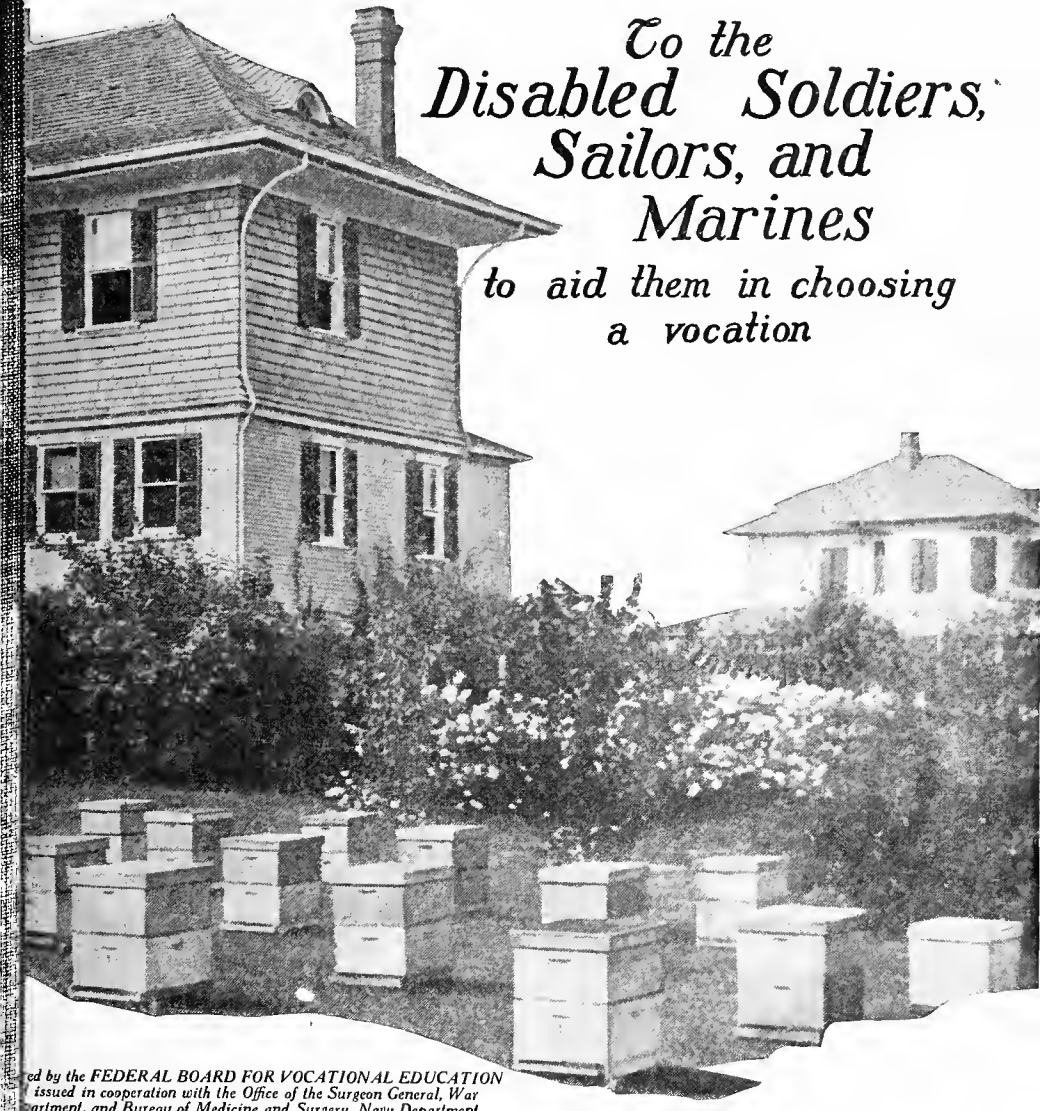
Opportunity Monograph
Vocational Rehabilitation Series No. 37

Bee Keeping

April 1919

To the Disabled Soldiers, Sailors, and Marines to aid them in choosing a vocation



ed by the FEDERAL BOARD FOR VOCATIONAL EDUCATION
issued in cooperation with the Office of the Surgeon General, War
artment, and Bureau of Medicine and Surgery, Navy Department

Note to the Disabled Soldier, Sailor, or Marine.

