obituary

D. R. Chick

PROFESSOR D. R. CHICK, F.I.E.E., F.Inst.P., F.I.E.R.E., Head of the Department of Electronic and Electrical Engineering at the University of Surrey since 1965, died suddenly at his home in Surrey on 11 June 1978 aged 61.

He was one of the many young scientists in the 1930s who began their working life on the applications of radar, which were so vital to the winning of the war. His experiences in the field in wartime conditions, where it was so essential to impress the young local commanders that the civil scientists were not wasting everybody's time, surely helped him form some of his strongest characteristics: a quick and accurate assessment of people, straight, often blunt speaking, a sound scientific and economic judgment, and not least a strong personal loyalty to his own staff and colleagues. One such experience where the accommodation offered to him and his co-workers fell far below that expected considering their equivalent army rank led to a walk-out, much to the distress of the commanding officer, who to save his own reputation swallowed his pride and begged their return.

Immediately after the war, Chick turned to industrial research, joining the A.E.I. company at the new research laboratory of Aldermaston Court. For 17 years, he was in charge of various nuclear physics activities of the company and made large contributions in several different ways. His group developed and constructed electrostatic generators and a helical particle accelerator for basic physics research, and among much fundamental work he and colleagues measured excited levels in arsenic 75 produced by radiative capture of protons by germanium 74. This led to a patent application in 1957 relating to the production of p-n junctions in germanium or silicon by nuclear transmutation following irradiation with protons. It is significant that today transmutation doping of silicon by neutrons is used for special devices.

Also, with Sir George Thomson, a large section was devoted to the thermonuclear research programme, so important in future fusion reactors, using a torus named Sceptre. In 1957, this group, working closely with a Harwell team possessing a larger torus named Zeta, announced the production of neutrons from the discharge and subsequently studied some of the instabilities which develop in toroidal gas discharges carrying large currents.

His third major achievement in this period was the installation of a 5 MW pool type research reactor designed and developed by his group in conjunction with A.E.I. John Thompson Ltd. This reactor was the first publicly owned one and received reactor licence no. 1 in the U.K.; it was officially opened by H.R.H. the Duke of Edinburgh in 1959. It was used for research and contract work and two similar reactors were sold by A.E.I. John Thompson, one in Germany and one to the Atomic Energy Authority at Aldermaston.

In the mid-60s, it was appropriate that this wealth of experience in both the civil service and industry should be passed to one of the new universities which resulted from the publication of the Robbins report. When Professor Chick joined the then Battersea College of Advanced Technology as Head of the Department of Electrical and Control Engineering, he had a decided policy that his department would become known for both its research and industrial liaison as well as for its academic achievements.

He grouped his research effort into a few main projects, and his forward thinking is demonstrated by the fact that in 1966 he formed a team to work on ion implantation, then a speculative research area, now a major part of microelectronics technology, and he saw this group grow and become recognised as one of the major ones in the U.K. with a good reputation abroad.

He also formed an industrial electronics group which made the expertise of his academic staff available to industry on a contract research basis, and already the turnover from this venture has exceeded the £¼ millon mark. These successes, together with the establishment of a compulsory industrial year for undergraduates, M.Sc. projects sponsored by many firms, several collaborative Ph.D. programmes and industrially supported research fellowships, are a continuing demonstration of his concept of what makes a good academic engineering department in present day conditions—that is, one where its staff are not only scholars but also professional engineers aware of the needs of the industrial world and of where real wealth is created.

Professor Chick will be sadly missed by his colleagues and friends for his considerable intellectual qualities, his dry humour and his loyalty. Only days before his death, he visited a sick colleague in hospital carrying ice and a radio. The radio was returned as not working, and when told that the reason was that the batteries were in the wrong way round, he beamed and laughingly said, 'Failed the first term's examination!'

K. G. Stephens
T. E. Allibone

Moses Kunitz

THE death of Moses Kunitz on 24 April 1978 at the age of 90 brought to a close the story-book career of a young emigré from the Russian revolution who was to become a leading scientist in the field of protein research.

Kunitz arrived in New York early in the second decade of this century and found employment in the laboratory of Jaques Loeb, the famous experimental cell physiologist at the then Rockefeller Institute. Dr Loeb recognized the value of Kunitz's quick but careful work and encouraged him to pursue his education in the evenings, first at Cooper Union and then at Columbia University where he received his Ph.D. degree in 1923.

When John H. Northrop was appointed to the place left vacant by Dr Loeb's death, he invited Kunitz to remain and continue his study of proteins. This happy, fruitful union lasted until Dr Northrop left for California in 1951.

Kunitz was an acute observer and experimentalist. He learned to know the properties of proteins so well that he could estimate with some accuracy the likelihood of a protein crystallizing just by watching a flocculation during salt or acid precipitation. One example of this ability stands out in my mind. After attempts by other workers to crystallize the toxic protein ricin during World War II had failed, Kunitz was asked to have a try at it. I brought the package of partially purified ricin to him late one afternoon and remained to watch him weigh a quantity of it, dissolve it in dilute buffer, and distribute aliquots into a number of tubes. He then added increasing numbers of tiny drops of acid to the various tubes. As a cloudiness developed