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<i>Physical Chemistry: Retrospect and Prospect: DR. HUGH S. TAYLOR</i> .....	563
<i>The Harvard Tercentenary</i> .....	566
<i>Obituary:</i>	
<i>August Frederick Foerste. Recent Deaths and Memorials</i> .....	568
<i>Scientific Events:</i>	
<i>The British Department of Scientific and Industrial Research; Grants in Aid of Research of the American Association for the Advancement of Science; The Fourth Annual Meeting of the Society for Research on Meteorites; The Scientific Exhibit of the American Medical Association</i> .....	568
<i>Scientific Notes and News</i> .....	570
<i>Discussion:</i>	
<i>Soil Temperatures at Bozeman, Montana, during Sub-zero Weather: PROFESSOR G. ALLEN MAIL. The Nebraska "Fireball": PROFESSOR J. C. JENSEN. Termite Distribution in the United States: PROFESSOR CHARLES EARL PACKARD. Federal Relief Labor and Paleontology: V. L. VANDERHOOF</i> .....	574
<i>Scientific Books:</i>	
<i>Genetics: PROFESSOR M. F. GUYER. Biology of North European Sea Fishes: DR. HENRY B. BIGELOW</i> .....	576
<i>Societies and Meetings:</i>	
<i>The Illinois State Academy of Science: DR. WILBUR M. LUCE. The South Carolina Academy of Sci-</i>	

<i>ence: DR. J. E. COPENHAVER. The Virginia Academy of Science: DR. E. C. L. MILLER</i> .....	578
<i>Special Articles:</i>	
<i>The Cultivation of Large Quantities of Adult Tissue in Fluid Media: DR. RAYMOND C. PARKER. Pulsating Blood Vessels in the Oyster: DR. A. E. HOPKINS. The Comparative Effect of Two Iron Salts on Parasitic Anemias in Puerto Rico: DR. R. RODRÍGUEZ-MOLINA and JUAN A. PONS</i> .....	579
<i>Scientific Apparatus and Laboratory Methods:</i>	
<i>Raising the Praying Mantis for Experimental Purposes: K. D. ROEDER. Decalcification as a Method of Preparation of Gross Anatomical Material: PROFESSOR HOMER B. LATIMER</i> .....	582
<i>Science News</i> .....	6

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## PHYSICAL CHEMISTRY: RETROSPECT AND PROSPECT<sup>1</sup>

By Dr. HUGH S. TAYLOR

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THE Kansas City meeting of the American Chemical Society happens to divide into two halves the expected professional life of one of the members devoting his major activities to the pursuit of knowledge in the field of physical chemistry. It is this fact which has prompted a retrospect of the subject over a period of twenty-two years and some thoughts on the prospects of the science in the subsequent two decades.

To gain a perspective of physical chemistry in those apparently far-off days prior to 1914 resort may be made to the most advanced text-book of physical chemistry of that time, the text-book by Nernst, which, fortunately for our purposes, was issued in a seventh edition in 1913. Whilst one turns its pages, the omis-

sions, in terms of our science of to-day, come readily to mind. In respect to the gaseous state of matter it is evident that kinetic theory was by them in an advanced state of development. Interest was beginning to center in the theoretical treatment of heat capacity vital to the problem of equilibria. The liquid state of aggregation has not shared in the rapid changes of these decades, although recently there has been a change of view-point whereby the analogies between the liquid and solid states is stressed in contrast with the former association of gaseous and liquid states. The study of the solid state was, in 1914, in the initial stages of an activity which has continued to the present. The limitations of the Dulong and Petit Law were known, and heat capacity data over wide ranges of temperature had led to a theoretical

<sup>1</sup> An address to the ninety-first meeting of the American Chemical Society at Kansas City, April 13, 1936.

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