As a disabled soldier, sailor, or marine you should remember always that the Office of the Surgeon General, War Department, and all of its employees, the Bureau of Medicine and Surgery, Navy Department, and all its employees, and the Federal Board for Vocational Education, and all its employees, are mutually interested in your welfare solely. They have arranged a definite plan of cooperation to help you in every possible way. You can not afford to leave the hospital until the medical officers have done everything that they can for you to restore you to physical health and strength. Any other course will interfere with your vocational success later. Furthermore, you should by all means take advantage of the educational opportunities which the hospital has provided for you.

While you are making up your mind what line of work you want to follow you should take advantage of the opportunities to try yourself out in the different lines of activities which are provided at the hospital. When once you have made up your mind as to the employment you want to enter or the kind of training you want the Federal Board to give you after you leave the hospital, you should ask the vocational officers at the hospital to provide for you the kind of training which will advance you in the direction of the occupation which you expect to follow or for which you expect to be trained after you leave the hospital. You will find the educational officers at the hospital eager to render this service for you, and you should consult them early in your hospital career.

All disabled soldiers, sailors, and marines in hospitals who want information about reeducation should ask any instructor of the Hospital Educational Service or the representative of the Federal Board for Vocational Education.

Men discharged from the military or naval service who want information should write to or call at the office of the Federal Board for Vocational Education, Washington, D. C., or the District Office of the Federal Board of the district in which they are located. The district offices of the Board are located at the following points: Boston, New York City, Philadelphia, Washington, Atlanta, New Orleans, Dallas, St. Louis, Cincinnati, Chicago, Minneapolis, Denver, San Francisco, and Seattle. For addresses, see page 31.

Prepared under the direction of

CHARLES H. WINSLOW,

Chief of the Division of Research, Federal Board for Vocational Education.

By

WALTER J. QUICK, M. S., Ph. D.,

Special Agent Agricultural Research.

ACKNOWLEDGMENTS.

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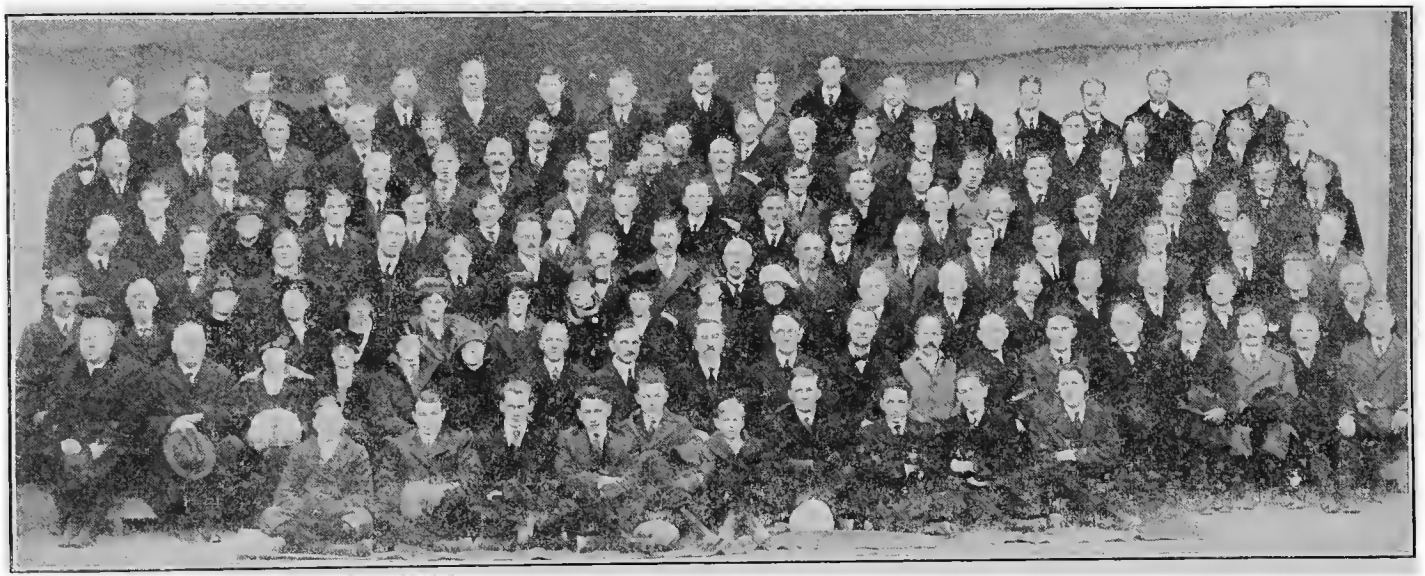

