News and Notes

Seventh Annual Calorimetry Conference

RECENT developments and modifications in precision calorimetric equipment and techniques were the subjects of discussion at the seventh Annual Calorimetry Conference, held at the National Bureau of Standards on Sept. 20, 1952. More than one hundred calorimetrists attended. The program, arranged by Guy Waddington (Bureau of Mines, Bartlesville, Okla.), under the chairmanship of D. R. Stull (Dow Chemical Company), featured a number of individual reports and four round-table discussions in which the entire membership participated.

After a brief welcoming address by A. V. Astin, director of the National Bureau of Standards, who pointed out the bureau's varied interests in the development and application of calorimetric techniques, Warren DeSorbo (General Electric Company) discussed recent low-temperature calorimetric investigations on some of the elements of Groups V and VI of the periodic table. This work has shown that the ordinary Debye theory of specific heats does not give a suitable extrapolation to 0° K for the heat capacities and entropies of monatomic solid elements having one- or two-dimensional crystal lattices. The effects of particle size and lattice imperfections on calorimetric determinations of entropy were also discussed.

Working with the van't Hoff equation for the lowering of the freezing point, H. L. Finke (Bureau of Mines) has derived an expression relating the change in equilibrium temperature to the fraction melted in cases where solid solutions interfere. A calorimetric study of the melting point curve can then be used to evaluate the concentration of impurity, the triple point of the solution and the pure material, and the distribution coefficient of the solid-soluble impurity between the solid and liquid phases.

Thin-walled, sealed glass bulbs are commonly used in the determination of heats of combustion of volatile organic compounds in an oxygen bomb. Premature breakage of the bulbs, or violent explosion of the bulb during the burning process, makes many determinations unsuccessful. To cut down the number of rejected experiments, G. S. Parks and K. E. Manchester (Stanford University) have developed a sample container consisting of a cylindrical platinum crucible, which is closed with a tightly fitted polythene cover about 1 mm thick. Errors may, however, be introduced by sorption of impurities from the air or solution of the sample in the polythene. E. F. G. Herrington (National Chemical Laboratory, London) described work on the determination of the heats of combustion of some pyridine bases by means of a bomb calorimeter. He reports excellent results with sealed glass bulbs and the iron wire firing method. In a third paper on bomb calorimetry, Ward N. Hubbard (Bureau of Mines, Bartlesville) described the rotating combustion bomb, which is suitable for use in combustion reactions when it is advisable to add a large amount of liquid to the bomb to direct the course of the reaction toward desired end products. The precision of the results has been very satisfactory for a series of sulfur-containing compounds.

J. S. Dugdale (National Research Council of Canada) described some calorimetric measurements whereby thermodynamic properties of adsorbed gases may be obtained by using one-component, or "adsorption," thermodynamics. Such simple systems as argon or nitrogen adsorbed on rutile have been studied to enable one to compare the experimental results with those deduced on the basis of a theoretical model.

Joseph F. Masi described recent improvements in the flow calorimeter used at the National Bureau of Standards for measuring heat capacities of gases. Heat capacity measurements have recently been completed on perfluoro-ethane, -propane, and -cyclobutane at a number of different temperatures at several pressures.

The round-table discussion on the presentation of calorimetric data in journals, led by G. B. Guthrie, Jr. (Bureau of Mines), and Donald D. Wagman (National Bureau of Standards) resulted in a plea that "raw" (experimental), as well as "smoothed," data be published. Nearly all agreed that the present journal policy of restricting the amount of thermodynamic data presented is not satisfactory. It was pointed out that editors apparently base their decisions on the belief that more readers are interested in a particular bit of information—entropy at 25° C for instance—and that the average reader does not wish to construct his own graph from raw data to obtain the particular quantity. Since space is at a premium, the raw data are frequently omitted and only the smoothed data published.

Many feel that considerable difficulty arises from such a procedure. Discrepancies may ultimately become apparent, and the question arises as to whether they are due to smoothing or to errors in the original observations. In many cases new analytical expressions are developed that give a much better representation of the experimental data than the one that may have been used in the original smoothing. It was agreed that the small amount of additional space required to present the raw data is well worth while, particularly since microfilming methods have proved cumbersome. A. R. Ubbelohde (Queen's University, Belfast, Ireland) agreed with his American colleagues as to the theoretical desirability of publishing raw data, but he suggested that they be handled in a manner similar to that used by the Royal Society, which files them in the archives where they can be obtained when needed.

