



A handwritten signature in cursive script, reading "R. A. Baker". The signature is written in dark ink on a light background.

Robert Alt Baker, Sr.

1907–1982

By John W. Simpson

Robert Alt Baker, retired executive vice-president of the Public Service Electric and Gas Company of New Jersey, died on December 8, 1982, at his winter residence in Stuart, Florida. He was a pioneer in the field of steam power plant design, particularly in relation to the use of high steam pressure and high temperatures and the application of computers to automatic control. He was also one of the electric utility industry leaders in the introduction of nuclear energy for electric power generation.

Robert Baker was a native of Reading, Pennsylvania, and graduated from Lehigh University in 1930 with a degree in electrical engineering. After graduation, he joined Public Service Electric and Gas Company of New Jersey as a cadet engineer. He subsequently moved steadily through a series of assignments and was named vice-president in charge of electric operations in 1965 and vice-president of combined electric and gas operations in 1968, a position he held until he became executive vice-president. After his retirement from the company in 1974 and until his death, Bob was an associate of Overseas Advisory Associates, Inc., of Detroit, Michigan, an energy management consulting firm.

Robert Baker was active in a number of professional organizations. His activities included being named a fellow of the Institute of Electrical and Electronics Engineers, the Instrument

Society of America, and the American Society of Mechanical Engineers. He became a member of the National Academy of Engineering in 1967. Also in 1967, he was presented with the George Westinghouse Gold Medal by the American Society of Mechanical Engineers; in 1973 he was awarded an honorary doctoral degree in engineering by Lehigh University. He was the author of numerous engineering papers.

Bob Baker achieved an important and notable position in the field of steam power plant engineering, particularly in the areas of design and construction and in the operation of many units incorporating pioneering concepts. Examples of some of the innovations that were envisioned and designed under his leadership include the first power generation unit in the country to use steam at a temperature of 1,100°F, the first central station unit to employ austenitic steel piping, and major use for the first time of the Croloy 16-8-2 welding electrodes.

Joint studies with manufacturing engineers and utility staff, including Bob, resulted in the first use of what was to become a common arrangement in the industry: cross-compound, 3,600-rpm steam power generation elements, with high-pressure elements on one shaft, the reheat turbine on a second shaft, and identical low-pressure elements on each shaft driving identical half-size generators and boiler feed pumps. Bob also assisted in the development of large hydraulic couplings for boiler feed pump drives and was among the first to use main unit shaft-driven boiler feed pumps.

Other important pioneering areas of Bob Baker's work included his activities in automating steam plants and his contribution to the development and application of large gas turbines for electric peaking and emergency service. Under his guidance the largest such unit in the world was installed at Sewaren, New Jersey. The unit makes unique use of large aircraft jet engines as its power source and is capable of developing full power from a cold start in four minutes. In addition,

Bob, together with other associates, had the vision and gave impetus to the work that led to the development of a large pumped storage project and to one of the largest mine-mouth generating stations in the world.

Robert Baker was an early leader in the introduction of nuclear energy for the production of electricity. He was also a leader in implementing the concept of constructing complete nuclear power plants in a factory and then floating the plants to their final locations.

He was particularly instrumental in his company's ordering of four such units, which in turn permitted the concept to be developed, a factory to be built, and a construction permit to be issued by the Nuclear Regulatory Commission. Unfortunately, a lack of projected load growth did not permit this project to proceed to completion. The concept was developed to a sufficient degree, however, that it may well prove to be a leading method of generating electricity at some time in the future.