FIG. 1.—This photograph exhibits what beekeeping means and the interest which it creates. It shows those in attendance at the extension school for commercial beekeepers held by the Bureau of Entomology and the New York College of Agriculture at Ithaca, N. Y., during the week of February 24, 1919. Of special interest to the disabled is the wife of one of the boys of the famous Princess Pat Regiment—you know it—now convalescing in Canada (the woman with the white tam-o-shanter). He was a commercial beekeeper before the war and since his disablement his wife is studying beekeeping to help with the part of the work which may trouble him. Dr. E. F. Phillips (directly in front of Mrs. "Princess Pat") is apiculturist of the Bureau of Entomology who directed the school, and to whom is due acknowledgement for able assistance in presenting the advantage of beekeeping to you. On his right is Mr. C. P. Dadant, editor American Bee Journal and a celebrated life-long beekeeper, and next to his right is Mr. George S. Demuth, of the Bureau of Entomology, both of whom assisted with this course. Next to the left end of the same row (the fat man) is Mr. O. L. Hershiser, president of the New York Bee Keepers' Association. Just to show the class of attendance, the man on the extreme right of the picture is Mr. Elton Warner, who has 1,000 colonies of bees in Porto Rico and is now getting started in North Carolina with 600 colonies. Some beekeeper. The second from your right in the top row is Mr. F. W. L. Sladen, Dominion Apiarist for Canada, who came down for the course.

Mr. R. F. Holtermann (sixth from your right in the second row from the top) writes of this course in the April, 1919, issue of Gleanings in Bee Culture: "I stumbled—yes, stumbled—upon a course of lectures which well repaid me for my trip. In fact, I would not care to place a money value upon the information secured. The writer would strongly recommend to any one wanting up-to-date information in beekeeping not to hesitate to go hundreds of miles to attend such lectures."

Note the uniform (sixth from your right in the third row from the top).

BEEKEEPING AS A VOCATION.

The increased use of honey during the war and the possession of some previous knowledge of bees may have directed the attention of a large number of you, who are disabled, to the possibility of making beekeeping your life work. During the war the shortage of sugar made the larger use of other sweets imperative, and it was essential that the use of these substitutes be augmented to the greatest possible extent. The necessary introduction of honey has made its deliciousness, palatability, and healthfulness widely known and will lead to its continuous and increased general domestic use. The export demand for American honey has recently increased beyond any former record and the price has doubled. Beekeeping and honey production present an opportunity to you for profitable livelihood with small investment. It is to your personal advantage to consider it carefully.

Fig. 2. Ready for business.

The object of the Federal Board for Vocational Education in issuing this monograph is to explain to you the business of beekeeping and to help you in reaching a conclusion as to whether or not you wish to undertake it. The Board will offer short, intensive courses of vocational training in bee culture to assist you in becoming an efficient and financially successful apiarist, courses similar to that held at the Agricultural College, Ithaca, N. Y. (See frontispiece, Fig. 1, of class.)

Bee Culture Light Work, Interesting, and Profitable.

