
Meetings

Calorimetry Conference

OVER 100 calorimetrists from the United States, Canada, and Europe gathered in Yale University's Sterling Chemistry Laboratory September 10-12 for the 14th annual Calorimetry Conference. Under the chairmanship of David White (Ohio State University) they heard and discussed 30 technical papers covering nearly all phases of calorimetry—heat capacity measurements at temperatures as low as 0.1°K and as high as 1400°K, precision reaction and bomb calorimetry, solution calorimetry, and determinations of stored energy in solids.

Most of the papers were concerned with topics not even mentioned at early Calorimetry Conferences, and many reported on developments of the past few months. Nevertheless, as calorimetric techniques are extended to more extreme conditions, the problems that led to the founding of the Conference remain under new guises. The need for better temperature measuring devices—first item on the agenda of the first Calorimetry Conference—was emphasized again in seven papers that reported on research at temperatures below 11°K. No device comparable to the platinum resistance thermometer now in general use for measurements above 11°K is yet available for the very low temperatures at which some of the most important calorimetric research is now being done. However, the Conference heard enthusiastic reports on a device that may extend precision thermometry to at least 1°K—the germanium resistance thermometer developed in the Bell Telephone Laboratories. Bell furnished twelve of these thermometers for a Calorimetry Conference test program involving eleven different laboratories. Three papers at the Yale Conference described the first results of this program, which are so promising that the Conference plans to seek a manufacturer of additional units for a more extensive testing program.

Feature addresses were given by George S. Parks (Stanford University) and Lars Onsager (Yale University). At the annual banquet, Parks delivered the Hugh M. Huffman Memorial Lecture, "Some Remarks on the Thermodynamic Properties of Organic Compounds". Parks and one of his first graduate students, the late Dr. Huffman, started the first systematic calorimetric studies of organic compounds at Stanford over 30 years ago. Enlivening his remarks with many personal anecdotes, Parks traced the history of thermodynamic research on organic substances and the role improvement of calorimetric methods has played in the remarkable progress made in the last three decades.

Professor Onsager gave the principal lecture of the

technical sessions, speaking on "Cooperative Phenomena", a field in which he has developed much of the basic theory. Many papers at each Calorimetry Conference describe experimental studies of cooperative phenomena, and Onsager outlined the approaches one may take in seeking a theoretical understanding of such effects. Admitting that three-dimensional treatments of critical phenomena by statistical mechanics seem hopelessly complex, he dwelt mostly on more simplified treatments that give results.

In addition to the objective of promoting better calorimetric research, the Conference also is concerned with publication policies relating to calorimetric and thermodynamic articles. A "Resolution Regarding Published Calorimetric Data" adopted by the 8th Conference in 1953 has proved to be valuable to editors and authors alike in establishing consistent policies based on the opinions of experts in the field. Because calorimetric research has expanded into many areas not covered by the 1953 resolution, the 14th Conference established a committee headed by J. P. McCullough to consider revising and extending the earlier recommendations.

Edgar F. Westrum, Jr. (University of Michigan) and Stig Sunner (University of Lund, Sweden) presented a proposal of the IUPAC Commission on Thermodynamics for a joint meeting in 1961 of the Calorimetry Conference and the Subcommissions on Experimental Thermochemistry and Experimental Thermodynamics. The Conference unanimously approved the proposal for a joint meeting to be held either before or after the biennial IUPAC meeting that year in Montreal, Canada. Plans will begin immediately for what should be one of the most important international conferences ever held in the field of calorimetry.

At the annual election, the following members were named to Conference offices: chairman, J. P. McCullough (Petroleum Thermodynamics Laboratory, Bureau of Mines); chairman-elect, D. W. Osborne (Argonne National Laboratory); directors, 1959-62, N. E. Phillips (University of California at Berkeley) and J. M. Sturtevant (Yale University). Other officers include: secretary-treasurer, C. E. Mosser (Tufts University), and directors, David White, D. H. Andrews (Johns Hopkins University), J. E. Kunzler (Bell Telephone Laboratories), and J. A. Morrison (National Research Council, Ottawa).