In the discussion of high temperature drop and adiabatic calorimetry, led by T. B. Douglas (NBS), problems of shielding, radiation losses, thermocouple errors, and thermal gradients were considered. The

need for an isothermal boundary on an adiabatic calorimeter was stressed by H. F. Stimson (NBS), who pointed out that with an aneroid calorimeter this condition can be realized more easily the smaller the calorimeter. Some discussion followed of "conduction" calorimeters, where temperature gradients are not eliminated but are assumed constant. Stull pointed out that, with this method, small transitions and other variations tend to be obscured, and the general limit of accuracy is about 1 per cent with such favorable samples as metals.

Many new and useful commercial products for use in low temperature calorimetry were discussed in a session led by DeSorbo. A new thermocouple of AuCo-AuAg with a temperature coefficient about twice that of copper-constantan was described by DeSorbo. This couple is useful down to liquid helium temperatures.

Electronic thermoregulators were featured in a session led by D. C. Ginnings (NBS). F. A. Ransom described a "time-modulated" amplifier that has been used in several electronic regulators at the National Bureau of Standards. This type of amplifier gives effectively a continuous change in power although it uses the customary on-off relay. E. V. Larson (Minneapolis-Honeywell Regulator Company) presented details of a thermoregulator used to control an oil bath to a precision of 0.002° at temperatures of 50°–125°.

On the day preceding the conference a tour was made of the thermodynamics and thermochemical laboratories of the National Bureau of Standards, and nearly all types of calorimeters mentioned at the conference were demonstrated to the visiting calorimetrists. At the business session held after the group luncheon, the conference voted to set up a board of directors consisting of the chairman-elect, two directors elected each year, the chairman, and the two most recent ex-chairman. Edward J. Prosen (NBS) was chosen chairman-elect, and Edgar F. Westrum, Jr. (University of Michigan), and Warren DeSorbo were elected directors. Guy Waddington, present chairman-elect, succeeds D. R. Stull as chairman for 1953.

GUY WADDINGTON
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Scientists in the News

Jack Harold Upton Brown, formerly of the University of North Carolina, has been appointed associate professor of physiology at Emory University.

Dean Burk, of the National Cancer Institute, has won the 1953 Hillebrand Award of the American Chemical Society's Washington Section, for outstanding research on photosynthesis and the biochemistry of cancer.

John Cohen, formerly of Birkbeck College, London, has been appointed to the chair of psychology at the University of Manchester, vacant since 1951, when **T. H. Pear,** its occupant for 32 years, retired. Dr. Cohen has occupied the chair of psychology at the Hebrew University in Jerusalem and has been active in the World Federation for Mental Health.

Ambrose R. Chantler has retired after 34 years with the Du Pont Company. Mr. Chantler has been particularly active throughout his career in the development of vat colors and in expanding their use in the printing and finishing industries.

John W. Davis has been awarded the recently established New York Academy Plaque in recognition of his pre-eminent services to the New York Academy of Medicine.

N. A. de Bruyne, managing director of Aero Research Ltd., one of the Ciba family of chemical enterprises, and pioneer in the development of an adhesive for the rivetless joining of primary structures in aircraft, is visiting the U. S. during January and February, to fill invitations to speak before engineering societies, universities, the U. S. Air Force and Navy, and aircraft companies.

John W. Evans, Jr., has been made superintendent of the Air Force Geophysical Research Directorate Upper Air Research Observatory, Cloudcroft, N. M. Since 1946, he has been assistant superintendent of the High Altitude Observatory of the Harvard University and University of Colorado stations at Boulder and Climax. Dr. Evans will supervise the solar research programs at Sacramento Peak operated by Cornell and Harvard universities. In his new position he will continue in close touch with the coronagraphic research program carried on jointly by the High Altitude Observatory and the Upper Air Research Observatory.

Jess L. Fults has been appointed head of the Department of Botany and Plant Pathology, Colorado A & M College, Fort Collins, to succeed **L. W. Durrell,** who will retire in June.

Jesse Gibson, of Wilmington, one of the founders of the wood naval stores industry and a veteran of 37 years' service with Hercules Powder Company, retired on Dec. 31.

G. W. Harris has been appointed to the Fitzmary chair of physiology at the Institute of Psychiatry, University of London.

G. Truman Hunter has been appointed technical specialist in the Applied Science Department at International Business Machines Corporation. In his new post Dr. Hunter will work with the IBM Department of Education in a program designed to provide members of the organization with information concerning the company's increasing use of electronics in its products.

Jerome D. Luntz, former executive editor of *Nucleonics,* was made editor on Jan. 1, succeeding **Keith Henney,** who has become editorial director.

Donald Baxter MacMillan has received the National

Geographic Society's Hubbard Gold Medal for outstanding service in arctic exploration. The medal is the 15th such award given since the first was presented to Robert E. Peary in 1906.

Dale Scholz has been appointed medical director of the Heyden Chemical Corporation. Dr. Scholz formerly was associated with Armour Laboratories as regional medical director in the New York area.

