

**CIHM
Microfiche
Series
(Monographs)**

**ICMH
Collection de
microfiches
(monographies)**



Canadian Institute for Historical Microreproductions / Institut canadien de microreproductions historiques

© 1998

Technical and Bibliographic Notes / Notes techniques et bibliographiques

The Institute has attempted to obtain the best original copy available for filming. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of filming are checked below.

- Coloured covers / Couverture de couleur
- Covers damaged / Couverture endommagée
- Covers restored and/or laminated / Couverture restaurée et/ou pelliculée
- Cover title missing / Le titre de couverture manque
- Coloured maps / Cartes géographiques en couleur
- Coloured ink (i.e. other than blue or black) / Encre de couleur (i.e. autre que bleue ou noire)
- Coloured plates and/or illustrations / Planches et/ou illustrations en couleur
- Bound with other material / Relié avec d'autres documents
- Only edition available / Seule édition disponible
- Tight binding may cause shadows or distortion along interior margin / La reliure serrée peut causer de l'ombre ou de la distorsion le long de la marge intérieure.
- Blank leaves added during restorations may appear within the text. Whenever possible, these have been omitted from filming / Il se peut que certaines pages blanches ajoutées lors d'une restauration apparaissent dans le texte, mais, lorsque cela était possible, ces pages n'ont pas été filmées.
- Additional comments / Commentaires supplémentaires:

L'Institut a microfilmé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut-être uniques du point de vue bibliographique, qui peuvent modifier une image reproduite, ou qui peuvent exiger une modification dans la méthode normale de filmage sont indiqués ci-dessous.

- Coloured pages / Pages de couleur
- Pages damaged / Pages endommagées
- Pages restored and/or laminated / Pages restaurées et/ou pelliculées
- Pages discoloured, stained or foxed / Pages décolorées, tachetées ou piquées
- Pages detached / Pages détachées
- Showthrough / Transparence
- Quality of print varies / Qualité inégale de l'impression
- Includes supplementary material / Comprend du matériel supplémentaire
- Pages wholly or partially obscured by errata slips, tissues, etc., have been refilmed to ensure the best possible image / Les pages totalement ou partiellement obscurcies par un feuillet d'errata, une pelure, etc., ont été filmées à nouveau de façon à obtenir la meilleure image possible.
- Opposing pages with varying colouration or discolourations are filmed twice to ensure the best possible image / Les pages s'opposant ayant des colorations variables ou des décolorations sont filmées deux fois afin d'obtenir la meilleure image possible.

This item is filmed at the reduction ratio checked below /
Ce document est filmé au taux de réduction indiqué ci-dessous.

10x		14x		18x		22x		26x		30x	
	12x		16x		20x		24x		28x		32x

The copy filmed here has been reproduced thanks to the generosity of:

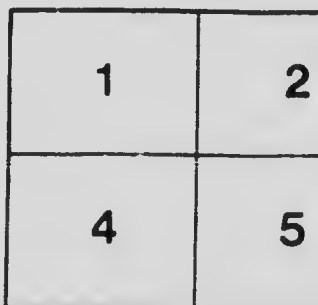
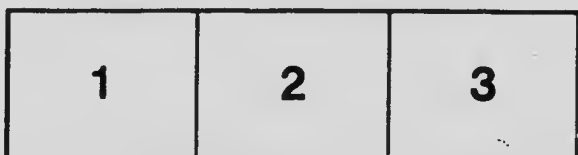
Library
Agriculture Canada

The images appearing here are the best quality possible considering the condition and legibility of the original copy and in keeping with the filming contract specifications.

Original copies in printed paper covers are filmed beginning with the front cover end ending on the last page with a printed or illustrated impression, or the back cover when appropriate. All other original copies are filmed beginning on the first page with a printed or illustrated impression, end ending on the last page with a printed or illustrated impression.

The last recorded frame on each microfiche shall contain the symbol \rightarrow (meaning "CONTINUED"), or the symbol ∇ (meaning "END"), whichever applies.

