G. A. Hulett, Great Experimentalist

George Augustus Hulett was one of the great experimentalists of his generation in American chemistry. Born in Will County, Ill., in 1867 and possessing the vigor and energy characteristic of the Middle West at that time, he attended Oberlin College for 2 years and then transferred to Princeton, where he received his A.B. degree in 1892 and continued his education for 4 years as an assistant in chemistry. He then went to Germany to join the brilliant group of pioneer physical chemists who were studying at Leipzig under Ostwald, the father of modern physical chemistry. Returning to this country with his Ph.D. degree from the University of Leipzig, he served as instructor and assistant professor of physical chemistry at the University of Michigan from 1899 until 1905, when he returned to Princeton as an assistant professor. In 1909 he became the first professor of physical chemistry at Princeton, where he remained for the rest of his long and useful life, which came to an end on 6 September 1955.

The work in Leipzig led to an important paper on the solid-liquid transition. This was followed by what were certainly among his most fundamental contributions, two papers published from the University of Michigan, one on surface tension and solubility, the other on particle size and solubility. The same period included specific solubility investigations and a paper on the relationship between negative pressure and osmotic pressure. His publications soon showed his developing interest in the subject of standard cells, a field that was to hold his attention for many years. These researches not only led to a voltage standard of remarkable reproducibility and constancy, but also involved fundamental investigations of the inorganic chemistry of the component substances of the cells and of the thermodynamics of cell processes. Precise work on the silver coulometer and voltameter was a natural outgrowth of his electrochemical researches. His interests, developed as a consultant for years and as chief chemist for 1 year of the U.S. Bureau of Mines, were reflected in researches on coal, charcoal, graphite, and graphitic acid. A keen and active mind combined with great experimental ingenuity produced a varied pattern of research that included minor but very useful investigations such as a very simple method for the extreme purification of mercury and the preparation of standard hydrochloric acid from a constant boiling solution. An ingeniously simple apparatus devised for one purpose might be converted to use for a quite different objective. An apparatus that consisted of little more than a test tube closed by a small cup of carbon dioxide, solidified in the laboratory, provided a very sensitive means for the determination of the moisture content of a variety of different materials, including coal and cereals.

At a time when the staffs of university laboratories did not include professional glass blowers, Hulett was the one expert glass blower in the Princeton community; as such, he was not infrequently imposed on by his scientific colleagues. His driving energy made him a very rapid worker. He would devise and build, and, sometimes, break and rebuild an apparatus in the time required by an ordinary man for the initial stages of construction. A new graduate student beginning his first research would be surprised at the philosophical tolerance with which his professor would receive the news of an accident to apparatus. The damage would soon be repaired.

Although Hulett worked night and day in the laboratory and never spared himself, his zest for living and his capacity for friendship won him a wide circle of friends, among whom his graduate students were always numbered. His society membership included the American Philosophical Society and the National Academy of Sciences and his activities were many. In 1917 he went to France as a member of the Foreign Service Commission of the National Research Council and spent 4 months, mostly at the battle fronts of the French and English, studying the organization and development of scientific activities in connection with warfare. He returned to this country to organize a research unit for the Chemical Warfare Service at Princeton.

Always unsparing of himself, he refused on one occasion to give in to an illness that developed into a case of pneumonia so severe that no ordinary man would have survived. Although he recovered from this illness and returned to his usual activity, he suffered a crippling concussion in 1920 in a fall that greatly handicapped him in subsequent experimental work. However, he published a considerable number of papers after this and served as associate editor of the *Journal of Physical Chemistry,* as vice-chairman and then chairman of the division of chemistry and chemical technology of the National Research Council, and as chairman of the division of the origin and classification of coal at the International Coal Conference that was held at Pittsburgh, Pa., in 1931. Even after he became professor emeritus in 1935, he continued to come to the laboratory for some years until increasingly bad health curtailed his activities more and more. In 1954 the Huletts' golden wedding anniversary marked the completion of 50 years of a particularly close and devoted family life in which their one son, George Barker Hulett, had shared.

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I take the view that a theory should be a policy and not a creed, that its most important work is to suggest things which can be tried by experiment, and for this the theory should be one that is easily visualized.—J. J. THOMSON.