Maurice S. Shahan, of the Bureau of Animal Industry, ARA, has been named director of the U. S. Department of Agriculture's Animal Disease Research Institute to be located on Plum Island in Long Island Sound. The institute will conduct research on foot-and-mouth disease and other animal diseases considered dangerous to the livestock industry.

Horace L. Sipple has been made executive secretary of the Nutrition Foundation, succeeding the late **Ole Salthe.** Since 1945 Dr. Sipple has served as director of research and education for the Evaporated Milk Association.

Robert I. Watson, assistant dean of the Washington University Medical School, has been appointed professor of psychology and director of the graduate training program in clinical psychology at Northwestern University.

John M. Zeigler, of Fort Pierce, Fla., has received the fellowship in Petroleum Exploration Sciences, recently established at Harvard University by the Socony-Vacuum Oil Co. A graduate of the University of Colorado, Mr. Zeigler interrupted his graduate studies to participate in a geological expedition to Afghanistan.

Education

The **American Council on Education** has established a commission to make a comprehensive study of the education of women, to be financed by a three-year $50,000 grant from the Ellis L. Phillips Foundation, of New York. Althea K. Hottel, dean of women at the University of Pennsylvania, has been granted leave of absence to serve as project director. The study will include a "consideration of women as effective individuals, as members of families, as gainfully employed workers, as participants in civic life, and as creators and perpetuators of values."

Hahnemann Medical College and Hospital has completed a teaching affiliation with the **Guthrie Clinic–Robert Packer Hospital,** Sayre, Pa. William C. Beck, of the clinic staff, will act as educational director of the teaching program.

Beginning Feb. 2, **New York University** will offer courses in International Education and the Program of International Schools and in the Progressive Education Movement in the United States since 1900. The new courses will be under the direction of Frederick L. Redefer.

Western Reserve University and **University Hospitals,** affiliated medical center, have formed the Joint Executive Agency, which will make joint administrative decisions in areas common to the two institutions. Four top officers of the institutions—John C. Virden, John S. Millis, Stanley Ferguson, and Joseph T. Wearn—make up the group.

Grants and Fellowships

Fifty **General Electric Science Fellowships** at Case Institute of Technology will be awarded to high school physics teachers in Illinois, Indiana, Iowa, Kentucky, Michigan, Missouri, Ohio, western Pennsylvania, Tennessee, West Virginia, and Wisconsin. Now in its seventh year, the program will be offered June 22–July 31. Purdue University will train mathematics teachers from the same area, and Rensselaer Polytechnic and Union College will offer fellowships to teachers from 12 other states and the District of Columbia.

The **Du Pont Company** has allocated $600,000 to provide additional fellowships or grants to 32 institutions and to continue its previous programs in the training of students majoring in chemistry and in improving the teaching of chemistry to undergraduates. Under the older program, the company has renewed its awards of scientific fellowships, granting 38 in chemistry, 15 in chemical engineering, five each in physics and mechanical engineering, three in metallurgy, two in biochemistry, and one in biology. It is also continuing its grants-in-aid of $15,000 each to ten universities and $10,000 each to five universities. The new grants of $2500 have been awarded to the chemistry departments of 19 colleges, all private institutions.

Humble Oil and Refining Company has established a new fellowship in geology at the University of California (Los Angeles). Other geology fellowships are given at the University of Texas, the University of Oklahoma, and Louisiana State University. The student is paid $1600, and in addition $500 is provided each year to cover field work during the summer. Selection of recipients is entirely in the hands of institution staffs.

Muscular Dystrophy Associations of America, Inc., have approved three new grants-in-aid—at the University of Arkansas, for William K. Jordan; at the University of Utah, for Max M. Wintrobe; and at the University of Washington, for H. Stanley Bennett. This brings to a total of $287,547 the funds approved for grants-in-aid by the organization during the two and one-half years of its existence.

Information concerning **Tau Beta Pi Fellowships** for graduate study in engineering during 1953–54 may be obtained from Paul H. Robbins, director of fellowships, 1121 15th St., N.W., Washington 5, D. C. Each fellowship amounts to $1200, and applications must be filed by *Feb. 28.* This year's awards will include the new Louis Alli Co. fellowship, the first in a new program of industrially sponsored fellowships.

In the Laboratories

California Institute of Technology will soon begin construction of the $1,500,000 **Norman W. Church Laboratory of Chemical Biology,** made possible by a bequest and gifts from the late Mr. Church. In addition, Mr. Church left funds for research in chemical biology. The new laboratory will be joined to the present Crellin Laboratory of Chemistry and eventually to the Kerckhoff Laboratories of the Biological Sciences.

