Director's Report

D. RUDD-JONES

We went into 1980 with the need to cope with the gloomy reality of decommissioning. Fortunately the diversification of our researches, on which we had already embarked and which had been commended by the 1979 Visiting Group, helped us to compensate for the loss of much of our plant breeding and some of our biochemical research, and we were able to redeploy staff into our expanding programme in photosynthesis and photobiology. We were fortunate too in attracting outside support from the N.R.D.C. for a study of the production of vesicular arbuscular mycorrhiza in nutrient-film culture, and this has enabled us to transfer Dr Tim Hall and Miss Shirley Bowes, who had been concerned with the disease resistance breeding programme in the tomato, to the study of endotrophic mycorrhizas and their possible use to improve the fertility of soils in marginal land or land restored after mining or quarrying. We have also started a collaborative project with the Central Electricity Research Laboratories, Leatherhead, in a field experiment at the G.C.R.I. on the effects of low levels of sulphur dioxide (SO_2), such as are emitted from power stations, on winter-grown cereal crops. It is especially appropriate that Dr D. W. Hand is associated with this project because of his expertise and research programme on the effects of aerial pollutants on glasshouse crops. It is also an appropriate location in so far as the G.C.R.I. enjoys a very low ambient SO_2 pollution and a solar radiation level among the highest in the country.

Despite this diversification in our programme we have had to face a reduction in our staff complement. Inevitably this has meant a loss of senior staff who have made major contributions to our research achievements. Mr L. A. Darby, Mr J. J. Hesling and Dr M. Hollings accepted voluntary premature retirement during the year with Mr Darby retiring at the end of March, Mr Hesling in June and Dr Hollings in December. Dr G. A. Maw retired at the normal age in early January 1981. None of these staff has been replaced, but Dr A. A. Brunt has succeeded Dr Hollings as Head of Virology, and the Biochemistry and Plant Nutrition & Analytical Chemistry Departments have been combined under Dr G. W. Winsor's leadership; Mr J. W. Maxon Smith has taken over the leadership of the plant breeders within a new Plant Breeding Section of the Crop Science Division.

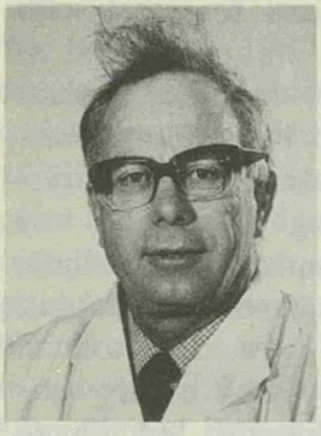
I would like to take the opportunity of my Report to put on record some of the achievements of these senior scientists who have retired, and the debt that the Institute owes them for their dedicated service.

Lewis Darby came to us in 1955 from the John Innes Horticultural Institution, so that his service in the A.R.S. spanned 30 years. He was our first plant breeder and he set about establishing a Plant Breeding Department the main platform of which was the breeding of hybrid tomatoes. Darby was concerned first and foremost with growers' requirements, and he considered it essential that they be given a wide choice of plant habit and other characters in their tomato varieties. He sought to incorporate as many characters imparting disease resistance as possible, and a range of varieties was released combining freedom from greenback, with compact, intermediate, or vigorous habit, and resistance to *Fulvia fulva (Cladosporium fulvum), Fusarium oxysporum, Verticillium albo-atrum* and TMV. The tomato breeding programme was very demanding, and Darby took it very seriously working his staff hard. His puckish sense of humour led him to choose happily evocative names for some of his varieties, so that a striped variety he called 'Tigerella' and the first compact variety was named 'Minibelle'; whilst a gourmet variety, released in 1980, which combined uniform ripening and superb quality with easy peeling Darby christened 'Salome'! The more sedately named Sussex village F_1 hybrids, Amberley Cross, Kingley Cross, Selsey Cross and Cudlow Cross have all been popular in their time; the varieties incorporating three major genes for resistance to TMV – Kirdford Cross and Pagham Cross – less so probably because growers have found them more difficult to manage and later flowering than the single-gene resistant Dutch varieties. Nevertheless, it is a measure of Darby's great achievement that in 1980 three out of the four varieties recommended on Guernsey were his, and 'Grenadier', 'Gannet' and 'Martlet' continue to have ardent supporters for their yield, quality and flavour whether it be in the Channel Islands, in Poland, or in the Negev of Israel. Although our tomato variety breeding programme has now stopped, these varieties, with 3-gene TMV resistance and freedom from silvering incorporated, will be released by the N.S.D.O.

Darby also master-minded the lettuce breeding programme with the release of the forcing varieties Neptune and Valentine, and the spring and autumn cropping lettuce Emerald and Sea Queen. Their successors, 'Dandie', which won a highly commended certificate from the Royal Horticultural Society, 'Magnet', and now 'Ambassador', are all likely to prove outstanding butterhead varieties for some years to come.

Darby was promoted to S.P.S.O. on Individual Merit in 1974, and in 1978 enjoyed the singular honour of being awarded the H. R. Bichard medal by the Guernsey Growers' Association for his services to the Island's horticulture, and this was only the second occasion on which the

award has gone to someone from the U.K. mainland. Darby, perhaps more than any other senior member of staff, established the Institute's reputation with growers, both in this country and throughout the world, for the production of finished varieties of glasshouse crops, and his departure represents the end of an era since this role for the G.C.R.I. is now sadly diminished.



Jack Hesling came to the G.C.R.I. at the end of 1960 from Rothamsted Experimental Station, where he had held an A.R.C. studentship under the eminent nematologist, Dr Tom Goodey, and where subsequently he was on the permanent staff. At the G.C.R.I., Hesling first turned his attention to the fungal-feeding eelworms attacking mushrooms, and to the saprophagous *Rhabditis* spp., and he evaluated various chemical methods of control including the use of thionazin and pirimiphos-methyl. At the same time, he was developing a programme on the control of bulb eelworms involving both hot water treatment and the use of chemicals, and he played a major role in setting up our facilities for bulb research.

Over the the past decade, Hesling's major interest has been a collaborative project with the Plant Breeding Department for breeding tomato varieties resistant to the two species of the potato cyst-eelworm, *Globodera (Heterodera)*. Interest in such resistant varieties has declined in recent years with the advent of growing in peat bags and nutrient-film culture. Nevertheless, when he retired Hesling was able to hand over breeding lines which have been made available to the private sector breeders through the British Association of Plant Breeders. It is probable that Hesling's most outstanding contribution to nematology has been in taxonomic studies, and it is fortunate that he has presented his unique collection of permanent preparations of *Globodera* spp., to the nematologists at Rothamsted.

Within the Institute, Hesling has played two vital roles, both of which tend to go unsung. The first of these was as Chairman of the Safety Committee when new legislation was introduced in connection with the Health and Safety at Work etc Act 1974. His meticulous concern with the interpretation of the new law was a great help to me and ensured not only that management took the necessary safety precautions and instruction of staff, but also that staff were made aware of their own responsibilities for personal safety. Hesling's second role was as Editor of the Annual Report – a task which he took on in 1973. As Editor he demonstrated the same methodical care and determination as in his personal researches, and this ensured that clarity of expression became the hallmark of the Report even for the most persistently bad writers. I cannot praise Hesling too highly for his Editorship which extended over six years, and which is now continued by Dr Jack Davies.