

conditions. But war has sapped much of its energy and activity. The municipality of Jerusalem had initiated a few excellent little public gardens in recent years, gardens of begonias, *Lantana*, *Iris* and a strange mixture of Western formality and sub-tropical flowering shrubs, together with a small nursery for re-stocking these gardens, placed at the foot of the Mount of Olives.

It is true that in recent years Palestine-grown flowers were on exhibition in London and at Detroit; but Palestine has nothing to compare with Egypt's famous Gardens of the Nile near the Delta barrage. Jerusalem is a difficult place for the gardener, as its high position entails a seasonal variation from almost sub-tropical summer to winter snows and frosts. But since the mandate the temperature of Jericho in the hot lower Jordan Valley has been made much cooler for its inhabitants by the extended cultivation of trees, for both their floral effects and their fruit, irrigated with the sparkling waters of Elisha's spring. The first cultivators of the Jericho desert were the Greek monks, whose monastery orchards adjoining the tamarisk thickets just north of the Dead Sea are several hundred years old. In more recent years the Jewish settlement at Beth Ha'arava, beyond the recently destroyed Palestine potash plant on the north shore of the Dead Sea, 1,300 feet below sea-level, has cultivated a former salt-desert by leaching the soil with pipe-borne sweet water pumped from the nearby Jordan. The French Trappist monastery at Latrun, scene of bitter fighting for the Jerusalem-Tel Aviv highway, has developed some of the finest vineyards and orchards in the country, and its wines are nationally famous.

The main problem facing horticulture in Palestine was lack of water; but in recent years I saw how much of this difficulty had been conquered by the establishment of concrete aqueducts in the middle Jordan Valley, pumping sweet-water on to the Dead Sea salt-lands, and damming up by earth and concrete reservoirs the occasional but heavy winter rain that filled the wadis in the southern Negev desert. Artesian wells were much used in the coastal area, where practically all the great citrus-growing orchards were cultivated; but a generation or two ago, sandy wastes covered this area.

The pomegranate, the vine and the fig were already under cultivation by the native Arabs when the ancient Israelites first invaded the Holy Land. The Israelites introduced the apple, the first fruit to be mentioned in any historical writings, for Ramsis II had planted this native of the Black Sea in his gardens in the Nile Delta. The Jews traditionally introduced the citron to Palestine from their Babylonian captivity, and the Arabs are said to have brought the lemon and the orange to the Mediterranean coast from Iraq in the tenth century. Modern research into the history of the citrus fruits has, however, shown that oranges and lemons were known in Palestine in Mishnaic times, and the coins struck by Simon Maccabæus shortly after he conquered Jaffa in 136 B.C. show the citron was then in cultivation there.

The Western world has been indebted to Palestine for many of its irises. I have seen iris Grant-Duffii, the laurel and *Lilium candidum* growing wild in the Carmel area. The profusion of the garden anemone, *A. coronaria*, *Cyclamen persicum*, *Tulipa montana*, *Narcissus Tazetta*, the golden *Sternbergia aurantiaca* and of *Cistus* shrubs has borne offspring to grace countless gardens in Europe and America.

OBITUARIES

Prof. Friedrich Oltmanns and Adolf Pascher

SOME tribute should be paid to Profs. F. Oltmanns and A. Pascher, both of whom died in 1945 after making substantial contributions to the advancement of algal studies during the present century.

The name of Oltmanns, who for many years occupied the chair of botany in Freiburg in Baden, will be remembered as that of the author of the first comprehensive account of the Algæ. His "Morphologie und Biologie der Algen", published in 1904, constituted a landmark in the study of the Algæ and, by making available an authoritative account of the group, stimulated and had a far-reaching effect upon algal investigation in many different directions. The more extensive second edition, which appeared in 1922-23, was less inspired, and its utility was marred by the inadequate and frequently erroneous literature citations. The extensive treatment accorded to algal biology in the third volume failed to give a clear insight into the many outstanding problems.

Oltmanns, however, has other claims for inclusion among the outstanding algal workers of his period. He was the first to elucidate clearly the role of the auxiliary cells in Floridæ, and we owe to him considerable contributions to the knowledge of the Fucales and of the conditions of life of seaweeds. A special volume of the *Zeitschrift für Botanik*, which he edited for many years, was published in 1930 when he reached the age of seventy years.

Pascher, who was born in 1881, spent the whole of his academic life at the German University of Prague, where, during the latter part of his life, he occupied the chair of botany. His influence on algology was of a different and more profound nature than that of Oltmanns. One of his earliest researches, published in *Bibliotheca Botanica* in 1907, was concerned with the morphology and behaviour of the swimmers of diverse filamentous Chlorophyceæ. It was probably these studies that aroused his interest in flagellate organisms, to the knowledge of which he was to make so great a contribution. His investigation of the rich flagellate and algal flora of the Central European uplands extended over a period of more than thirty years, and resulted in the description of innumerable genera and species new to science.

An early outcome of these studies was the recognition of the fact that flagellate groups like the Chrysomonadineæ and Dinoflagellata (Peridinieæ) include also coccoid and filamentous types, comparable to those already known among the Chlorophyceæ and Xanthophyceæ (Heterokontæ), though Klebs in 1912 had already to some extent advanced this point of view for the Peridinieæ. In the brief memoir entitled "Ueber Flagellaten und Algen", published by Pascher in 1914, however, the Flagellata as a whole were placed in their correct relation to the Algæ, and the theory of the flagellate origin of Green and Yellow-green Algæ, first propounded in 1901 by Bohlin, was extended to the new classes Chrysophyceæ and Dinophyceæ. Emphasis was also laid on the remarkable degree of parallelism evident between the various algal series emanating from flagellate sources. These diverse theses were more fully elaborated in a series of papers published during the next twenty years, dealing with Chrysophyceæ, Dinophyceæ, and Xanthophyceæ, in which fundamental knowledge of each class was appreciably extended.