Maps, plates, charts, etc., may be filmed at different reduction ratios. Those too large to be entirely included in one exposure are filmed beginning in the upper left hand corner, left to right end top to bottom, as many frames as required. The following diagrams illustrate the method:



L'exemplaire filmé fut reproduit grâce à la générosité de:

Bibliothèque
Agriculture Canada

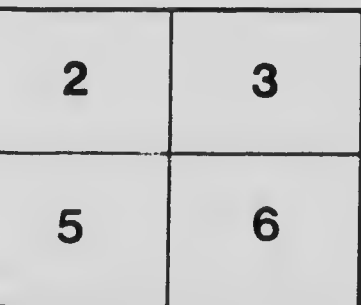
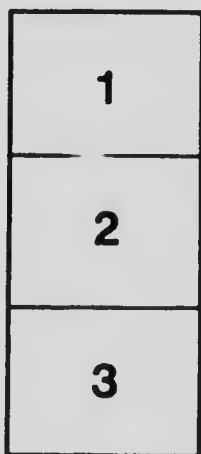
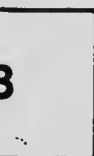
Les images suivantes ont été reproduites avec le plus grand soin, compte tenu de la condition et de la netteté de l'exemplaire filmé, et en conformité avec les conditions du contrat de filmage.

Les exemplaires originaux dont la couverture en papier est imprimée sont filmés en commençant par le premier plat et en terminant soit par la dernière page qui comporte une empreinte d'impression ou d'illustration, soit par le second plat, selon le cas. Tous les autres exemplaires originaux sont filmés en commençant par la première page qui comporte une empreinte d'impression ou d'illustration et en terminant par la dernière page qui comporte une telle empreinte.

Un des symboles suivants apparaîtra sur la dernière image de chaque microfiche, selon le cas: le symbole \rightarrow signifie "A SUIVRE", le symbole ∇ signifie "FIN".

Les cartes, planches, tableaux, etc., peuvent être filmés à des taux de réduction différents.

Lorsque le document est trop grand pour être reproduit en un seul cliché, il est filmé à partir de l'angle supérieur gauche, de gauche à droite, et de haut en bas, en prenant le nombre d'images nécessaire. Les diagrammes suivants illustrent la méthode.



MICROCOPY RESOLUTION TEST CHART

(ANSI and ISO TEST CHART No. 2)



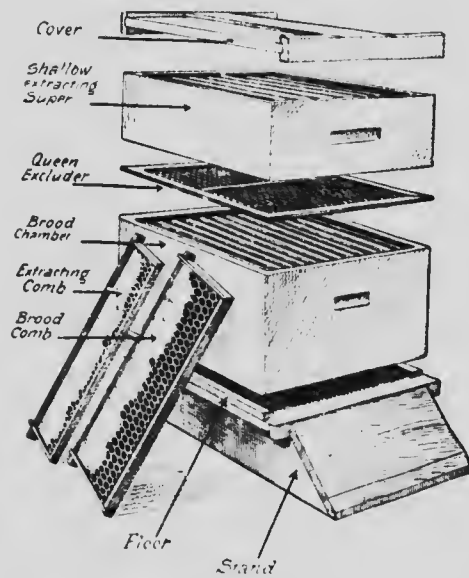
APPLIED IMAGE Inc

1653 East Main Street
Rochester New York 14609 USA
(716) 482-0300 Phone
(716) 288-5989 Fax

BEE-KEEPING IN CANADA

BY

F. W. L. SLADEN.



A 10-frame Langstroth Hive, with the parts separated.

DOMINION EXPERIMENTAL FARMS.

J. H. GRISDALE, B.Agr.,
Director.

F. W. L. SLADEN,
Aplarist.

EXHIBITION CIRCULAR No. 18.

(Revised January, 1916.)

