activation energy of conduction to the lowest triplet energy in molecular solids of organic nature, (4) Coleman's laudatory reference to the equation of Wentzel for many particles which is relativistically invariant; (5) Löwdin's challenging discussion of the reaction-rate problem in terms of the wave-mechanical *evolution operator* for the time-dependent Schrödinger equation. Löwdin urged a fresh consideration of the evolution operator in treating kinetic problems and expressed confidence that it would become a powerful tool.

The attending scientists, from many nations, united in expressing their deep appreciation for the hospitality extended them by their Swedish hosts, and for the stimulating approaches in quantum chemistry presented at the symposium.

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Calorimetry Conference

The seventeenth annual Calorimetry Conference was held August 22–24 at the University of California in Berkeley. Hosts for the occasion were the Inorganic Materials Research Division of the Lawrence Radiation Laboratory and the College of Chemistry. Local arrangements were made by a committee consisting of N. E. Phillips (chairman), R. Hultgren, D. N. Lyon and I. Pratt.

In keeping with the traditions of previous conferences, a wide variety of calorimetric topics was discussed, ranging from techniques, through results, to interpretation. Thirty-seven papers were presented, the principal one being that given as the Huffman Memorial Lecture by E. F. Westrum, Jr. (University of Michigan). Professor Westrum, whose topic was the thermodynamics of globular molecules, offered a lucid discussion of the problems of understanding the behavior of the so-called plastic crystals. Thermodynamic measurements on these substances can yield valuable information about transitions, and about rotation of molecules and molecular groups in the solid. Much of the available experimental information has been obtained by Professor Westrum and his students.

Invited papers were given by M. L. McGlashan (University of Reading), D. Patterson (University of Montreal), and A. M. Karo and A. W. Searcy (University of California). Each of the papers served to keynote a particular part of the program. For example, McGlashan's discussion of the calorimetric determination of the change of enthalpy of vapors with pressure and Patterson's application of the Prigogine theory to the explanation of heats of mixing of polymer solutions introduced a series of contributions on measurements of heats of mixing, solution, and dilution.

Karo described the information about lattice vibrations which is obtainable from an understanding of the thermodynamic properties of crystalline solids, illustrating his theme with examples of alkali-halide crystals. In particular, he showed that accurate experimental heat capacities are sufficient to distinguish be-

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tween several possible ionic models. Related contributed papers dealt with thermodynamic properties of solid yttrium hydrides, transition-metal and technetium hexafluorides, palladium hydride, lithium metal, helium, and methanes.

High-temperature thermodynamic properties were introduced by Searcy's contribution on the interpretation of the properties of inorganic solid solutions (uranium-oxygen and cerium-oxygen systems), which was coupled with a plea for more experimental measurements. The particular kinds desired were not represented at the conference; high-temperature studies which were reported had more to do with the measurement of stored energy.

Many other specific topics were touched upon; for example, precision bomb calorimetry which provides accurate and fundamental information on heats of formation and is the very basis of thermochemistry, techniques of microcalorimetry for measuring very small energy changes, and improvement of standards of measuring energy and temperature.

Again in keeping with the practices of previous conferences, no proceedings will be published. The work discussed will in due course appear in regular journals.

A report on the conference would not be complete without mentioning the annual dinner held at Spenger's Fish Grotto in Berkeley. Nicholas Kurti of the Clarendon Laboratory, Oxford, who was the after-dinner speaker, chose as his topic "What's Cooking", a deceptively calorimetric title. Although he did not, as advertised, prove his text, which was the aphorism, "The discovery of a new dish contributes more to the happiness of mankind than the discovery of a star", he kept his audience thoroughly entertained. Following the dinner, several groups were organized to search San Francisco for a carpeted street[1] which had been reported by a scouting party consisting of M. L. McGlashan and J. G. Ashton.

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Spectroscopy

The Western Spectroscopy Association will hold its tenth annual conference at Asilomar, on California's Monterey Peninsula, on January 24 and 25. The program will consist of four sessions of two invited papers each, plus a social hour and banquet. The speakers and their topics are G. A. Crosby (energy transfer in organic rare-earth chelates), A. L. Schawlow (spectroscopy and quantum electronics), J. C. Decius (vibrational spectra of small molecules in crystals and crystalline solid solutions), A Sievers (far-infrared spectra of magnetic oxides), D. H. Rank (shifts and breadth of molecular band lines), W. Klemperer (molecular beams), C. Barth (ultraviolet spectra of planetary atmospheres), and G. Stanley (characteristics of radio emission from extragalactic nebulae).

Further information can be obtained by writing to

[1] Chemical and Engineering News, August 13, 1962, page 100.