Book Reviews

Duftgelenkte Bienen im Dienste der Landwirtschaft und Imkerei (The training of bees for the benefit of agriculture and beekeeping). Karl von Frisch. Vienna: Springer Verlag, 1947. Pp. 189. (Illustrated.) $3.70 plus postage.

Those who have admired the clear-cut experiments of von Frisch will welcome this recent handbook. A delightfully readable style permeates this volume, as it did such classics of sensory physiology as *Die Sprache der Bienen, . . . Gehörsinn der Fische, Über einen Schreckstoff der Fischhaut . . .* , etc. Written in short sentences and short paragraphs, the book could well serve beekeepers, at whom it is aimed, even if they possess only a fair reading ability in German. Also, the sensory physiologist will find it helpful, since many of the original papers from which most of this work was drawn may not be available.

This handbook deals with a new technique of "training" or "conditioning" honeybees to work an appropriate plant at a desired time in order to increase seed production and, in some instances, to increase honey yields.

Described also are experiments which show that bees are able not only to communicate the odor of a food source (e.g. clover), but also to inform their colleagues, through characteristic "dances" on the comb, of the distance of the food source from the hive. In addition, the author gives evidence that they also communicate the approximate direction in which the food source lies.

The techniques used for "training" bees to certain flowers for which greater visitation is desired are described in detail. Essentially, the bees are fed on odorless sugar syrup surrounded with the fresh blossoms (or their extract) so that, returning to the hive with the sugar syrup, they will convey the odor of the blossoms to the other bees in the hive, which in turn will then search for those flowers as a source of nectar. The syrup can be sprinkled over bouquets of the blossoms, or the blossoms may be offered as a fresh reminder each day in a pan of syrup placed at the hive entrance. The high visitation rate thus attained results in increased seed production.

Also included are data on the experiments of training bees to various wild and cultivated plants, descriptions and pictures of the species concerned, exhaustive data on the practical application of the "training" principles, and records of seed and honey production of the various research units.

This book should be highly recommended to those people making pollination studies, and the work should be repeated, modified, and tried in many localities in this country to find where it can most profitably be used; Russian and English workers have had success with these techniques.

In conclusion, liberally translated, von Frisch states: "Doubtless increased seed and honey yields can be attained by the bee-training techniques described. However, to put these methods into practice the written word hardly suffices. I strongly recommend that agricultural experiment stations inaugurate demonstrations which can be viewed or, better, where beekeepers can actually attend a short course and participate while learning the techniques."

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Small-fruit culture: a text for instruction and reference work and a guide for field practice. (2nd ed.) James S. Shoemaker. Philadelphia-Toronto: Blakiston, 1948. Pp. vii + 433. (Illustrated.) $4.00.

The 1948 revision of this textbook is the most up-to-date and complete text relative to the culture of these fruits which is available at present. Although it does not include all of the information that is pertinent to a specific locality, it does give a well-rounded view of the practical aspects of the industry as a whole and, as such, is a valuable textbook for a "general" course in small fruits. However, like most horticultural texts, it must be supplemented with bulletins, circulars, technical papers, etc. to acquaint the student with additional information relative to the area in which the course is being taught.

A complete bibliography of 536 references, listed alphabetically according to author, is given in the rear of the text. This further increases the value of the book as a text as students can readily acquaint themselves with experimental work which has been done in all sections of the United States and parts of Canada.

The very attractive cover is rather unique in that it is a full-cover reproduction of a fruiting strawberry plant. The illustrations in the text, which now number 64, might well be increased to include the latest developments in the equipment, machinery, and packaging fields in order better to acquaint the students with this phase of the industry.

The crops discussed in the text are grapes, strawberries, brambles, currants, gooseberries, blueberries, and cranberries, three-fourths of the book being devoted to the first three fruits listed. In the case of each fruit the important producing regions are discussed, thus giving a picture of the extent of the industry, and this is followed by fundamental information pertinent to the culture of the fruit. Throughout the text, stress is placed on fundamental information, thus making it possible to develop a discussion which will bring out specific details that are pertinent to any one region. Much of the information given in the text is substantiated by experimental data from the various Experiment Stations.

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