630.4

•c212

Special attention is being paid to bee-keeping at the Dominion Experimental Farms. At the Central Experimental Farm, Ottawa, there is an experimental apiary where the various problems connected with the development of bee-keeping in Canada are being carefully investigated. Adjoining the apiary there has recently been erected an apicultural building specially designed for bee research. An apiary is maintained at each of the larger branch farms where the possibilities of bee-keeping in the region served by the farm are studied and also where visitors may see the most suitable hives and appliances, and may learn the best methods of bee management and how to prepare honey for market.

Bees are of value for two purposes: (1) honey and wax production, and (2) pollination.

Canadian honey is unsurpassed in quality by the honey of any other country. Owing to the abundance of nectar-producing flowers until frost, the warm summers and well-distributed rainfall, the average yield per colony is considerable. With good management, it varies from about thirty pounds a year in poor regions to about one hundred pounds a year in the best regions, where bee-keeping is sometimes carried on by specialists, who find it as profitable an occupation as mixed farming. These figures take into account partial failures in some seasons due to drought or other causes.

The production of apples, pears, plums, cherries, gooseberries, raspberries and alsike clover seed depends upon the visits of insects to the flowers to distribute the pollen. In many places the wild bees are not sufficiently numerous or active to carry out this work satisfactorily, especially when the weather is changeable, and honey bees are necessary to secure uniform and abundant crops.

As many as fifty or a hundred colonies may be kept in one place. Large apiaries, however, should be not less than two miles apart. The most important honey plants of Canada are white Dutch clover (*Trifolium repens*) and alsike clover (*T. hybridum*) which are abundant, wild and cultivated, in many parts of Ontario, Quebec, the Maritime Provinces and British Columbia. Other valuable sources of honey are buckwheat (Ontario and Quebec); basswood (Ontario and Quebec); raspberry; willow-herb (*Epilobium angustifolium*) which occurs chiefly in forest clearings, especially after fire, alfalfa (Southern Alberta) and certain prairie flowers. Of less importance are sweet clover (*Melilotus*) and several species of golden rod and aster. In the spring, willows, dandelion, fruit bloom and other flowers supply pollen and nectar, thus enabling the bees to breed up in preparation for the in-gathering.

A local demand for honey is easily created. Wholesale prices for extracted honey range from seven to ten cents per pound for dark and amber coloured honey, and from nine to twelve cents per pound for clover honey. Selling direct to customers, ten to eighteen cents per pound may be got for extracted honey, and twenty to thirty cents for sections of comb honey.

Honey is deservedly popular, not only on account of its delicately flavoured sweetness, but because it is a valuable food, supplying energy and heat to the system. The natural craving of children for something sweet is well and satisfactorily met by giving them honey. Bread, butter and honey make a pleasant and wholesome combination both for children and adults. Used in baking and confectionery, honey has the useful property of keeping cakes and sweetmeats moist and fresh for a considerable time.

The severe cold and length of the Canadian winter are not serious obstacles to the keeping of bees, because the bees can be successfully wintered in the cellars of dwelling houses, or, packed in shavings, in large wintering cases out-of-doors.

However, no one should embark on bee-keeping who is not ready to study the bees' requirements and to devote the necessary time to their care, for bees are no more able to take care of themselves than any other kind of live-stock. Indeed, neglect in their case is frequently even more disastrous, for if colonies die as the result of European foul brood or American foul brood, two very destructive and infectious diseases of the bee larva, bees from other hives in the apiary and surrounding district will steal the honey and thereby carry the germs of disease to their own hives. The greater part

of British Columbia, of the Prairie Provinces, of the Maritime Provinces, and of Eastern Quebec, and certain sections of Ontario are still free from foul brood and it is important that bees should not be imported into these regions from places where the diseases are prevalent. European foul brood is rapidly spreading in Ontario and Quebec, destroying whole apiaries of black bees in its course. Fortunately the Italian bee is more or less resistant to European foul brood, and the bee-keeper can save his bees by proper treatment and the timely introduction of Italian queens. Ontario, Quebec, Manitoba, British Columbia and New Brunswick have passed laws for the control of foul brood, and the bee-keepers in some of the other provinces are asking for similar legislation.

