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BEEKEEPING

IN THE
INTERIOR OF

BRITISH COLUMBIA



The general adoption of the permanent outer case described in this booklet to enclose the ordinary single-wall hive, would give better wintering results, quicker building up of colonies in spring, and fewer swarms, and thus considerably increase the honey production of British Columbia.

PUBLISHED BY THE
BRITISH COLUMBIA HONEY PRODUCERS' ASSOCIATION.
1922.
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British Columbia Honey Producers' Association

(Incorporated 1920)

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Provincial Exhibition, New Westminster, B.C.

SEPTEMBER 11th to 16th, 1922.

For entry forms apply D. E. MacKenzie, Manager.

DIVISION G—APIARY PRODUCTS.

In charge of the B. C. Honey Producers' Association,
W. H. Turnbull, Secretary, Sullivan P. O., B. C.

Entries close September 2nd, 1922. Entry fee, 25c each entry.

All exhibits must be arranged by 10 o'clock, Monday, September 11th, 1922.

The prizes are awarded only for the quantity and in the containers specified in each section.

All exhibits, except containers, must be the production of the exhibitor, and all exhibits of honey or wax (except granulated honey) must be the product of the current year.

Exhibitors will not be allowed to change their exhibits after the judges have given their awards.

Exhibitors will not be allowed to remove honey from their exhibits during Exhibition.

Exhibitors in the 300-lb. display, the 100-lb. display and the display of Apiary work classes, will be allowed to stage and decorate their exhibits in as attractive manner as they see fit.

No distinctive private labels allowed in any class. Association labels, where the name of the exhibitor has not been printed in, will be allowed in the 100-lb. and the 300-lb. classes.

Exhibitors will be allowed to remove their exhibits from 10 to 12 o'clock on the last night.

Score for Honey.

Extracted Honey—

Color	25
Brightness	25
Density	35
Flavor	15

Total100

Section Honey—

Absence of pop holes.....	25
Uniformity of cells	10
Cleanliness	25
Color of capping	15
Thinness of capping	10
Flavor	15

Total100

PRIZES.

Entries.	1	2	3	4	5	6	7
1 to 5	\$6.00	\$5.00	\$4.00	\$	\$	\$	\$
6 to 12	7.00	6.00	5.00	4.00			
13 to 20	8.00	7.00	6.00	5.00	4.00		
21 to 40	9.00	8.00	7.00	6.00	5.00	4.00	
41 or more	9.00	8.00	7.00	6.00	5.00	4.00	3.00

Class

2090—Honey, white, 20 12-oz. or 16-oz. jars.

2091—Honey, amber, 20 12-oz. or 16-oz. jars.

2092—Honey, white, 50 12-oz. or 16-oz. jars.

- 2093—Honey, amber, 50 12-oz. or 16-oz. jars.
 2094—Honey, white, 100 12-oz. or 16-oz. jars—Double prize list.
 2095—Honey, amber, 100 12-oz. or 16-oz. jars—Double prize list.
 2096—Honey and wax, 300 pounds, floral decorations allowed. Four times prize list.

Score for 300-pound class—

Attractiveness	50
Quality	25
Variety	25
<hr/>	
Total	100

Class

- 2097—Honey, granulated, not less than 10 lbs, in glass containers, size optional.
 2098—Honey in comb, 25 sections—Double prize list.
 2099—Honey, "chunk," in glass, not less than 10-lb., size optional.
 2100—Most attractive, comprehensive, educational and instructive (to the public) display of apiary work and products—Three times prize list.
 2101—Display of "Individual portions" of honey, (comb and extracted).
 2102—Beeswax, not less than 5. pounds.

Score for wax—

Color	25
Aroma	25
Cleanliness	50
<hr/>	
	100

- 2103—Honey and wax, 100 pounds, Floral decoration allowed—Three times prize list. This class is open to any one who has not won a prize in the 300-pound display class in previous exhibitions.

Score for 100-lb. class—

Attractiveness	50
Quality	25
Variety	25
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	100

NOVICE CLASS.

Beginners who have not yet exhibited.

- 2104—Honey, white, 10 12-oz. or 16-oz. jars—One-half prize list
 2105—Honey, amber, 10 12-oz. or 16-oz. jars—One-half prize list.
 2106—Honey, 6 sections—One-half prize list.
 2107—Fruits preserved in honey, 6 quarts, assorted fruits—One-half prize list.
 2108—Italian bees, in observatory hive.

Score for bees—

Color	25
Size	25
Evenness of marking	50
<hr/>	
	100

- 2109—Any new and useful appliance in connection with Beekeeping—One-half prize list.
 2110—To the exhibitor scoring the highest total number of points—Diploma and \$25.00.
 2111—To the second highest—Diploma and \$15.00.

Special prize donated by the

BRITISH COLUMBIA HONEY PRODUCERS, ASSOCIATION.

- 2112—For the best collection of Native Honey Plants (dried and pressed)—First, \$10.00; Second, \$7.00; Third, \$5.00.