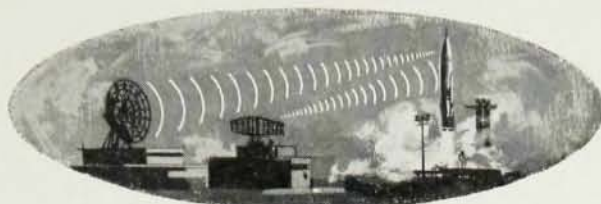
To attract papers that report primarily current developments in calorimetry and related fields the Conference has an established policy of not seeking publication of the papers presented before it. Most of the papers eventually will appear in the periodical literature, but since there may be a delay of several years in some instances the papers presented at the Conference are listed below:

1. Welcome and Introduction (David White, Conference chairman)
2. The Heat Capacity of Some Metals at Temperatures Below 1°K (Norman E. Phillips, University of California at Berkeley)
3. Specific Heat of Na, Co, and Mn below 1°K (R. Gaumer and C. V. Heer, Ohio State University)

Interested in Systems Engineering?



There are systems



...and systems

*...and TOTAL systems
in which the big bird and support
equipment may rank only
as a component.*

This difference between systems can make
a big difference in your career

IF YOU ARE QUALIFIED and interested in contributing to programs of "total" scope, it will be of value to you to investigate current opportunities with General Electric's DEFENSE SYSTEMS DEPT., whose work lies primarily in providing *total* solutions to large scale defense problems of the next 5, 10 and 20 years.

The work here lies almost entirely in the areas of systems engineering and systems management.

Inquire about these positions:

Guidance Equation Engineers	Systems Test Evaluation Engineers
Systems Logistics Engineers	Engineering Psychologists
Electronic Systems	Radar Equipment Engineers
Management Engineers	Weapons Analysis Engineers
Operations Analysis Engineers	Weapons Systems Integration Engineers
Systems Program Engineers	Engineering Writers
Data Processing Engineers	

Forward your confidential resume at an early date.

Whereas the growth potential is evident — both for DSD and the engineers who join us — the positions we fill during these early months will carry significant "ground-floor" benefits.

Write fully to Mr. E. A. Smith, Room 11-PT.



DSD

DEFENSE SYSTEMS DEPARTMENT

A Department of the Defense Electronics Division

GENERAL  ELECTRIC

300 South Geddes Street, Syracuse, N. Y.

ENGINEERS...PHYSICISTS...

ADVANCE WITH RCA

ELECTRON TUBE DESIGN
AND DEVELOPMENT

IN LANCASTER, PENNSYLVANIA

PHYSICISTS

Specialists in the fields of solid-state (high-temperature phenomena), instrumental analysis, radio-active tracing techniques, electron optics, cathode emission phenomena and vacuum technology. BS or PhD degree.

PHYSICAL CHEMISTS

Laboratory development of high temperature adhesives, improved techniques of preparing photo-sensitive binders, analysis of thin metallic film, purification of metals and chemicals. BS or MS degree.

ELECTRICAL ENGINEERS

Design, Development and Application of electron tubes and test equipment. Special emphasis on circuitry and tube fabrication processes. BS or MS degree. Experience on UHF or VHF communications equipment and components desirable.

LIVE AND WORK IN BEAUTIFUL LANCASTER COUNTY...

With its suburban atmosphere, excellent schools, recreation and transportation. Just a short drive from metropolitan Philadelphia.

INVESTIGATE THESE OPPORTUNITIES

PHONE OR WRITE:
MR. E. F. STEVENS
Dept. G-3K
EXpress 3-3661



**RADIO CORPORATION
of AMERICA**

ELECTRON TUBE DIVISION, LANCASTER, PA.