To treat both forms of foul brood shake the bees into a clean hive fitted with frames having starters of foundation not more than one inch wide, and afterwards cover the entrance of the new hive with a queen and drone trap for two or three days to prevent the colony from deserting. Melt down the combs in boiling water and disinfect the old hive by scorching the inside with a flame. Other articles may be disinfected by boiling in water for half an hour. When only a few colonies are treated, to prevent the bees of healthy colonies from getting any of the infected honey, the shaking should be carried out in the evening, and if the honey drips from the combs newspapers should be spread in front of the hive to receive it. These newspapers are to be afterwards destroyed.

The only satisfactory kinds of hives are those fitted with movable frames to contain the combs. The Langstroth frame, 17½ inches long by 9½ inches deep, is the standard in all parts of Canada, and should be adopted by all beginners. It is wise to keep only a few colonies until experience has been gained.

The following list comprises all that is necessary for making a start in bee-keeping:—

Two or three colonies of bees in 10-frame Langstroth hives. (The bees may be obtained from a local bee-keeper. Ascertain that they more than half fill the hive, that a young fertile queen is present and that the brood is healthy). Cost each, according to locality, condition, and time of year.	\$3.00 to \$12 00
One pound brood foundation, costs about.	0 60
Bee smoker, costs about.	1 00
Bee veil.	0 35
One-quarter pound No. 30 tinned wire.	0 15
Spur wire embedder.	0 25
Two or three spare 10-frame Langstroth hives with frames, each about.	2 00

If extracted honey is desired add the following:—

Extracting supers fitted with Langstroth frames (shallow supers may be used in regions where the honey flow is light), one or two for each hive, each about.	\$ 1 00
1½ pound light brood foundation for each super, per pound.	0 62
Honey extractor.	\$8 00 to 10 00
Queen excluder for each hive.	0 30

If comb honey is wanted substitute for extracting supers, etc., the following:—

Comb-honey supers fitted with sections, two for each hive, each about.	1 00
½ pound thin super foundation for each super, per pound.	0 62
250 spare sections, split top.	1 00

It is usually more profitable to work for extracted honey than for comb honey because about double the quantity of honey is obtained and ~~raising~~ is more easily controlled.

The names of manufacturers of and dealers in bee-keepers' supplies may be found in the advertising columns of the "Canadian ~~Honey~~ Bee-keeper," a monthly journal published at Peterborough, Ont.

The keeping of bees in box-hives is ~~unprofitable~~ and a menace to successful bee-keeping, because the combs cannot be lifted to see in what condition the bees are, and whether the brood is diseased. ~~Bees~~ in box-hives should be transferred to hives fitted with movable frames.

There is no mystery about the successful management of bees. For a large part of Canada, it may be briefly summarized as follows: In September, see that each colony covers at least seven combs (weaker colonies should be united), and has a young fertile queen, and 30 to 35 pounds of stores. Deficiencies up to 10 pounds or 15 pounds may be made good by feeding about mid-September with sugar syrup made by dissolving two parts by measure of best granulated sugar in one part of water, stirred in while water is hot. Protect from cold in the latter part of October. Bring the bees into the cellar about the middle of November. The bee cellar should be well ventilated and dark, and neither very damp nor very dry. The temperature should be kept as steady as possible, between 40° and 45° F. Bring the bees out in spring as soon as the willows come into bloom. Protect them for a few weeks from cold, and see that no colony runs short of food, feeding, if necessary, with syrup composed of equal parts of sugar and water. Give a super as soon as the brood chamber is filled with bees and brood, and honey is coming in freely, and enlarge the entrance. Give an additional super when the first one is half full of honey. Swarms should be put into a new hive on the old stand, the old colony being moved to a new location. By clipping the queen's wings (this should be done early in May) there is no fear of losing the first swarm, but somebody should be present to secure the queen and hive the swarm when it issues.

Inquiries about bee-keeping should be addressed to the Apiarist, at the Central Experimental Farm, Ottawa.

Published by authority of Hon. MARTIN BURRELL, Minister of Agriculture, Ottawa, Ont.