Bee Keeping in the Interior of British Columbia

Beekeeping is practically a new industry in the Interior of British Columbia, which is making good progress, and is capable of considerable expansion. In most of the best districts for honey production, even where beekeepers are already located, there is likely to be plenty of room for more colonies for some time to come, and there are many excellent locations where no bees are, at present kept at all. The honey produced, which is nearly all extracted honey, is in popular favor, and the demand is increasing, as it is superior to most that is imported. It may be described as a nice attractive honey, of uniformly good quality, usually light amber in color, and of delicate flavor, so that it is capable of holding its own, either in home or distant markets. With suitable management a paying crop can, as a general rule, be depended on every season. White Dutch Clover (*Trifolium repens*) which now grows wild, and in great profusion, in many places, is one of the main sources of production, and it is surprising how rapidly it becomes established and spreads, after the forest trees have been cut down. This is more particularly noticeable where cattle are ranging, as they help to keep down the ranker vegetation, and also act as distributors of the seed. In some localities, Alsike Clover (*Trifolium hybridum*) is being cultivated to a greater extent than formerly, and is also spreading naturally in the same manner as White Clover. As Alsike Clover is considered to stand at the head of all other plants, in the production of honey, this will be of benefit to the beekeepers. Alsike succeeds better than Red Clover, where there is an excess of moisture, or acidity in the soil, or a deficiency of lime. Red Clover, largely grown for ploughing in, unfortunately does not help the beekeepers very much as the tongues of hive-bees are not sufficiently long to reach the nectar secreted by the blossoms, unless the latter become dwarfed by drought, or by flowering the second time. Experiments have been made in some places in growing the biennial Bokhara Clover, generally known as White Sweet Clover (*Melilotus alba*) which yields honey freely over a long period. Inoculation, the same culture as for alfalfa, and a hard seed bed, are usually necessary to get it started. It will grow on any soil except that which is water-logged. An annual white variety has been lately introduced and may prove valuable. There are extensive areas of the biennial yellow Sweet Clover in the Shuswap and Thompson Valley district. Alfalfa yields honey in the irrigated districts. The Siberian yellow flowered Alfalfa (*Medicago falcata*) which has the reputation of being a dry land Alfalfa, very hardy, and a good honey and pasture plant, is being tested in the Dry Belt. Hairy Vetch, largely used as a cover crop in the fruit growing districts, yields quantities of honey of good quality.

In some localities, the wild flowers yield a somewhat large proportion of the honey. The most important of these are the common Dandelion (*Taraxacum officinale*) (introduced), and the Bearberry (*Arctostaphylos Uva-ursi*) early in the season, and later on, during July and August, Spreading Dogbane, commonly known as Milk-weed (*Apocynum androsaemifolium*). Snow-berry bush (*Symphoricarpos racemosus*), Wolf-berry bush (*Symphoricarpos occidentalis*), and the Great Willow Herb, usually known as Fire-weed (*Epilobium angustifolium*). There are also Wild Raspberries growing in abundance in many places.

HONEY YIELDING WILD FLOWERS.

Willows—Salicaceae. (Willow family.)

Pussy Willow—(Salix discolor). Flowers in March and April. Both honey and pollen are obtained from the staminate flowers, honey only from the pistillate.

Dandelion—Composite. (Composite family). (*Taraxacum officinale*). Flowers in April and May.

Bearberry—(Kinnikinnik). Ericaceae. (Heath family). *Arctostaphylos Uva-ursi*.

Blueberry—Ericaceae. (Heath family). *Vaccinium ovalifolium*.

Huckleberry—Ericaceae. (Heath family). *Gaylussacia resinosa*.

Choke Cherry—Rosaceae. (Rose family). *Prunus demissa*.

Bird or Pin Cherry—Rosaceae. (Rose family). *Prunus pennsylvanica*. All these flower in May.

Barberry—(Oregon Grape) Berberidaceae. (Barberry family). *Berberis aquifolium* and *Berberis repens*.

Wild Red Raspberry—Rosaceae. (Rose family). *Rubus strigosus*.

Wild Black Raspberry—Rosaceae. (Rose family). *Rubus occidentalis*. All these flower in June.

Dogbane—(Milk-weed) Apocynaceae. (Dogbane family) *Apocynum androsaemifolium* (Spreading Dogbane).

Snowberry—Caprifoliaceae. (Honeysuckle family). *Symphoricarpos racemosus*.

Wolfberry—Caprifoliaceae (Honeysuckle family). *Symphoricarpos occidentalis*.

Canada Thistle—Compositae (Composite family). *Cirsium arvense*. All these flower in June and July.

Great Willow Herb or Fire-weed—Onagraceae. (Evening Primrose family) *Epilobium, angustifolium*.

Golden Rod—Composite. (Composite family). *Solidago canadensis*, etc. Flower in July and August.

In districts principally devoted to the production of fruit there are not nearly enough bees kept at present to ensure the pollination of the blossoms.

The chief problems that have confronted the beekeepers have been difficulties in wintering, and in the control of swarming. The latter has often been contributory to the former. Excessive swarming, frequently caused by not providing the bees with sufficient room in the hive, and generally occurring during the short honey flows, peculiar to this region, has resulted in their being unable to store enough honey to winter on, so that they have died of starvation, unless fed with sugar syrup in the fall. The use of single-walled hives, with little or no additional protection in winter, has also been responsible for many of the losses that have been sustained. In some localities honey-dew, the excretion of aphides, and fruit juice, collected and stored in the combs by the bees, have been the main cause of winter fatalities. If the combs containing fruit juice or honey-dew are removed in September and the bees fed up quickly with thick syrup (two parts of sugar to one of water) while the weather is warm enough to enable them to store it in the combs and seal it over, this trouble is easily overcome.

Snow, as a rule, commences to fall early in November, and may remain on the ground until about the end of the following March, so that the bees may be confined to the hives for nearly five months. At some time, however, during this period, there may come a warm wind, or "Chinook", which, combined with brilliant sunshine, may raise the temperature for a few days to almost summer heat. When this occurs it is liable to bring the bees out of the hives prematurely, with the result that thousands of them alight on the soft snow, become chilled, and are not able to get back again. Under such circumstances the bees

are not so likely to fly from hives that are well insulated, as they are from hives, not well protected, as the inside temperature does not warm up so quickly, and cause them to become restless. Bees wintered on wholesome food, consisting of good honey or sugar syrup, as a rule, remain quiet and contented all the winter.