4. Heat Capacities of Some Ni-Al Alloys in the Liquid-Helium Temperature Range (R. S. Craig and G. Galli, University of Pittsburgh)
5. Heat Capacity of Ice between 2° and 30°K (P. Flubacher, A. J. Leadbetter, and J. A. Morrison (Division of Pure Chemistry, National Research Council, Ottawa)
6. Experimental Properties of Liquid He³ below 1°K (H. A. Fairbank and D. M. Lee, Yale University)
7. The Specific Heats of Li⁶ and Li⁷ from 20° to 300°K (D. L. Martin, Division of Pure Physics, National Research Council, Ottawa)
8. The Heat Capacity and Thermodynamic Functions of β -Uranium Deuteride from 5° to 350°K (B. M. Abraham, Argonne National Laboratory)
9. Cooperative Phenomena (L. Onsager, Yale University)
10. Low-Temperature Heat Capacities of Adamantane and Hexamethylenetetramine (Shu-Sing Chang and Edgar F. Westrum, Jr., University of Michigan)
11. Report on Studies of Bell Telephone Laboratories Germanium Thermometers (David White, Ohio State University)
12. Calibration of Germanium Resistance Thermometers (John H. Burns, Edgar F. Westrum, Jr., and Darrell W. Osborne, Chemistry Division, Argonne National Laboratory)
13. Measurements with a Germanium Thermometer (Peter Lindemfeld, Rutgers University)
14. Precision Thermometer System for the Liquid Helium Region (B. J. Sandlin and J. C. Thompson, University of Texas)
15. The Precise Measurement of Small Temperature Intervals as Related to Calorimetry and Similar Problems (Richard C. La Force and S. Frederick Ravitz, Hearst Mining Building, University of California at Berkeley)
16. Applications of Calorimetry Measurements to Glass Problems (O. L. Anderson, Bell Telephone Laboratories)
17. Calorimetric Studies of the Reaction of Fluorine with Bromine (Lawrence Stein, Chemistry Division, Argonne National Laboratory)
18. The Heat of Formation of Aqueous Sulfuric Acid from Combustion Calorimetry of Rhombic Sulfur (W. D. Good, J. L. Lacina, D. W. Scott, and J. P. McCullough, Thermodynamics Laboratory, Bureau of Mines, Bartlesville, Okla.)
19. Fluorine Bomb Calorimetry (R. L. Nuttall, Argonne National Laboratory)
20. An Automatic Combustion Calorimeter (W. E. Hatton, Thermal Laboratory, Dow Chemical Co., Midland, Mich.)
21. Heat Powder Calorimetry (Raymond H. Comyn and Ira Marcus, Diamond Ordnance Fuze Laboratories, Washington, D. C.)
22. Some Recent Applications of Tin-Solution Calorimetry (Michael B. Bever and B. W. Howlett, Massachusetts Institute of Technology)
23. Heats of Solution in Liquid Ammonia at 25° (Stuart R. Gunn and LeRoy G. Green, Chemistry Division, Lawrence Radiation Laboratory, Livermore, Calif.)
24. A Heat of Vaporization Calorimeter for Substances Exerting Vapor Pressures in the Range 100-1 mm Hg at 25°C (Stig Sunner and Ingemar Wadsö, University of Lund, Sweden)
25. A High-Temperature Heat Content Calorimeter Using Diphenyl-Ether as the Working Substance (Weston B. Kendall, University of California at Berkeley)
26. A Constant Heat Flow Calorimeter (B. W. Howlett, MIT)
27. A Noncalorimetric Method for the Determination of Specific Heats at High Temperatures (Michael Hoch and Carl A. Brunner, University of Cincinnati)
28. Stored Energy and Specific Heat Measurements Using Nuclear Reactor Heating (C. E. Klabunde, T. H. Blewitt, and R. R. Colman, Solid State Division, Oak Ridge National Laboratory)
29. High-Speed Ultra-Sensitive Calorimeter for Fast Flow Chemical Reactions and Short Life Time Gamma-Ray Intensity Measurements (Robert L. Berger, Utah State University)
30. A New Purity Calculation Method (Jack H. Badley, Shell Development Co., Emeryville, Calif.)
31. Report on IUPAC Symposium on Chemical Thermodynamics (John P. McCullough, Bureau of Mines)

Nuclear Science

NUCLEAR rocket propulsion is the subject to be stressed by the IRE Professional Group on Nuclear Science when it holds its sixth annual meeting on November 19 and 20 at the Somerset Hotel in Boston. The technical program will include sessions on nuclear science and space exploration, plasma production and diagnostics, nuclear research instrumentation, and reactor instrumentation and control.

Luncheon meetings will be held both days, with David J. Rose, Massachusetts Institute of Technology, speaking Thursday on "Introduction to Research in Plasma Physics" and Lt. Col. Howard R. Schmidt, US Air Force, speaking Friday on "Atomic Energy Com-