. Man's Extension into the **Sea**, symp. on SEALAB II, Washington, D.C. (T. Evans, Conference Management Organizer, Colonial Bldg., 105 N. Virginia Ave., Falls Church, Va. 22046)

12–14. **Medicinal and Aromatic Plants in India**, symp., Central Indian Medicinal Plants Organization, Lucknow, India. (S. C. Datta, CIMPO, 4 Sapru Marg, Lucknow)