The bees kept in the Interior are mostly pure Italians. This race does so remarkably well here that it would seem a pity to introduce any other, except in isolated districts for purposes of experiment. These bees are well suited for beginners as they are very quiet under manipulation, not much inclined to use their stings, and therefore easy to handle. The queens are so very prolific that there is no trouble in making increase. During the years 1916 and 1917 a considerable number of combless two-pound packages, including queens, of this race, were shipped in from the United States. Those that came from California, being only three or four days on the journey, generally arrived in good condition, but shipments from greater distances, such as the Southern States, being longer in transit, a large proportion were dead on arrival. If these bees can be obtained in good condition during April, or early in May, when they seem to travel best, and placed on four or five built out combs, for a start, and fed with thin syrup until they are able to obtain sufficient food from outside, they have been found to produce enough honey the first season to pay for their cost several times over. The postal regulations in the United States have recently been revised so that bees in combless packages can be sent through the mails. This has been extended to Canada. The importation of bees on combs is not permitted. Queens are allowed to come in through the mails. There is no customs duty on bees. Bees and queens from Europe are now prohibited from entering Canada as a precaution against the introduction of Isle of Wight disease.

ORGANIZATION OF BEEKEEPERS.

The British Columbia Honey Producers' Association was organized and incorporated in January, 1920. It consists at present of four divisions, viz. Kootenay, Lower Mainland, Okanagan, and Shuswap and Thompson Valley Divisions. Each Division has its own officers and directors, and has control of its own funds. One representative is elected annually to the Central Executive. The Constitution and By-laws can be obtained from the Secretary-Treasurer. The objects of the association are:—

To promote and encourage the keeping of bees by the most suitable methods for their profitable management.

To assist members in disposing of their produce to the best advantage by the adoption of uniformity in the grading, packing, and labelling for market.

To obtain the most advantageous terms for members in the purchase of bee supplies.

To effect the standardization of such bee appliances as may be found most suitable for the province.

To promote and regulate local exhibits of bees, honey, wax, etc., and arrange for the judging of same.

To promote the growing of nectar-bearing plants.

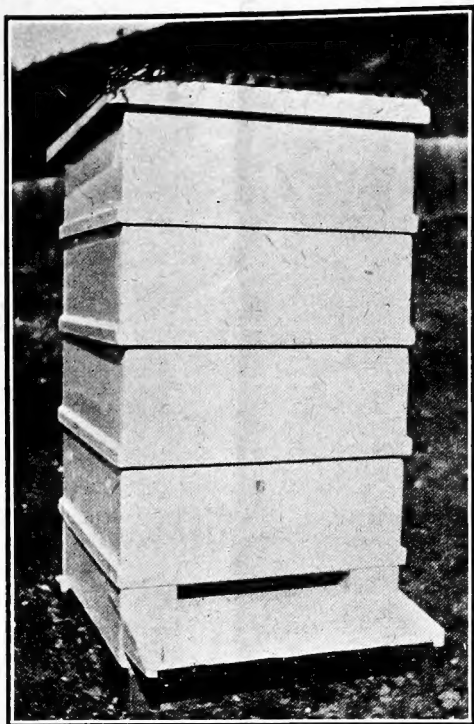
To aid in the dissemination of reliable and practical information with regard to the bee industry and further its progress in every way possible.

The annual subscription is one dollar, payable on the first day of January, in each year.

METHODS OF BEEKEEPING.

Hives.

What is known as the ten-frame hive, each story taking ten Langstroth frames, is considered to be the most convenient and suitable for general use. If preferred this can take the form of a double-wall brood chamber, with single-wall hive-bodies as supers.

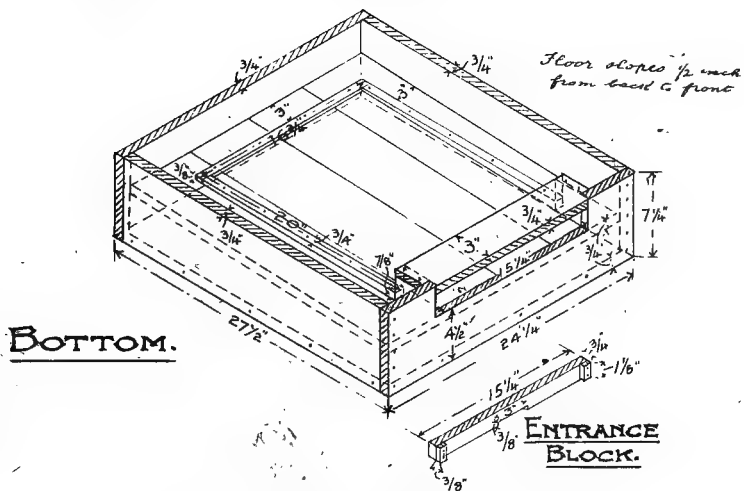
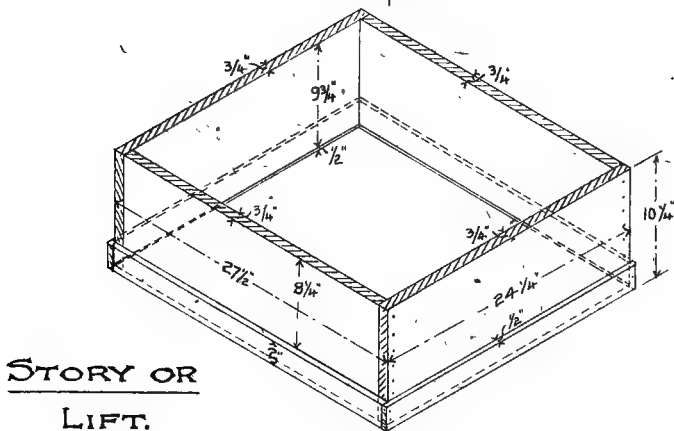
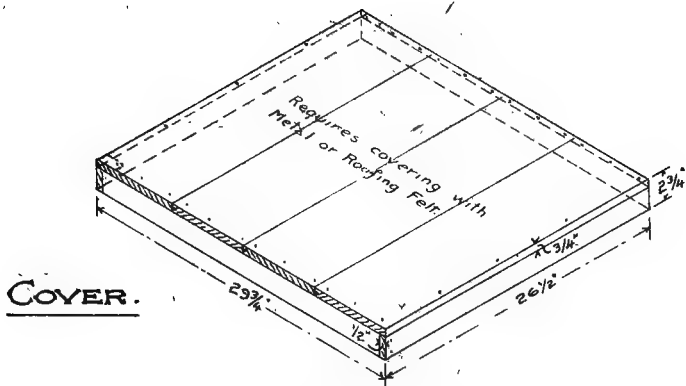


