

Obituary: Hans Bode 1905 - 1989

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Professor Dr. phil. Hans Bode, former Director of the Research and Development Centre of VARTA Batterie AG in Frankfurt am Main and Kelkheim/Taunus, one of the last grand old men in battery research in Europe, died on September 27, 1989 at the age of 84.

Hans Bode was born in Kiel in 1905. He studied natural sciences and received his Ph.D. degree in chemistry from the Christian Albrechts Universität of his native town in 1928. Only five years later, in 1933, he qualified as a recognized university teacher and acquired the *venia legendi* in chemistry. His main interest at this time concentrated on problems of physical chemistry, in particular on reaction kinetics. The second world war interrupted his scientific career for a number of years and he did not return to Kiel before 1946.

In 1949 Hans Bode was appointed Professor and in the same year he became a member of the body of professors of the Hansische Universität at Hamburg. At the well-known State Institute of Chemistry he continued his work on fluorine chemistry which he had started already in Kiel in cooperation with Professor Wilhelm Klemm. Numerous papers on the synthesis and structure of alkali fluorometallates, mainly published in *Zeitschrift für anorganische und allgemeine Chemie*, are evidence of his ingenious research work.

A drastic change in his life occurred in 1955 when Hans Bode was offered the directorate of the Central Laboratory of the Accumulatoren-Fabrik Aktiengesellschaft (AFA, now VARTA Batterie AG) then to be established at Frankfurt am Main. Although at the age of 50, he did not hesitate to accept this challenge. He left the university and within a short period of time he succeeded in creating an industrial research institution

which rapidly won an international reputation and he simultaneously obtained a widely acknowledged professional authority within the company. Under his directorship and with his active participation, a number of significant contributions to the knowledge on various electrochemical energy storage systems was made. A representative selection of these might be: first proof of  $\alpha$ -PbO<sub>2</sub> in the positive electrode of a lead-acid cell (1956), evaluation of partly sulphated lead oxide pastes for electrode production (1959), impedance of Leclanché cells (1959), reactions in sealed NiCd cells (1958 - 1960), current distribution in porous MnO<sub>2</sub> electrodes (1963), phase analysis of MnO<sub>2</sub> (1962), cathodic reduction of MnO<sub>2</sub> in alkaline solutions (1965), knowledge of the NiOOH/Ni(OH) electrode (1966 - 1969), current distribution in porous PbO<sub>2</sub> electrodes (1969) and effect of electrolyte flow-through on the material utilization of porous PbO<sub>2</sub> electrodes (1970). Simultaneously he developed relations with many universities and renowned electrochemists (K. J. Vetter, H. Gerischer) and most importantly entered into an exchange of battery science with laboratories of major battery companies in the U.S. and U.K.

Hans Bode retired from VARTA Batterie AG in 1969. He immediately took advantage of his freedom from managing a large laboratory to undertake a variety of activities. He was invited to give lectures in foreign countries and his technical knowledge was required by a number of institutions in Europe. Last but not least, however, he started to write a book on the lead-acid system. After 7 years of laborious work his important monograph *Lead-Acid Batteries* was published by John Wiley and Sons in 1977, a comprehensive summary on the science and an introduction to the technology of this most widely used battery system, a book which since then belongs to the canon of indispensable references and reading for scientists and engineers alike. After this exceedingly great effort it appeared that he felt he had accomplished his life's work. Although still in contact with VARTA and in particular with the Research and Development Centre in Kelkheim, he now 'really' retired. The remaining years of his life were devoted to his family, to visits of friends, to excursions and walks in the beautiful forests around the city of Königstein im Taunus and to travels and studies of fine arts with his wife Ruth.

By his personal and spiritual appearance the man Hans Bode inspired students, co-workers, friends and visitors with candour and confidence. All his life he was a Professor in the original meaning of this word. In the memory of those who have known him he will abide as an esteemed scientist and as a man faithful to friends and benevolent to everybody.

ERNST VOSS  
*Kelkheim and Liederbach*