Meetings

Carbon Conference

Professors who like to challenge their students with novel parameters could do worse than call for a report on a world without carbon. From the thermonuclear fire that lights the sun to the cave fire of emergent man and into every plant and animal cell, carbon is woven inextricably into the fabric of life. And if rockets and reactors seem to have supplanted carbon as a fuel source, one still finds carbon valuable and perhaps essential to contain or control these energy sources. Fuel cells, thermoelectric devices, and other electronic developments add to the glamor of carbon. Thus this oldest of materials takes on new life in an age that moves inexorably through the performance thresholds of time-tested materials.

The new role of carbon can be measured in the brief history of a group organized by S. Mrozowski, of the University of Buffalo, as the American Carbon Committee. The group called a somewhat impromptu conference in 1953, and 80 persons heard the four papers that constituted the entire proceedings. Yet the need for such a conference was so clear that it was continued, and in 1955, 18 papers were presented to an audience of 220. For the third biennial meeting in 1957, there were 80 papers and 305 participants; and in 1959, 86 papers were given for 335 persons. The fifth biennial Carbon Conference in 1961, the first meeting to be held away from Buffalo, drew 135 papers and 430 participants—including 77 from other nations—to Pennsylvania State University on 19–23 June.

This exponential growth has its problems in conference logistics. The American Carbon Committee has some money problems as the proceedings grow larger and larger (Pergamon Press will publish the 1961 proceedings in two volumes). The size of the conference, as well as the broadening interest of participants, requires concurrent sessions and a departure from the give-and-take that characterizes the small meeting. Yet the general quality of the papers remains so high and the interest so great that no thought was given to terminating the biennial conference; the second decade of the conference will be inaugurated at Pittsburgh in June 1963.

Perhaps the outstanding feature of the 1961 conference was the large number of papers from overseas, signifying that carbon research has reached a relatively advanced state throughout the world. The United Kingdom led the overseas contingent with 20 papers; nine papers came from France, seven from Japan, and four from Australia. There were papers also from West Germany, Belgium, Italy, Switzerland, and India, but an eagerly awaited paper from the U.S.S.R. fell victim to visa problems. Of the domestic papers, 40 were from industrial laboratories, 24 from universities, and 19 from governmental laboratories.

Knowledge of carbon stands at an interesting position. For years, it fell between the desks of the metallurgist and the ceramist, not meeting the classical definition of either, and the organic chemist gathered most of the information about this material. But for the last decade, physicists, chemists, metallurgists, fuel technologists, and ceramists have been making up for lost time, and carbon is by now one of the best-known materials. Notwithstanding, questions from the floor of the conference more often than not were met with the response "We don't know," or "We hope to go into that soon." This response in reality represents a strength rather than an apparent weakness, for it means that, so to speak, carbon workers are really getting to the heart of the matter. Materials scientists, led by carbon scientists, appear to stand near the position of nuclear physicists in the early 1930's. The stimulus of the space and nuclear programs and the new electronics are the catalytic forces driving materials science to a new plateau, and carbon scientists appear to be leading the way. Certainly, the interdisciplinary nature of much carbon research and the new measurement and examination techniques can be applied to materials generally.

After a general introductory session of three papers from abroad on electronic properties, diamond-oxygen reaction kinetics, and the surface properties of extremely thin graphitic lamellae, the conference broke up into concurrent sessions for groups of papers on graphitization, pyrolytic graphites, surface chemistry of carbon blacks, dislocations and high temperature properties, electron spin resonance, radiation effects, reactivity of graphite, electronic properties, uses and applications, surface chemistry of porous carbons, mechanical properties, structural studies, and kinetic and surface reactions.

Persons who had attended previous conferences found the most significant advances reported in the papers on pyrolytic graphite and new electron-microscopy techniques to study graphitic structure. The new pyrolytic graphites, produced by the decomposition of hydrocarbon gases, provide materials of unusual strength, purity, and chemical properties that hold out good possibilities for meeting some of the rigid materials demands of the day.

To some attending this conference, detailed knowledge of the structure and properties of carbon on the atomic scale appeared to be on the threshold of a major breakthrough, which will become possible through the availability of sizable synthetic crystals of graphite. A thorough understanding of the electrical and physical properties of carbon has been held up in the past because the material could not be studied in the pure single-crystal form. The properties of graphite crystallites are remarkably different along the different crystal directions and cannot be determined uniquely from measurements upon aggregates of small crystals or powders. The melting point of carbon is so high that to obtain sizable crystals of either graphite or diamond has baffled scientists in the past. With the availability of new equipment and techniques for attaining ever higher temperatures and pressures, however, it looks as if man soon will be able to produce good crystals of both graphite and diamond.