KOOTENAY HIVE-CASE

Permanently packed. There are 3 inches of packing below the floor and on all four sides. The flat cover is $\frac{3}{8}$ inch larger all around than the top of the case, and small triangular blocks nailed in the front corners, inside, raise it and ensure permanent ventilation. The stories are all alike, and as supers are put on are added as necessary. In this hive-case the bees are warmer in winter and cooler in summer. When packing for winter all that is necessary is to add the top covering over the frames.



A Provincial Demonstration Apairy. Bees all in Kootenay Cases.



KOOTENAY HIVE-CASE.

Approximate Scale: 6" 1 ft.

Designed by W. J. Sheppard.

Kootenay Hive-case.

An improvement on the double-wall hive has been introduced in the form of a permanent hive-case, made of cedar, to enclose the ten-frame single-wall hive-bodies, and provide a three-inch space all round them. This space, as far as the top of the first single-wall hive-body, or brood-chamber, is kept permanently packed with planer shavings, or other suitable material, all the year round. It is covered in at the top to prevent the packing from falling into the hive when opened. There is also a three-inch space underneath the floor which is kept permanently packed as well. The bees have more protection in this hive-case than in the double-wall hive, and the temperature is kept cooler and more uniform in summer. The supers being all under cover are shaded from the hot rays of the sun. There is no trouble of packing in the fall, and unpacking in the spring. It is simple in design, and can all be easily taken apart. The floor is made to slope half an inch from back to front, at the same time permitting the case itself to stand perfectly level. Blocks on the two front inside corners of the cover raise it so as to provide permanent ventilation, and allow any bees to escape that may get shut in, and this also makes a slope to the back to shed the rain.

Single-Wall Hive-Bodies.

The outside dimensions of the ten-frame single-wall hive-bodies are $16\frac{1}{4}$ inches wide, $19\frac{1}{4}$ inches long and $9\frac{1}{2}$ inches deep, the bee space being above the frames. The material used is white pine lumber, dressed on both sides, $\frac{3}{4}$ inch in thickness. These hive-bodies take ten Langstroth frames, spaced $1\frac{1}{8}$ inches from centre to centre, and a division board $\frac{3}{4}$ inch in thickness. Or, ten frames can be used, spaced $1\frac{1}{2}$ inches from centre to centre, without any division board, the inside width, viz. $15\frac{1}{4}$ inches, being just right for this purpose, with the allowance of a bee-space ($\frac{1}{4}$ inch) on the outsides of the outer combs.

When the single-wall hive-bodies are utilized as supers, for the production of extracted honey, it is a good plan to use nine frames only, spaced wider apart; without any division board, as the combs will then be correspondingly thicker when filled with honey, making it much easier to slice off the cappings with the uncapping knife.

Langstroth Frame.

The specification of the Langstroth frame that is generally used is as follows: **Material**, white pine. **Top Bar**, length 13 15-16 inches, width 1 1-16 in., depth $\frac{3}{4}$ inch. Slip cut out for nailing in foundation. **End Bars, or Posts**, length $9\frac{1}{8}$ inches, width 1 1-16 inches, thickness 5-16 inch. Housed at each end to receive top and bottom bars. Pierced for wiring. **Bottom Bar**, length $17\frac{5}{8}$ inches, width $\frac{3}{4}$ inch, thickness $\frac{1}{4}$ inch. **Lugs**, width $\frac{3}{4}$ inch, thickness 5-16 inch. **Metal Spacers** extend width of end bars to $1\frac{1}{2}$ inches.

SPRING MANAGEMENT.

As soon as the bees begin to cover the outside combs in the brood chamber add a second story above, containing built out combs, or full sheets of foundation, with one or two built out combs in the centre. Outside combs may be taken from the brood chamber for this purpose. Add other stories later, as required, for storing surplus, after placing queen excluder above the second story. Feed sugar syrup, if necessary, made of white granulated sugar, dissolved in hot water, equal parts of each.

SWARM CONTROL AND THE TREATMENT OF SWARMS.

