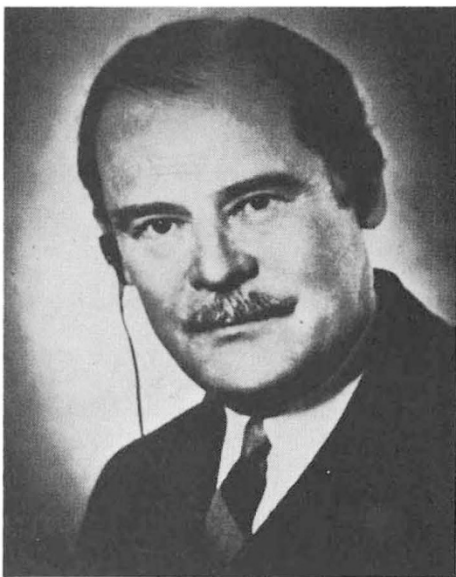


# obituary

**Ernst F. W. Alexanderson** died on May 14 at Schenectady, New York, where for so many years he was a rich source of ideas and inventions for General Electric. He was 97.



General Electric, USA

Alexanderson was born at Uppsala, Sweden and studied at the University of Lund and the Royal Institute of Technology in Stockholm. Shortly after graduating he was working in Germany when he saw a paper on 'Alternating Current Phenomena' by Steinmetz and decided to go to the United States and seek employment in the author's laboratory at General Electric. He went to America in 1901, started work under Steinmetz in 1902, and within a year had established a reputation as a designer specialising in alternating current generators. At this time, just after the turn of the century, commercial wireless telegraphy was well established, but the system most generally used was the fairly crude spark transmission, which radiated a damped wave train covering an inconveniently wide frequency band and which was unsuited to any modulation more sophisticated than the on-off keying of the Morse code. If a continuous, high frequency, sinusoidal voltage could be generated it would help solve the increasingly pressing problem of interference between simultaneous transmissions from neighbouring stations, and furthermore it would be a much more promising carrier for

modulation by speech or music. In 1904, Fessenden, who had carried out successful preliminary experiments with radio telephony, brought this problem to General Electric and asked them to design a high power alternator operating at a frequency of many kHz. The task was given to Alexanderson, and on Christmas Eve, 1906, Fessenden was able to broadcast speech and music. Work on thermionic valves proceeding elsewhere in the General Electric laboratories led to efficient methods of high power modulation, and Alexanderson's alternators, producing up to 200 kW, became the basis of many commercial and military radio systems during World War I. This strongly influenced the US Government to promote the formation in 1919 of the Radio Corporation of America, combining the radio interests of General Electric with those taken over from foreign companies who were excluded from the new organisation in the national interest. Alexanderson worked full-time for General Electric and RCA until he was seventy, and as a consultant until he was nearly eighty, pouring out inventions in fields as diverse as magnetic amplification, control systems, ship propulsion, aerial design, electronic circuitry and colour television systems. He was in the great tradition of American inventor-scientists and had well over three hundred patents to his name. Of his many honours, he was probably most gratified by a decoration from King Gustav V of Sweden and by the entirely appropriate award of the Edison medal.

**G. K. T. Conn, OBE**, professor of physics and head of the department in the university of Exeter since 1957, died on June 4 at the age of 64

After working on infrared and Raman vibrational spectra with Sutherland's group in Cambridge, he worked both at Sheffield and Exeter on the properties of solids (metals, alloys and semiconductors)—as determined by the evaluation of the optical constants for various frequencies. This involved determining the parameters of monochromatic radiation reflected from prepared surfaces; and the frequencies involved ultraviolet, visible, infrared and far infrared, including latterly the methods of Fourier transform spectroscopy. The methods he developed with Beattie and Eaton have been adopted by a number of other workers in the

field. He was editor of *Research*, a review journal, from 1956–62, and more recently had been joint editor of a series of Essays in Physics. He was also general editor of a series of textbooks, *The Modern University Physics Series*, in current production. His terms as deputy vice-chancellor of Exeter (1967–69) involved him in a series of delicate discussions during a period of unrest besetting British universities.

**Hans D. Berendes**, professor of genetics at the University of Nijmegen and well known for his work on gene action and chromosome structure, died on May 25 at the age of 41.

Berendes was born in The Hague and in 1955 began his study in biology at the University of Leiden. In the advanced part of his study he started research on the salivary chromosomes of *Drosophila hydei*, which dominated his whole scientific career, and completed a cytological map of these giant chromosomes. In 1962 he was appointed as lecturer at the University of Leiden. Impressed by the work of Beermann and Clever he worked on gene action in *D. hydei* as expressed in the puffing of salivary chromosome bands. He obtained his doctors degree in 1965 for a thesis on puffing patterns in the course of the late development of larvae and pupae, and the correlation between the appearance of some puffs and a cell product. In the same period he started research on the induction of puffs by external factors, in particular heatshocks. He then took a position in Beermann's laboratory at Tübingen, where he worked on the role of ecdyson in activation of puffs, puffing patterns in different tissues, protein metabolism in puffs, differential replication of chromosomal DNA and the electron microscopic structure of the salivary chromosome. In 1968 the Universities of Geneva and Nijmegen offered him chairs in Zoology, but he preferred to return to Holland to continue his work on *D. hydei*. Important papers appeared on the ultrastructure of DNA from the giant chromosomes, on the products of certain puffs, and on the relation between the formation of puffs and synthesis of mitochondrial enzymes. The latter project promises important insight into the regulation of gene activity in higher organisms. Berendes was also a very able organiser. He participated strongly in University affairs and in the Organisation for Pure Research (ZWO).