gressional appropriations specifically for the acquisition and development of lands for migratory birds, and the Duck Stamp receipts have taken on added importance. From 1935 until 1953, some 8,500,000 dollars of Duck Stamp funds were used for refuge development, and slightly more than 10 million dollars for operational maintenance. A description of the scheme and of some of the refuges which have been purchased are described in Circular 37 of the Fish and Wildlife Service of the United States Department of the Interior.

Elephants and Electric Fences

CONFLICTING views about the deterrent effects of electric fences on elephants are described in a recent issue of *Oryx* (3, No. 5; August 1956). J. A. Hislop has had unfortunate experiences with three fences in Malaya over a period of seven years and, although one fence remained undamaged for about two years, it was then breached in a number of places and was never again effective. Describing his experiences in Malaya before the War, E. O. Shebbeare found that electric fences were quite effective if they were adequately constructed and regularly patrolled. A. H. Fetherstonhaugh, who, until recently, was chief game warden of the Federation of Malaya, states that electric fences were most useful in protecting rubber estates from wild animals; elephants were difficult to deal with because of their size and sagacity but, provided they had sufficient range and adequate fodder and that electric fences were not erected across a major migration route, the fences were quite effective in preventing their passage through restricted territories.

Citrus Research

THE contemporary *Bulletin of the Research Council of Israel* (Sect. D, Botany, 5, No. 2–3; 1956) is devoted to the Fourth International Congress of Mediterranean Citriculture, held in Israel during May 1956. Among the topics discussed, and here set out in detail, were the anatomy and histology of healthy and xyloporosis-affected Palestine sweet-lime rootstocks budded to Shamouti sweet orange; rootstock–scion influences in the morphology and anatomy of the bud union of Shamouti orange; orange leaf transpiration under orchard conditions; *mal secco* of citrus in Israel and neighbouring countries; the effect of different factors on the ascorbic acid content in citrus fruits—the relationship between species and variety and the ascorbic acid content of the juice; an investigation into the process of flower and fruit abscission of the Shamouti orange; studies on the viability of citrus seeds and certain properties of their coats; toxic influences of sodium and sulphate ions on citrus seedlings.

Handbook on the Use of Chemical Weedkillers

DURING the past ten years advances in the use of chemicals for the control of weeds have been so rapid that the subject has become bewildering to the non-specialist. Successful crop production, however, now depends on the intelligent use of these chemicals, and the Recommendations Committee of the British Weed Control Council has done a most useful work in bringing out "Weed Control Handbook 1956" edited by the staff of the Agricultural Research Council Unit for Experimental Agronomy (pp. 130; British Weed Control Council, Cecil Chambers, 86 Strand, London, W.C.2; 1956; 5*s*.). Though intended primarily for the 'adviser', it is full of valuable information for the farmer, research worker or student. After classifying the weedkillers commonly used in Great Britain, Part 1 of the booklet sets out the agricultural and horticultural crops on which they may be safely used and the weeds that may be controlled by each type of chemical. The special problems connected with forest nurseries, lawns, roadside verges and woody weeds are also dealt with. Part 2 provides practical instruction on such matters as spraying procedure, the calculation of application-rates and the decontamination of the sprayer. It also contains chapters on the legal aspects of spraying and on promising new chemicals, and gives the list of approved herbicides for 1955–56 under the Crop Protection Products Approval Scheme. Tables make reference to crop or weed simple and rapid, and a clear distinction is made in the text between firm and tentative recommendations. The Committee hopes to issue a new edition of the handbook every year.

Morgan Crucible Co., Ltd., London (1856–1956)

THE Morgan Crucible Co., Ltd., of Battersea, London, which celebrates its centenary this year, has published in connexion therewith a short history of the firm, written by Richard Bennett (pp. 67+3 plates). As the chairman of the Company, Mr. P. Lindsay, points out in the prologue, Mr. Bennett does not attempt to give a detailed history of its development or to trace all the varied influences that have shaped the growth of a firm in which the tradition of family service has always been strong. The book gives a very readable account of the growth of the firm, and both the text itself and the admirably chosen illustrations relate that growth to the general pattern of industrial activity of the period. There is much in these pages that could well be used as the text for a discourse on initiative and enterprise and welfare in industry.

Grating and Quartz-Prism Polychromators

THE main article in the May issue of the *Hilger Journal* (2, No. 4; 1956) is devoted to a description of two large self-contained polychromators, the first a 3-m. grating instrument which has now been used in industry for several years, and the second a quartz-prism instrument which is announced for the first time. They serve different purposes and are not substitutes for each other. The grating polychromator is the instrument to use for analyses of highly complex alloys, and the quartz polychromator for the analysis of a wide range of alloys with different base metals. Both have four components: a source unit; discharge stand; the polychromator itself, which consists of the dispersing system and the assembly of exit slits and multipliers; and an electronic console which houses circuits for controlling the analysis and interpreting the results. The 3-m. radius concave grating in the grating instrument is ruled by Siegbahn and can be supplied to provide a dispersion of 6 A./mm. or 12 A./mm. in the first-order spectrum. The spectrum range is from about 1940 A. in the ultra-violet to about 8000 A. in the near infra-red, and the instrument takes four minutes to perform a spectrochemical analysis of a substance, printing the result on a strip of paper. The condensing system in the new prism polychromator includes a quartz biprism, and consequently the spectrometer produces two identical spectra which are separated by a long rectangular prism aluminized on two adjacent surfaces and sent to different focal surfaces where they are received by an assembly of exit slits. The quartz