As only one main honey-flow, usually commencing about the middle of July, can, as a rule, be reckoned on, and this of comparatively short duration, it is essential to have all the hives at their maximum strength at this particular time, so that the bees are in just the right condition, and therefore, in readiness to take the fullest

advantage of it. They may then be expected to store the largest quantity of honey possible. A good system of swarm control can, usually, be relied on to accomplish this. If the bees swarm, as they generally do under ordinary circumstances, when left to their own devices, just before, or at some period during this honey flow, the crop will be nearly all lost to the beekeeper, unless the colony is built up again, as near as can be, to its original strength, before swarming. Failing this the bulk of the honey that is gathered is used up by the bees in the production of brood and more bees, instead of being stored in the supers.

Some beekeepers make the mistake of dividing their colonies just before the honey flow and thereby lose the honey crop.

Methods of Swarm Control Found to Be Satisfactory.

The one that is mostly used is known as the Demaree plan, and

Demaree Plan

Super
8 frames of brood and 2 frames of drawn comb, one on each side.
Wire Queen Excluder
2 frames of brood and Queen in centre of 8 frames of drawn comb.

is operated as follows: Just before the colony is ready to swarm put all the brood, excepting one or two frames, in a second story over a queen excluder, (two frames seem to be the best, as otherwise the bees may neglect the queen), leaving the queen below with the one or two frames of brood, the vacancies at the sides being filled with empty combs, facing which full sheets of foundation. Cut out all queen cells at the same time, if there are any, and search for and destroy any queen cells, on the eighth or ninth day afterwards, that may be found in the second story. The brood frames in the second story, as soon as the brood hatches out, will be used by the bees for storing honey. Add other supers above the second story, as needed.

Another method, which is a variation of the Demaree plan is worked as follows:

When the bees cover all the frames in the brood chamber, some time in May, find the queen and place her with two frames of brood in the centre of a second story, over a queen excluder, adding empty combs, or frames containing full sheets of foundation, at the sides. Put in frames containing built out combs or full sheets of foundation, at the sides of the brood combs left below. The bees will usually build queen cells below the excluder, all but one of which should be destroyed on the eighth or ninth day afterwards. After the young queen has hatched below, and is mated and laying, the old queen above can be removed. If she is provided with two or three frames of brood and

Variation of Demaree Plan

Super
2 frames of brood and Queen in centre of 8 frames of drawn comb.
Zinc Queen Excluder
8 frames of brood and 2 frames of drawn comb, one on each side.

put into a fresh hive on a new stand this will make a good nucleus. The old queen, however, can be left until the combs below are partly filled with brood. By this method, if carefully followed, it is scarcely possible for the bees to swarm, the old queen being above the excluder, with ample room for egg laying. A powerful colony can by this means be built up in readiness for the honey flow in July, and a young queen assured to each hive so treated every year. After the old queen is removed from the second story queen cells may possibly be built there. If so these should be destroyed on the eighth or ninth day afterwards. A colony headed by a queen of the current year does not swarm as a general rule. Bees will sometimes not build queen cells when an all-wire queen excluder is used, but will more often do so, either above, or below, a zinc excluder, if there is brood in the queenless part.

The following has also given good results: After the second story has been added in the spring and it is time to put on a third story the queen is transferred to the bottom story, on which a queen excluder is placed. A story of empty combs is put on the bottom story, next to the excluder, and the brood that was formerly the second story now becomes the third story. Other stories are added as required. Queen cells are likely to be started in the third story and if not required it is advisable to destroy them about the eighth day.

Another plan for swarm prevention, which has the merit of simplicity, is to remove or cage the queen, when the bees are strong enough to make preparations for swarming, and cut out all queen cells but one on the eighth or ninth day afterwards.

When swarms issue methods may be followed and a good crop of honey obtained, as well as increase of colonies. When as much increase as possible is desired the well known plan of hiving the swarm in a new hive on the old stand, transferring the supers to it, and dividing up the brood frames into two-frame nuclei, with a queen cell to each, is good procedure. For moderate increase the following directions can be put into practice: After a first, or prime swarm issues, (1) Move old hive to a fresh stand. (2) Hive swarm in a new hive on the old stand, on built out combs, or full sheets of foundation. (3) Transfer supers to swarm. (4) On the third or fourth day afterwards transfer four or five-frames of sealed brood from the old hive to the swarm after cutting out all the queen cells they may contain. Put these in the second story over queen excluder. (If preferred the old queen, that is with the swarm, may be taken away at this stage, and a queen cell or newly hatched queen substituted which should prevent the possibility of second swarming).

A variation of this method, which is sometimes followed, is to place the old hive close to the swarm, that has been hived on the original stand, and face it the same way. A week later the old hive is moved to a new location, ten feet or more distant. The swarm is by this means further strengthened with the flying bees from the old hive, and the latter will be too weakened to swarm again.

When a first swarm issues and increase is not required a very good plan is to remove all the brood from below and place it in a top story above the supers. Then return the swarm to the brood chamber, that has been filled with empty combs, or full sheets of foundation, below a queen excluder. Cut out all the queen cells in the brood frames above and also any more that may be built there, on the eighth or ninth day afterwards. Or a small entrance can be given above so that a young queen can fly out and get mated and then be used to replace the old queen below. If this is done it would be advisable to use another queen excluder so as to confine the young queen to the top story and so prevent her from laying eggs in the super.

If preferred the swarm may be returned by hiving it in a top story, over a queen excluder, afterwards taking away the old queen and leaving a queen cell to hatch below.

THE PRODUCTION OF EXTRACTED HONEY.

