News and Notes

Sixth Calorimetry Conference

THE Pupin Physics Laboratory of Columbia University was the meeting place of the Sixth Calorimetry Conference on Sept. 5. The morning and afternoon sessions were attended by approximately 60 individuals representing academic, industrial, and governmental laboratories in North America and Europe. Greetings from the Columbia faculty were presented by H. A. Boorse, who also described some low temperature work on the heat capacity of niobium in both the normal and superconducting states recently completed the Pupin Laboratory.

Donald H. Andrews, in discussing the future of calorimetry, pointed out that, as the concept of entropy becomes more widespread, it is penetrating other fields not involving heat. This has led to the development of the new field of cybernetics which, in its turn, will have an important bearing on calorimetry. Premelting heat capacities are destined to become a powerful tool in purity tests. Accurate liquid heat capacities will furnish the base upon which an adequate theory of the liquid state can be built. More accurate gaseous heat capacity data will assist greatly in mapping the potential field of atoms.

Joseph F. Masi, of the National Bureau of Standards, discussed the adiabatic constant flow calorimetry of gases and remarked that gaseous heat capacities measured with an accuracy of 0.1% are more reliable than those calculated from molecular constants, and can be used to pin down molecular structure and frequency assignments. The accuracy of flow calorimeters was treated by Guy Waddington, of the U. S. Bureau of Mines, who described the Callendar and Barnes type of flow calorimeter in use at the Bartlesville, Oklahoma, laboratory.

At previous meetings of the Calorimetry Conference, three substances—normal heptane, benzoic acid, and synthetic sapphire—were selected as standards for the intercomparison of precision heat capacity calorimeters. The National Bureau of Standards undertook the task of preparation and distribution of the standards, as well as evaluation of the data obtained with them. George T. Furukawa reported on the measurement of heat capacities of these materials and compared them with available data. The benzoic acid has a purity (determined from its freezing point curve) of 99.997 mole %, and the normal heptane purity is 99.999 mole %. Since benzoic acid is corrosive at the higher temperatures, it is not a suitable standard above 350° K. Measurements on the synthetic sapphire have been made up to 900° C. These materials will be issued without charge by NBS to any reputable laboratory agreeing to report the results of their measurements in full to the bureau. Requests for samples should be made to G. T. Furukawa, National Bureau of Standards, Washington 25, D. C.

G. R. Grove read a paper by J. R. Parks describing a group effort of the Mound Laboratory which dealt with bath control, thermal noise, and stability of a twin bridge calorimeter. This work is a part of their calorimetric research program centered around the problem of determining those factors that limit the precise determination of a small amount of power, of the order of 0.01 cal/hr. A detailed mathematical study of bath control from the standpoint of servomechanism theory disclosed that Newton's law of heating and cooling fits the data very well for the unsteady state behavior of the equipment. "Noise" in the bath was of a statistical character and paralleled closely the Langevin analysis of Brownian motion.

The thermochemistry of the alkali and alkaline earth metals in liquid ammonia was presented by L. V. Coulter, of Boston University. The heats of reaction of lithium, sodium, potassium, and cesium with dilute solutions of ammonium ion were determined in a liquid ammonia calorimeter at – 33° C. The data have permitted calculation of monovalent heats of ionization of these elements and result in values in the vicinity of 40.4 Kcal liberated per gram atom of metal. The magnetic properties of dilute metal solutions indicate that an absorption of energy should accompany dilution, presumably resulting from the uncoupling of electron spins. From differences of the heat of solution of potassium at high dilution this effect has been observed and appears to be approaching 3–4 Kcal per gram atom of metal.

E. E. McCoy, Jr., of the U. S. Waterways Experiment Station, Corps of Engineers, U. S. Army, described the practice of calorimetry in the concrete laboratory. During the setting of concrete, 70–80 cal of heat are released for each gram of Portland cement in the mixture. This causes a temperature rise which, if excessive, leads to crack development in the structure upon cooling. Methods were described for the measurement of temperature rise, thermal diffusivity, heat of hydration, and specific heat. These thermal data provide a sound factual basis for the improvement of concrete structures.

The practice of low temperature calorimetry in the Collins cryostat was related by R. S. Craig, of the University of Pittsburgh, and the low temperature heat capacity of lead sulfate was reported by George T. Armstrong. The heat capacity of lead sulfate was measured from 11° to 21° K and observed from 21° to 54° K. The entropy calculated from the new data is about 1.25 eu greater than the literature values. It was pointed out that there is a definite need for data below 50° K for substances that still have a large heat capacity at 50° K. Edgar F. Westrum, Jr., of the University of Michigan, reported on the low temperature calorimetry of thorium dioxide. This work was a joint project with Darrell W. Osborne, of the Argonne National Laboratory. The heat capacity of ThO_2 comes entirely from the lattice vibrations. By assuming that the lattice vibrations of uranium dioxide and neptu-

nium dioxide are the same as thorium dioxide, the electronic contributions to the entropy can be obtained for these oxides by subtraction.