The great debt which botanical science owes to Pascher is the elucidation of the diverse lines along which algal evolution from flagellate stocks has taken place and of the definite pattern followed in this evolution. His numerous papers, however, include many other important contributions to the knowledge of Protista. Outstanding among these are the extensive studies of amoeboid and rhizopodial forms of Algae, which first disclosed clearly the significance of amoeboid organisation, the exposure of the manifold relations between pigmented and colourless flagellate organisms, and the recognition of the affinity between Diatoms, Chrysophyceae and Xanthophyceae.

Later generations will no doubt also acknowledge the debt owed to Pascher in respect of the publication of the "Süsswasserflora", which probably gave an even greater stimulus to freshwater algology than did Oltmanns' book. Pascher's own contribution to this series of volumes was very considerable, and includes some of the most valuable parts. It is much to be deplored that he did not survive to produce a second edition of the volumes dealing with the Flagellata, of which he had so unrivalled a knowledge. His last comprehensive publication is the volume on Heterokontae in Rabenhorst's "Kryptogamenflora", which was completed in 1939.

Pascher's numerous papers are characterized by lucidity and by the excellence of the accompanying illustrations, although sometimes a little marred by hasty editing. Most of his work was published in the *Archiv für Protistenkunde* and the *Beihefte der Botanisches Centralblatt*, of both of which he was editor for a long period of years. His was a lovable, though sometimes rather impetuous, personality.

F. E. FRITSCH

Mr. H. Brearley

MR. HARRY BREARLEY, the inventor of stainless steel, died on July 14 at the age of seventy-seven. A native of Sheffield, and the eighth child of a family brought up in "Ramsden's Yard", of which he has given a vivid account in a delightful autobiography, "Knotted String", he had only an elementary school education and then worked as a cellar lad in a crucible steel works. He was fortunate in being taken from this to be a laboratory boy under a capable and kindly analyst, who persuaded him to attend evening classes. He married young, and quite early collaborated with Fred Ibbotson in a book on the analysis

of steelworks materials. In 1914 he went to Riga, then a Russian town, as chemist in a steel works associated with Messrs. Firth of Sheffield, where he improved the technique of hardening armour-piercing shells, having also to act as managing director when the Russian Revolution came and many members of the staff left. On returning to Sheffield he took charge of the Brown-Firth Laboratory, installed jointly by two neighbouring firms. Difficulties in the making of armour plates led him to the further study of the thermal treatment of alloy steels.

His introduction of a steel containing chromium with low carbon was intended to provide a more durable lining for gun barrels, and it was the observation that specimens in the laboratory, under certain conditions of heat treatment, were highly resistant to corrosion that suggested their use for cutlery. A Sheffield firm, R. F. Mosley, produced knives made of this steel which were not stained by fruit acids or similar solutions. Difficulties arose over the ownership of the invention, and in 1915 Brearley left the firm and joined Messrs. Brown Bayley, also of Sheffield. For a time, the patents were controlled by a special organisation, the Firth-Brearley Syndicate. Patent litigation involved a visit to the United States. Brearley retired in 1925 to Torquay. He and his brother devised the method of studying ingot structure by casting and sectioning wax models. He was awarded the Bessemer Gold Medal of the Iron and Steel Institute in 1920.

Without a university training, Brearley had a remarkable command of lucid English, and his books are models of their kind. A man of sturdy independence, a lover of good literature, and a metallurgist who rendered great services to the steel industry and to the men employed in it, he has a strong claim to be remembered among pioneers in industry.

C. H. DESCH

WE regret to announce the following deaths:

Dr. William Cullen, well known for his work in mining engineering and explosives, on August 14, aged eighty-one.

Prof. Beatrice Edgell, emeritus professor of psychology, Bedford College, London, on August 10, aged seventy-six.

Dr. Alexander Smith, assistant mycologist at the Ministry of Agriculture and Fisheries Plant Pathology Laboratory, Harpenden, on July 23, aged fifty-four.

NEWS and VIEWS

Chair of Entomology, University of Illinois:

Prof. G. Fraenkel

DR. G. FRAENKEL, lecturer in physiology in the Department of Zoology and Applied Entomology at the Imperial College of Science and Technology, London, has been appointed professor of entomology in the University of Illinois, Urbana, Ill., to take charge of the newly founded sub-section of insect physiology. Dr. Fraenkel, who was educated at the University of Munich, was an assistant in the Department of Zoology in the Hebrew University, Jerusalem, during 1928-30. During 1931-33, he was *Privatdozent* in zoology in the University of Frankfurt. From 1933 onwards, he has carried out research in insect physiology and the orientation of invertebrates at University College, London, and the Imperial College.

Dr. Fraenkel has held his post as lecturer in physiology in the Imperial College since 1938. Most of Dr. Fraenkel's researches have been confined to insect physiology, including reflexes, pupation hormone of flies, function of halteres of flies, properties of cuticle and respiration. Since 1940 he has made a comprehensive study of insect nutrition supported by the Royal Society and, later, by the Medical Research Council. During the spring and early summer of 1947 he was guest professor in the University of Minnesota, where he gave a course of lectures on insect nutrition.

The National Radium Trust and Commission

WITH the coming into force of the National Health Act on July 5, the affairs of the National Radium Trust and the Radium Commission are being wound