Extracted honey is usually produced by using the ordinary deep Langstroth frames in the supers. Shallow extracting frames $4\frac{1}{4}$ inches in depth are sometimes used. The latter are made $4\frac{1}{4}$ inches deep so as to be interchangeable with hanging section frames. If a good supply of built out combs is on hand, this being a beekeeper's most valu-

able asset, large yields of honey can be obtained, provided that the hives are at full strength, and this is maintained while the flow is on. It is important to keep on adding supers as soon as the bees require more room, which it is better in this climate, to place on the top, instead of between, as the nights are often cold. Three deep supers will generally be found sufficient and need to be kept in readiness. When filled these will contain about 150 lbs. of honey. One of the largest amounts of extracted honey reported as having been taken from one hive in a single season was 342 pounds, at Castlegar in 1918. 2100 pounds of honey was taken from three hives, Spring count, in the Slocan Valley, in 1919, which were increased to ten.

THE PRODUCTION OF SECTIONS AND CHUNK HONEY.

Comparatively few of the beekeepers have as yet started to produce sections and chunk honey, although there is a good demand for both. Bees will commence work in sections more readily if they are alternated with extracting frames, especially if the latter contain built out combs. For this purpose hanging section frames made to take, preferably $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{2}$ inch, plain, or no-bee-way sections are required, with two hanging separators to each. If shallow frames are used full sheets of super foundation may be put in them and the combs can then be cut out and sold as chunk honey, or they may be extracted in the usual way. They should not be wired.

The most perfect sections, free from pop-holes, are usually obtained by using top and bottom starters. The top starter of thin super foundation should be about $3\frac{1}{4}$ inches in depth, placed in the centre, and firmly fixed at the top and sides, and the bottom starter about $\frac{5}{8}$ inch deep. The space between each should be not less than $\frac{1}{8}$ inch nor more than $\frac{1}{4}$ inch. An easy and expeditious way of fastening the foundation is to use liquid wax, melted on the top of hot water, preferably in a double-boiler. An ordinary glue-pot can be used for this purpose and kept heated over a small oil or spirit stove. Water is put in with the wax in the top boiler, and a brush about $\frac{3}{4}$ inch wide, cut in the shape of a wedge, is required, which is dipped down low enough to reach well into the water every time it is used. The hot water, with the wax, keeps the brush from cooling too quickly and getting clogged. A very thin layer of wax can be quickly laid on by this means. It is a good plan to coat all the inside of the section with wax, at the same time, which will make it easier for the bees to form their attachments when building comb. The inside of frames might with advantage be treated in the same way. After embedding the wires in the foundation in the frames they can also be covered with a thin coating of wax, if this work has been done with a spur embedder. If, however, an electric embedder is used, which does the best work, this will not be necessary.

A NEW ELECTRIC EMBEDDER

A new type of electric embedder has been designed and has proved a great success. It is so simple that anyone can make it at a small cost. It does first class work expeditiously and more satisfactorily than if performed with a spur embedder. Only a little practice is necessary to get into the way of using it. The wires will then be firmly embedded and waxed over in the centre of the foundation greatly adding to its strength and rendering it less liable to stretch or break down from the weight of the bees while being built out into comb. The material required is two 22 inch lengths of single flexible electric lighting cord, and two pieces of stout insulated wire, such as is used for outdoor wiring, about seven inches long, the latter being for holding in the hands. A small loop is made at one end of each of the two flexible wires, so that they can be attached to two dry cell batteries. The other is joined to one end of the stouter insulated wire, which has a loop made for this purpose. The other ends are stripped of the insulating material for about three-quarters of an inch and are flattened with a hammer or filed to a chisel point. All is then ready for use after being

attached to two dry cell batteries. The frame, already wired, and filled with foundation, is laid on the board ordinarily used for the spur embedder. Commence at one end of each wire, and hold the chisel points against it a few inches apart. As soon as the wire becomes heated and melts the wax sufficiently lift the point at one end, so as to break the circuit, pressing the wire into the middle of the foundation at the other, and holding it in this position until the melted wax has cooled, which is almost instantaneous. Then start off again. The length of wire that can be embedded at one operation depends on the strength of the current, and also on the tightness of the wires. The wires should be as tight as possible. If there is much embedding to be done and electric lighting current is available this can be used instead of the dry cell batteries. In this case, it will be necessary to make a transformer, so as to reduce the voltage. This can be done by passing the current through an ordinary electric flatiron, but a better way is to pass it through water in a quart jar. An Economy or Mason jar answers well. Two coarse perpendicular wires, reaching from top to bottom, are fixed inside the jar so that they cannot touch each other. The connections with the embedder are made at the top of these wires. The jar is filled with water and a little salt is added, it may be as much as half a teaspoonful, which will bring the current up to the strength required to do the work. This current will be found more regular than from the dry cell batteries which are gradually getting weaker all the time. The strength of the current should not be great enough to make the wires too hot and is regulated by the amount of salt, which requires to be added a little at a time, until it is found to be just right for embedding all the wires at one operation.

DOUBLE SCREEN-WIRE SUPER CLEARER.


This is one of the most valuable of the modern appliances that have been introduced as it can be used for a multiplicity of purposes. With the addition of the Porter or Lewis Bee Escape it can be used for clearing supers. It can also be used for uniting colonies, for getting queens mated in a top story, for hiving swarms above supers, providing a passageway over frames in winter, etc.