The use of carbon-composition resistors as thermometers in low temperature calorimetry was described by Ellsworth H. Quinnell, of the Naval Research Laboratory. The need for more and better calibration standards was pointed up by Charles E. Messer, of Tufts College, who recommended that a series of high purity organic liquids be made available whose freezing points would be spaced at temperature intervals of 15°–25° over the range from 90° to 300° K. R. Mayer, of Brown Instrument Division of Minneapolis-Honeywell Regulator Co., told the group of a special thermocouple recorder the company had developed in cooperation with H. L. Johnston, of Ohio State University. The instrument was designed for the temperature range −240° to −260° C. Daniel R. Stull, of the Dow Chemical Co., described an electronic constant voltage generator which is capable of maintaining a voltage across a 100-ohm load constant within ± 0.05%. By the addition of a matching resistance equal to the load, a network is developed which causes constant power (within 0.25%) to be developed in a calorimetric heater, even though the temperature of the heater ranges from −200° to +100° C.

At the afternoon session the proposal of the Division of Physical and Inorganic Chemistry of the American Chemical Society that the Calorimetric Conference operate within the framework of the division was discussed. The group voted to abide by the decision of a committee of three—Edgar F. Westrum, Jr., Edward J. Prosen, and Guy Waddington. The group re-elected Daniel R. Stull chairman, and elected Guy Waddington vice chairman for the coming year. The group further made the vice chairman responsible for the program of the next meeting.

DANIEL R. STULL

The Dow Chemical Company
Midland, Michigan

Scientists in the News

Hugh H. Bennett has been appointed special assistant to the Secretary of Agriculture and will be succeeded by **Robert M. Salter** as chief of the Soil Conservation Service. **A. H. Moseman,** assistant chief of the Bureau of Plant Industry, Soils, and Agricultural Engineering, was appointed to fill Dr. Salter's position as chief of that bureau. In other changes at the Bureau of Plant Industry, **James H. Beattie,** horticulturist, retired after 47 years of service; **Marion C. Goldsworth,** plant pathologist, also retired last month.

Martin J. Buerger, MIT professor of mineralogy and petrography, was awarded the Arthur L. Day medal of the Geological Society of America at its annual meeting in Detroit this month. The medal is a memorial to A. L. Day and is given "in recognition of outstanding contributions in the application of chemistry and physics to the solution of geological problems."

Fred Burggraf, formerly associate director of the Highway Research Board, has been named director, to succeed the late **Roy W. Crum.** Mr. Burggraf's career has included work with the National Bureau of Standards, the Illinois Division of Highways, and the Calcium Chloride Association, and he has been associated with the highway board for 15 years.

Robert Chambers, who has been connected with New York University as research professor of biology, has accepted an invitation to serve as chief research consultant of the Dade County Cancer Institute, Cancer Cytology Center, Miami, of which J. Ernest Ayre, recently of McGill University, is director. The institute research program is affiliated with the Medical Research Foundation of Dade County, Florida. Dr. Chambers expects to spend the summer months as usual at the Marine Biological Laboratory, Woods Hole.

Carl A. Dragstedt, professor and chairman of the Department of Pharmacology at Northwestern University's Medical School, has been elected president of the Society for Experimental Biology and Medicine.

At a recent meeting of the directors of the Cenco Corporation and the Central Scientific Company, **John T. Gossett,** president of Central Scientific Company, was elected chairman of the Board of Directors of both companies, succeeding to the responsibilities of the late chairman, **E. Perry Holder.**

Ezer Griffiths, a principal scientific officer at the National Physical Laboratory, has been elected president of the General Conference, the governing body of the Institut International du Froid, at the eighth International Congress of Refrigeration, which was held in London in September.

The Zoology Department of Howard University has announced the promotion of **Louis A. Hansborough** to the rank of full professor and the appointment of **Harry Y. C. Wong** as instructor in zoology. Dr. Wong replaces **Margaret James Collins,** who recently resigned to accept a position at Florida A & M College.

William Rust Neville, Jr., professor of pharmacy, College of Pharmacy, University of Texas, has been placed on modified service beginning this fall. Following 27 years of teaching, Professor Neville's new status was mandatory at the age of 70 years.

L. B. Parsons has been made director of research and development for Lever Brothers Company. Dr. Parsons joined Lever Brothers as a research supervisor in 1939 and was assistant director of research and development when promoted to his new rank.