G. R. Hennig (Argonne National

Laboratory) served as program chairman for the 1961 meeting. The local chairman was P. L. Walker, Jr. (Pennsylvania State University), who with S. Mrozowski and M. L. Studebaker (Phillips Chemical Company) is a member of the executive committee of the American Carbon Committee. David S. Coleman (Pennsylvania State University) served as conference coordinator.

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Forthcoming Events

October

1–3. Council for Intern. Organizations of Medical Sciences, Paris, France. (CIOMS, 6 rue Franklin, Paris 16)

1–4. Process Engineers, annual, Vienna, Austria. (Osterreichischer Intenieur- und Architektenverein, Eschenbachgasse 9, Vienna 1)

1–5. Electrochemical Soc., Detroit, Mich. (Electrochemical Soc., 1860 Broadway, New York 23)

1–7. International Special Committee on Radio Interference, plenary session, Philadelphia, Pa. (S. D. Hoffman, American Standards Assoc., 10 E. 40 St., New York 16)

1–8. International Congr. of Industrial Chemistry, 33rd, Bordeaux, France. (Société de Chimie Industrielle, 28 rue Saint-Dominique, Paris 7, France)

2–4. Communications Symp., 7th natl., Utica, N.Y. (R. K. Walker, 34 Bolton Rd., New Hartford, N.Y.)

2–7. Climatic Change, symp., Rome, Italy. (UNESCO, Place de Fontenoy, Paris 7, France)

2–7. International Astronautical Federation, 12th congr., Washington, D.C. (American Rocket Soc., 500 Fifth Ave., New York 36)

2–7. Inter-Regional Leprosy Conf., Istanbul, Turkey. (WHO, Regional Office for Europe and Regional Office for the Eastern Mediterranean, 8 Scherfigsvej, Copenhagen Ø, Denmark)

2–11. International Council for the Exploration of the Sea, 49th annual, Copenhagen, Denmark. (Charlottenlund Slot, Charlottenlund, Denmark)

3–5. Physics and Nondestructive Testing, symp., Argonne, Ill. (W. J. McGonnagle, Argonne Natl. Laboratory, 9700 S. Cass Ave., Argonne)

3–8. Aerosol Congr., 3rd intern., Lucerne, Switzerland. (Federation of European Aerosol Assocs., Waisenhaustrasse 2, Zurich, Switzerland)

4–10. Latin American Congr. of Electroencephalography, 5th, Mexico, D.F. (J. Hernandez Paniche, Instituto Mexicano de Seguro Social, Hospital La Raza, Mexico, D.F.)

4–10. Latin American Congr. of Neurosurgery, 9th, Mexico, D.F. (J. H. Mateos, Tonalá No. 15, Mexico 7, D.F.)

6–7. American Medical Writers' Assoc., New York, N.Y. (S. O. Waife, P.O. Box 1796, Indianapolis 6, Ind.)

6–8. Therapeutics, 7th intern. congr., Geneva, Switzerland. (P. Rentchnick, Case Postale 229, Geneva 2)

8–10. Zooplankton Production, symp., Copenhagan, Denmark. (J. H. Frazer, Marine Laboratory, P.O. Box 101, Victoria Rd., Aberdeen, Scotland)

8–11. Society of American Foresters, Minneapolis, Minn. (H. Clepper, SAF, 425 Mills Bldg., Washington 6)

8–13. American Acad. of Ophthalmology and Otolaryngology, Chicago, Ill. (W. L. Benedict, 15 Second St., SW, Rochester, Minn.)

9–11. National Electronics Conference and Exhibition, 17th annual, Chicago, Ill. (NEC, 228 North La Salle St., Chicago 1, Ill.)

9–12. Instrument Symp. and Research Equipment Exhibit, 11th annual, Bethesda, Md. (J. B. Davis, Natl. Institutes of Health, Bethesda 14)

9–12. Water Pollution Control Federation, 34th annual, Milwaukee, Wis. (R. E. Fuhrman, 4435 Wisconsin Ave., NW, Washington 16)

9–13. American Rocket Soc., space flight meeting, New York, N.Y. (ARS, 500 Fifth Ave., New York 36)

9–13. Luminescence of Inorganic and Organic Systems, intern. conf., New York, N.Y. (Miss G. M. Spruch, New York Univ., Washington Sq., New York 3)

10–12. Nuclear Reactor Chemistry, 2nd conf., and Analytical Chemistry in Nu-