PREPARATION OF HONEY FOR MARKET


Honey for the retail trade is usually put up in either upright screw-cap glass jars, holding 12 or 16 ounces net, or metal pails with lever lids, of four or five pounds capacity, net. Members of the British Columbia Honey Producers' Association can obtain the Association registered honey labels, specially designed for use thereon. The honey labels are obtainable from the Secretary-Treasurer of each Division, at the following prices, post free:

100.....	\$.60
250.....	1.30
500.....	2.50
1000.....	4.50
2000 or over (per 1000).....	4.00

Cans holding 60 lbs. are a handy size for storing honey and selling it in bulk. Sections are generally sold just as they are taken from the hives, after being scraped free from propolis and wax. It would be an improvement, however, if they were put up in cartons so as to protect them from dust and insects. Chunk honey, also called "bulk comb honey," is comb honey cut into strips and put into glass jars, the space at the sides being filled with liquid extracted honey. The latter requires to be heated first of all to about 130 degrees (Fah.) and kept at that temperature for two or three hours so as to retard granulation as long as possible. Under the provisions of the Apiaries Act, 1919, all honey produced in the Province that is offered for sale must be labelled "British Columbia Honey" and have the net weight stated.



BRITISH COLUMBIA
HONEY



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REGISTERED

No 9424

This label is issued by the British Columbia Honey Producers Association on the understanding that it is only to be used on honey of good quality produced in the Province of British Columbia. [Make all complaints at www.bchpa.com/complaints.html](http://www.bchpa.com/complaints.html)

All pure Honey will granulate sooner or later. To liquefy, set jar or can in warm water no hotter than the hand can bear, and allow it to stand until the Honey becomes perfectly clear. This label is issued with the view of encouraging the sale of pure British Columbia Honey.

NET WEIGHT not less than pounds.

FEEDING AND FEEDERS.

Feeding, to some extent may be necessary every year. Syrup feeding in early spring is often essential, equal parts of sugar and water being given at this period. If sufficient honey for winter, about 30 lbs., not left in the hives at the time of extracting, it will be necessary feed syrup, two parts of sugar to one of water, to make up the deficiency. This feeding which should be as rapid as possible should be finished by the end of September, but if not then by the middle of October, at the latest, so that the bees are able to store and seal it in the combs before the weather gets too cold. A good feeder can be made out of a four or five pound lever lid honey pail. About a dozen small holes, just about large enough to pass an ordinary pin through, are pierced in the lid. It is then filled with syrup and inserted over the feed-hole that has been cut in the centre of the quilt. A glass Mason jar with the lid perforated in the same way also makes an excellent feeder, only in this case a small wooden platform covered with screen wire has to be made so as to provide a bee-way under it. Dry sugar feeding with brown sugar answers well for supplying colonies in need in June and is good for stimulating nuclei. The dry sugar feeder is made by nailing a thin piece of board on each side of a Langstroth frame, the greater part of the top bar being sawn out so that the sugar can be put in and the bees able to take it from the top. It is intended to hang at one side of the hive and has the advantage of not requiring attention for some time as it will contain five pounds of sugar. Candy is a make-shift and only used for feeding bees when the weather is too cold for them to be able to take syrup.

WINTERING.

Bees require to be packed for winter about the end of October, before the snow comes, and then left undisturbed until the following spring. Entrances may need looking to occasionally during the winter in case they should be clogged with dead bees which can be raked out with a bent wire. Bees in single-wall hives, if well provided with good food, will come safely through the winter, as a general rule, if several thicknesses of sacking are tied outside and covered with tar paper to keep out the wet. A hive-body half filled with sacks makes a good porous top covering. If double-wall hives, or hive-cases, as previously described, are used, all that is necessary is to add sufficient top covering, about six inches in depth, over the frames. It is a good plan to leave the queen excluder on all the winter. If it is reversed, it will provide a double bee-space and thus ensure a clear passage way over the combs. The bees require at least thirty pounds of sealed stores to carry them through the winter. Any honey dew, or fruit juice, the bees may have stored, should be removed from the hives, and kept for spring feeding, honey, or sugar syrup being substituted. With porous coverings, winter entrances are best left about three inches long by three-eighths of an inch deep. Non-porous coverings necessitate a larger entrance.

Experiments carried out with packed hives by the Bureau of Entomology, United States Department of Agriculture, have shown that much heat is lost from unprotected hive bottoms. It is stated that "failure to insulate the bottom of the hive largely offsets the value of insulation around the hive in the wintering of bees. Experiments conducted with a number of insulated hives showed that much heat was lost from the unprotected hive bottom. Beekeepers have repeatedly claimed that excessive insulation is even more detrimental in winter than insufficient insulation, because of the failure of the colony to warm up on bright days. To test this theory a colony was packed in the fall with sixteen inches of sawdust on all sides, top and bottom. Temperature records were made at frequent intervals every day throughout the winter and spring. The colony remained in excellent condition in every respect throughout the winter, and after the brood rearing began it built up with great rapidity. Then, to continue observations on

the effect of insulation, on the building up of the colony, the packing was allowed to remain all summer. Except for the impossibility of manipulating the colony it remained in excellent condition. It seems clear, therefore, that beekeepers need not fear detrimental results from abundant insulation at any season of the year."

BEE DISEASES.

There has not been much trouble with diseases in the Interior of British Columbia. Occasional outbreaks of American Foul-brood have occurred from time to time. It has not always been possible to trace the source of infection but it most frequently originates from bees that have been brought in from infected areas. Possibly, it is sometimes started by containers that have been used for imported honey, being thrown out where bees have had access to them. Some cases have been traced to package bees imported from California. There have been a good many cases of Sac-brood, and American Foul-brood and Sac-brood have occasionally both been found present in hives at the same time.