Linus Pauling, of Caltech, has been selected as the first recipient of the Gilbert Newton Lewis Medal of the California Section of the American Chemical Society. The award, which commemorates the late Professor Lewis of the University of California, is to be presented only to chemists who have made significant contributions to the theoretical aspects of chemistry, and is limited to residents of North America. The section

also will award its first California Section Medal to **C. H. Li,** of the University of California. This medal is to be presented annually to a scientist under 40 years of age who has made a major contribution to chemistry while a resident of one of the eleven Western states. The two awards were established by the section in celebration of its Golden Anniversary.

Walter P. Schreiber, wartime chief of medical science in the Supreme Command of the Wehrmacht, has been assigned to the Department of Global Preventive Medicine at Air Force School of Aviation Medicine, Randolf Field, Texas. A native of Berlin, Dr. Schreiber graduated as a doctor of medicine at the University of Greifswald in 1920, with postgraduate training at the Berlin Academy of Social Medicine and Hygiene. At the outbreak of World War II he was serving the Supreme Command as chief of hygiene. In 1942, he took charge of the department of medical science and was assigned as chief of the scientific department at the Military Medical Academy. In April 1945, he was made a prisoner as the Red Army rolled into Berlin. Taken to East Germany late in 1948, Dr. Schreiber was able to elude his captors and escaped to the American Zone. For the past three years the one-time German general has served as surgeon in an American DP camp.

Robert O. Shaffer, who has been an assistant to the dean of men, has been made assistant to the president of Cornell University. He was with the Cornell Guidance Center as an appraiser for 18 months before joining the office of the dean of men in February 1949.

Lucille S. Spalding, assistant professor in charge of the graduate nurse education program at Washington University School of Nursing since 1946, has been appointed director of Nursing Service in the University of North Carolina Teaching Hospital and associate professor of nursing in the Nursing School.

Elvin C. Stakman, chief of the plant pathology and botany division of the University of Minnesota and former president of the AAAS, has been named winner of the 1951 national Gamma Sigma Delta award for distinguished service to agriculture. The Minnesota scientist was selected for his outstanding research, training he has given graduate students, and his service to the U. S. and many foreign countries as an adviser on agricultural problems.

Charles Scotte Stephenson (USN, Ret.) has been named ninth recipient of the Gorgas Medal presented annually by Wyeth Incorporated to a doctor in the armed forces who has distinguished himself by his contribution to military medicine. The presentation was made at the annual dinner meeting of the Association of Military Surgeons of the United States. The award was established by the Philadelphia pharmaceutical concern in 1942 in memory of Surgeon General William Crawford Gorgas.

W. H. Thorpe, of Cambridge University, will give the Prather Lectures in Biology at Harvard on the theme "Instinct and Learning in the Organization of Animal Behavior." Lectures will be held in the Biological Laboratories on Nov. 30 and on Dec. 3, 5, 7, and 10.

Deane R. White, research director, Technical Division, du Pont Photo Products Department, Parlin, N. J., has been named chairman of Sectional Committee on Motion Pictures PH22 of the American Standards Association. He replaces former chairman **J. A. Maurer,** who has resigned to devote more time to development work within his own company. **Ray L. Garman,** director of research, General Precision Laboratory, Pleasantville, N. Y., has been appointed delegate to the Photographic Correlating Committee of ASA, replacing **C. R. Keith,** Bell Telephone Laboratories, who has resigned to concentrate on other laboratory activities.

Education

University of Pennsylvania medical students are now being trained under a comprehensive new program of teaching, training, and actual field experience. The plan, which is mandatory, requires the first-year student to assume gradually increasing responsibility for the medical and related problems of a family assigned to him, which he follows in clinic, hospital, and home for four years. Other features are participation in public health services and the requirement that all students take up some type of medical work during the summer between the third and fourth years. Greatest emphasis is put upon preventive medicine.

The **Rancho Santa Ana Botanic Garden,** of Anaheim, Calif., has become affiliated with the Associated Colleges at Claremont. The herbarium and portions of the botanical library of Pomona College will be combined with, and housed in, the administration building of the Garden, and members of the Garden staff will offer courses in the Claremont Graduate School. The Garden has been laid out on an 80-acre tract near Claremont. The new mailing address is 1500 N. College Ave., Claremont.

Saint Louis University, the first institution of higher learning in the world to establish a Department of Geophysics, has had its curriculum in geophysical engineering accredited by the Engineer's Council for Professional Development, the intersociety, intraprofessional body that acts as the agent of all the engineering societies of the U. S. and Canada.