Los Alamos Scientific Laboratory has announced the addition of 23 new employees to its staff: in the GMX Division, William P. Aiello, James R. Guadagno, Frank J. Miller, William A. Spencer, Jr., and Ruth M. Gilmer; in the Chemistry and Metallurgy Division, Horace R. Baxman, Don T. Cromer, Robert W. Keil, Wallace L. Drumhiller, and John A. O'Rourke; in the Weapons Division, James J. Bramble, Daniel E. Bannerman, and David F. Woods. LeRoy E. Ellinwood, Jr., and Robert N. Mitchell have joined the Health Division, and Robert D. Glauz and David Southard Carter, the Theoretical Physics Division. Marvin M. Hoffman, Joseph W. Mather, Arthur J. Schelberg, and J. Karl Theobald have been added to the Test Division; and Theos J. Thompson and John L. Yarnell, to the Experimental Physics Division.

McNeil Laboratories has appointed Roman Szymanski, of the University of Buffalo, to the Pharmaceutical Development Department.

The **Department of the Navy** will build a laboratory at Woods Hole, Mass., for oceanographic research, primarily of vital interest to the Office of Naval Research and the Bureau of Ships. A three-story concrete and brick building, with 26,000 square feet of floor space, will be erected immediately adjacent to the Woods Hole Oceanographic Institution.

Meetings and Elections

The **Association of Geology Teachers,** meeting in Boston, elected the following officers: president, David M. Delo; secretary, Ralph Digman; vice president, Joe W. Peoples; treasurer, Gerald Friedman; editor, William Read. The association established an annual award, to be known as the Neil A. Miner Award in memory of the late professor of geology at Cornell College. A medal will be given "for eminence in stimulating interest in the earth sciences."

The **Carolina Geological Society** held its thirteenth annual meeting in Gatlinburg, Tenn., Nov. 1–2, with 250 members and guests present. The society, founded in 1937, now includes members from Virginia, Tennessee, Georgia, and surrounding states. Its meetings are devoted to the examination of geologic features and processes in the field. This year's meeting consisted of an examination of the rocks and structural features of a part of the Great Smoky Mountains National Park. The program was organized and directed by Philip B. King, assisted by Jarvis B. Hadley and Robert B. Neuman, of the U. S. Geological Survey, who prepared a *Guide Book of Excursions in the Great Smoky Mountains* for the occasion. A *Generalized Preliminary Geologic Map of the Great Smoky Mountains and Vicinity* and a *Regional Map of Vicinity of the Great Smoky Mountains* accompanied the guidebook. On the first day, the group, traveling in a 60-car motorcade, examined a section of the Chilhowee group in Little River Gap, an outcrop of the Great Smoky fault near Townsend, Tenn., metamorphic rocks in the Ocoee Foothill Sequence of the Great Smokies, and various physiographic features of the mountains. New officers for 1953 elected at the annual business meeting are: president, Sam Broadhurst; vice president, Virgil Mann; chairman of the Membership Committee, Otis Stewart.

The **Cotton Research Clinic,** sponsored by the National Cotton Council, will hold a three-day session, Feb. 18–20, at the General Oglethorpe Hotel, Savannah, Ga. Fifteen textile scientists, including two from Great Britain—William A. Hunter and Geoffrey Dakin—will speak. Chairmen for the various sessions will be Bernard R. Koenig, Alfred H. Randall, Joe L. Delany, Leonard Smith, and J. Hal Daughdrill. M. Earl Heard, of West Point Manufacturing Co., is chairman of the Clinic Advisory Committee.

New officers of the **Florida Academy of Science** are: president, C. S. Nielsen; president-elect, S. de R. Diettrich; secretary and treasurer, R. A. Edwards; editor, H. K. Wallace; assistant editor, J. C. Dickinson, Jr.

The eighth **Pacific Science Congress** will be held in Manila Nov. 16–28, under the auspices of the Republic of the Philippines and the National Research Council of the Philippines. The fourth Far Eastern Prehistoric Congress will be held at the same time. Vidal A. Tan is president of the congress and chairman of the Organizing Committee. For a preliminary announcement and full information, address Harold J. Coolidge, executive director, Pacific Science Board, National Research Council, 2101 Constitution Ave., N.W., Washington, D. C.

At its annual meeting in St. Louis, the **Society of the Sigma Xi** elected L. J. Stadler, of the Department of Botany of the University of Missouri, president. Farrington Daniels, of the University of Wisconsin; Fred Rossini, of Carnegie Institute of Technology; and George Avery, of Brooklyn Botanical Garden, were elected to the national committee.

The annual **United Nations Institute,** jointly sponsored by the UN Department of Public Information and New York University's School of Education, will be held Feb. 12–14 at the university and at United Nations headquarters. An evaluation of the achievements of the United Nations and its specialized agencies will be the main subject of discussion. Frederick L. Redefer is coordinator.