Owing to the presence of European Foul-brood on the Lower Mainland the movement of bees within this area is prohibited without a certificate of inspection showing that the apiary from which they came has been inspected by a Government Inspector within a period of thirty days prior to such movement and found to be free from disease.

USEFUL HINTS.

Syrup for Spring Feeding.—White granulated sugar dissolved in hot water, equal parts of each. Give syrup to the bees warm, and in the evening, so as to prevent robbing from being started.

Syrup for Winter Food.—Two parts of white granulated sugar to one part of water, by volume, and boiled for about fifteen minutes. Add one ounce of cream of tartar for each forty pounds of sugar, before boiling point is reached. The latter helps to invert the sugar and retard granulation. Keep well stirred until sugar is dissolved. Burnt sugar is injurious to bees. Give syrup warm, and in the evening, and use plenty of warm coverings round feeder to conserve the heat.

Candy.—To ten pounds of white granulated sugar add one and a half pints of hot water, half an ounce of salt, half a teaspoonful cream of tartar. Put whole in a stewpan over a brisk fire and keep well stirred until sugar is dissolved. When it comes to the boil, draw pan back so that it simmers gently for ten minutes. As the scum rises skim it off. Then place stewpan in a larger vessel containing cold water. As soon as it has cooled sufficiently so that the finger may be kept in without scalding keep stirring until it becomes of the consistency of thick cream, and pour out into deep pans or dishes lined with stout paper. If of the right consistency it should be smooth in the grain and soft enough to be easily scraped with the finger nail when cold.

Safe Queen Introduction.—Queens can invariably be safely introduced by means of the large wire-cloth cage made to enclose a Langstroth frame. A frame of sealed hatching brood, from which the bees have been shaken is put into the cage and then the queen. The cage is put in the centre of the brood nest in the hive and allowed to remain for several days, until a good number of young bees have hatched, when the frame can be taken out and replaced in the hive.

Supersedure Cells.—Queen cells built on the face of the comb are usually an indication of supersedure of the queen.

When to Add Supers.—When the bees extend to the outside combs in the brood chamber add another story of built out combs, or full sheets of foundation. When they are found working on the outside combs in this add another story and so on.

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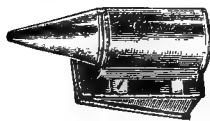
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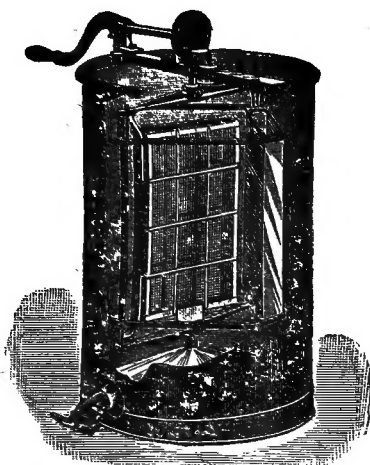
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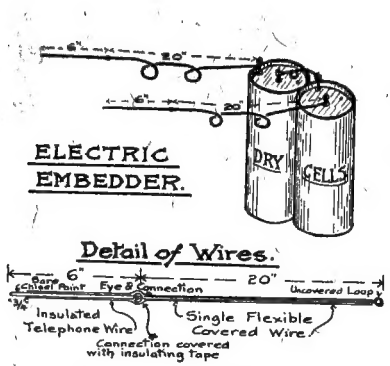
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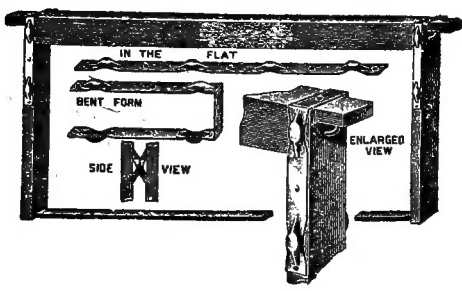
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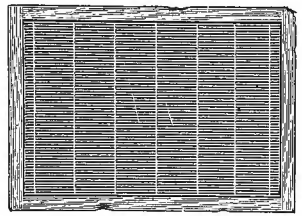
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Described on Page 13



Metal-spaced Langstroth Frame



Wire Queen Excluder

J. F. Roberts, Rutland, B. C.

Italian Queens

Bees

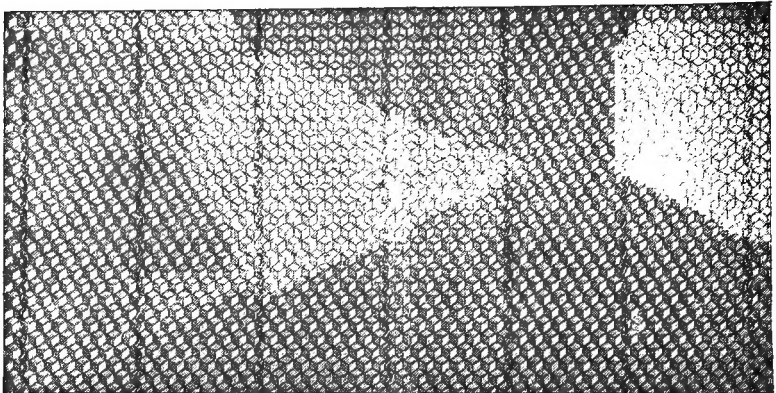
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THE BRITISH COLUMBIA HONEY PRODUCERS' ASSOCIATION

.....Division.

I,

of
hereby make application to become a member of The British Columbia Honey Producers' Association and I enclose herewith membership fee of \$1.00 per annum. Also \$1.00 for one year's subscription to the American Bee Journal.*

*If American Bee Journal is not required cross this out.