Among guest lecturers at the **University of Texas** Medical Branch, Galveston, during November, will be H. Munro Fox, of the University of London, president of the International Union of Biological Sciences, and Kenneth J. Franklin, professor of physiology, University of London, and visiting professor at the University of Illinois. The Medical Branch will offer a pediatric refresher course Nov. 26–30, under the direction of Arild Hansen. Guest speakers will include Charles Chapple, Russell J. Blattner, Gilbert B. Forbes, and S. Howell Wright.

In the Laboratories

Brookhaven National Laboratory has begun the construction of the second unit of its biology laboratory building, which will make available additional research facilities using radiation and radioisotopes in the study of life processes. The new laboratory, scheduled for completion next fall, will house seven standard laboratories, one each for animal physiology, biochemistry, and biophysics, and others for special activities.

The Public Health Service Division of Industrial Hygiene has been renamed the **Division of Occupational Health** and has broadened its activities to include investigations of health hazards in the production, processing, and handling of radioactive materials and radiation-producing processes. The division is preparing to make additional intensive studies of the health requirements of special occupational groups and all problems affecting the health of workers. The program is under the direction of Seward E. Miller, recently appointed division chief.

An **Environment Laboratory** was opened on Nov. 1 in Cleveland, Ohio, by the American Society of Heating and Ventilating Engineers at its Euclid Avenue Research Laboratory. Research will be conducted on heat transfer and distribution in panel heating and cooling systems, comfort conditions, and controls.

The **M. Theodore Kearney Foundation of Soil Science** has been established at the University of California in its College of Agriculture. Through funds bequeathed by Mr. Kearney, the foundation will study soil-water-plant relations through basic research, with particular reference to arid and semiarid farming regions.

Lederle Laboratories has made a research grant of $8,000 to the University of Pennsylvania for the investigation of side effects recently observed in patients to whom new antibiotic drugs, including aureomycin, chloromycetin, and terramycin, have been administered. The funds will be utilized in the Department of Dermatology and Syphilology under the direction of Albert M. Kligman, mycologist.

A new international company, **Minnesota Mining and Manufacturing International Company,** has named Robert W. Young president. He had been president of the Durex companies, through which MM & M formerly engaged in foreign commerce. The new company will operate sales forces and production plants in Europe and South America.

Monsanto Chemical Company has reactivated a program that will permit university and college faculty members in chemical engineering to receive a full year's on-the-job training in industry. This is the reverse of the Monsanto plan for leaves of absence for academic purposes. George M. Machwart, professor of chemical engineering at Michigan College of Mining and Technology, is the first professor selected in the continuation of the program. He will work in the Phosphate Division, Anniston, Ala.

Phillips Petroleum Company has won the 1951 Award for Chemical Engineering Achievement, given by *Chemical Engineering*. Presentation will take place on Nov. 28 during the Chemical Exposition in New York. Commercial development since 1948 of high-abrasion carbon black and major contributions to the successful development of cold rubber won the award for Phillips.

Sterling-Winthrop Research Institute has appointed Wilfred J. Baranick and Edwin L. Smith as research assistants in chemistry, and Theodore G. Brown, Jr., as research assistant in pharmacology.

NSF Program

The $3,500,000 appropriation for the **National Science Foundation** in the Supplementary Appropriation Act of 1952 will enable the foundation to start immediately on its two major operating programs: support of basic research in the sciences and training of scientific manpower. The reduction in the appropriation from the budget request of $14,000,000 has required material scaling down of the program originally presented to the Congress. Approximately $1,500,000 of the available funds will be allocated for the support of basic research in biology, medicine, mathematics, the physical sciences, and engineering; about $1,350,000 for the training of scientific manpower; and the balance for development of a national policy for the promotion of basic research and education in the sciences, for the wider dissemination of scientific information, and for other services, including support of the National Scientific Register, now established in the Office of Education.

Proposals for research grants will be given preliminary evaluation and review by the foundation's three research divisions: the Division of Biological Sciences under John Field, the Division of Mathematical, Physical, and Engineering Sciences under Paul Klopsteg, and the Division of Medical Research under John Field (acting). Each division will be assisted in evaluation and review by a Divisional Committee and by expert consultants. Grants will be approved by the director and the 24-member National Science Board.

The graduate fellowship program will be directed by the Division of Scientific Personnel and Education under Harry C. Kelly. Selection of fellows will be made solely on the basis of ability and will be carried on by the National Research Council. Applications will be considered from students in the natural sciences who have or will have completed their undergraduate work in any accredited college or university. Fellows may attend any accredited nonprofit institution offering graduate studies in science which approves their application for admission. Announcements regarding the National Science Foundation Graduate Fellowships will be distributed within the next week or two. These will describe stipends and allowances in detail. Inquiries and applications should be addressed to the Fellowship Office, National Research Council, Washington 25, D. C.