

mendations included the institution of university or other suitable diplomas in translating and interpreting, the establishment of a central location index to unpublished translations, and that the Government be asked to consider action to modify the Berne Convention on international copyright so as to allow organisations such as the Science Museum Library to make available any translations deposited with them.

J. E. HOLMSTROM

Section 4: Reviews and Annual Reports

Reviews of a critical and constructive nature, written by leaders in particular branches of science, are of the greatest value, and senior investigators should regard the production of these as an important ancillary to the pursuit of new knowledge. The fields covered by critical reviews depend upon the first-class reviewers available at any given time. Such reviews, written by specialists, can be made very informative to workers in allied fields by the inclusion of an introduction and conclusion of a general, and as far as possible non-technical, nature. The desirability of the inclusion of the titles of papers in the bibliography of reviews and other scientific papers varies with the science; it is desirable in biology, possibly less so in chemistry.

Annual or biennial reviews, progress reports and books on recent advances serve a useful purpose, especially if prepared as critical reviews rather than synoptic summaries. Reviews written by specialists for workers in other branches of science are of great importance and at present are insufficient. In the applied sciences there is also a need for more review publications. In this connexion considerable material could perhaps be made available for publication by the larger industrial concerns.

Reports on 'symposia' are recognized as a valuable contribution to the recording of progress in science but are not a substitute for reviews or annual reports. A wider distribution of copies of the more important review lectures is desirable.

H. MUNRO FOX

THE PALESTINE FLORA

By ERIC HARDY

THE trouble in Palestine sets back the clock on the recent efforts of both Arab and Jewish gardeners to develop the horticultural attractions of the Holy Land, for the palm boulevards of Jaffa, and the flower-growing settlements at Mishmar-Hasharon, etc., had attracted much praise and attention. The danger, however, goes deeper, for modern Palestine was not the primitive wilderness of brigand and bedouin as depicted in most of the Western religious books. Several excellent gardens and plant collections were in the country, and their future is threatened by the bitterness of war. There is, for example, the best of the attempts to create a typically English garden, with its lawns and roses, its rockery and its pergola, which was in the grounds of Government House on the dry and dusty hill outside Jerusalem. On besieged Mount Scopus the botanical department of the University of Jerusalem housed the finest herbarium of the Near East flora, with more than 300,000 sheets of specimens collected not only in Palestine, but also in Syria, Arabia, Transjordan, and in particular the desert regions.

There was also the private collection of Palestine and Transjordan plants collected in the American Colony in Jerusalem by J. E. Dinsmore, editor of the second edition of Post's "Flora of Palestine and Syria", where also the garden of a score of varieties of Palestine irises was a famous feature in April. Another internationally famous private herbarium, the largest outside the University, is the Herbarium Boyko, housed at the village of Talpioth, between Jerusalem and Bethlehem, in the home of Dr. Hugo Boyko, its compiler, an official of the Mandatory Government's Department of Forests.

At Rehovoth, which has been subject to several air raids, are housed the laboratories, collections, trial gardens, etc., of the country's main horticultural research. Here Dr. Oppenheimer, Dr. Samech and others maintained the vast organisation of the citrus research and the fruit-growing industry, where East Malling ideas were developed and plants acclimatized and tested. The horticultural edition of the *Palestine Journal of Botany* is produced here under Dr. Oppenheimer's editorship, while the purely botanical edition is produced at the University of Jerusalem under Prof. Zohary's editorship.

In recent years the University of Jerusalem had established a botanic garden on Mount Scopus, mainly for shrubs and trees typical of the country's flora, and including a coppice of cedar of Lebanon. Under the Mandatory Government, the Departments of Forests and Agriculture maintained several stations existing from Turkish times, like the vineyards, date palms and orchards at the old Turkish horticultural station in Jericho, and they established others. Near Acre the Mandatory Government established its main stock farm and horticultural and field crop station; its station for deciduous trees, carobs, vines and pruning instruction was near Safad. At Farawana, near Beisan, in the middle Jordan Valley, it had a station for sub-tropicals, olives, vines and dates; another near the historic Jacob's Well at Nablus for olives, vines and pomegranates; an experimental station for miscellaneous work was at Majdel, and a forestry station at Gaza that has been planting a large acreage of wind-blown sand with tamarisk to check the inroads of the Sinai sandstorms. From these stations, Arab gardeners were taught Western ideas of grafting and pruning, particularly for olive cultivation. The famous Arab olive orchards at Beit Jala near Bethlehem, and their pomegranate orchards near Ramallah, were a tribute to the work.

On the cool and fertile shores of southern Galilee, the Jews maintained a remarkably interesting nature study and agricultural institute called Beth Gordon, in memory of a pioneer settler, Aaron Gordon. This was at Degania settlement, in the vicinity of much of the recent fighting between Tiberias Jews and the Iraqi Army. Beth Gordon (or Gordon House) was open to any visitors interested in natural history or horticulture irrespective of membership. It maintained laboratories, lectures, a card-indexed library of 12,400 books in several languages, a museum with 18,500 animal specimens and a herbarium of 3,400 named plants, all under the direction of M. J. Palmoni. This was mainly a teaching centre, whereas Rehovoth was the main centre of horticultural research and plant acclimatization.

For several years the European colony in Jerusalem maintained a Jerusalem Horticultural Society, and in 1928 it published an instructive little booklet on the cultivation of gardens under those high, dry, chalky

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.