Beekeeping differs from most other branches of agriculture, in that the beekeeper handles an animal which has never been domesticated. He must therefore study the habits of this animal and know them intimately before he may hope to succeed with this work. The feeding habits, breeding, and even the housing of bees has not been materially changed in all the centuries that man has handled them. If their habits are well understood, the beekeeper may cause them to accomplish results which will lead to the greatest profit to himself. The work is light, without routine duties at fixed times, with no drudgery. Beekeeping is interesting, in fact enthusing and strengthening to the mind and the body. It is a profitable business which may be made very lucrative with devotion and experience. A western man sold his crop of one season to a well-known company dealing in honey for $30,000.

What is Honey?

Honey is made from the nectar secreted by thousands of varieties of flowers. This nectar is gathered by bees and modified by them chemically. Water is evaporated out of it and it is ripened into a delicious and wholesome food.

If You Are Single.

If you are a single man without dependents, or a man required by his course of instruction to live apart from his dependents, you will be paid by the Government at least $65 per month. You may be paid more. If, for example, you received more than $65 per month as pay for your last month of active service, you will receive this same pay during your entire course of training. Furthermore, if your disability is such that your monthly compensation under article 3 of the war-risk insurance act is greater than $65, you will continue to receive this sum, whatever it may be, during your entire course.

If You Are Married.

If you are married, you and your wife together will receive $75 per month from the Government, provided you live together while you are taking a course of instruction. If your course is such that you must live apart, the Government will, as has already been stated, pay you $65 per month and your wife $30 per month. The larger your family the larger the amount paid by the Government for its support, whether living with you or separately from you while you are being trained.

Before cane sugar was manufactured in quantities for commercial use honey was the most common sweet in human food. In pioneering days it was hunted systematically in hollow trees and crevices in rocks. Wild honey so secured was considered well worth the time spent in seeking it.

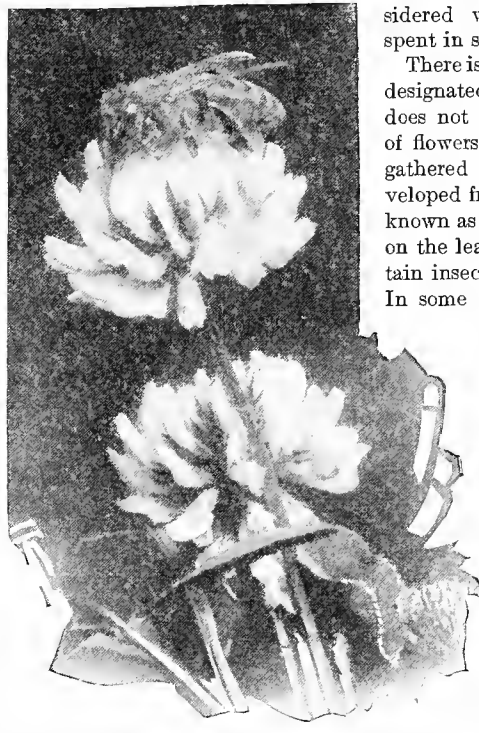

Fig. 3.—Gathering the nectar crop from white clover blossoms. Enlarged.

There is another form of honey designated as abnormal, since it does not come from the nectar of flowers, but is, nevertheless, gathered by bees. It is developed from a sweet substance known as honey dew, deposited on the leaves of plants by certain insects such as plant lice. In some regions honey dew is not found at all. Where found, the amount that bees gather is negligible in comparison with the amount of nectar gathered from blossoms. Nectar is so changed chemically and modified by ripening and evaporation after being gathered by bees, that in the form of honey it is readily digested and assimilated.

Healthfulness of Honey.

Before the manufacture of great quantities of sugar a larger amount of honey was used per capita than is used now. The necessary introduction of honey as a substitute for sugar has just recently again called general attention to its healthfulness and the lesson is not likely soon to be forgotten. Because it is predigested and readily assimilable, physicians recommend it as a food for persons with delicate stomachs, for those troubled with kidney complaint, and for those subject to constipation, since honey is laxative in effect.

The average amount of sugar consumed annually for every man, woman, and child is about 80 pounds, and this sugar can not be assimilated without change in the stomach, an action not necessary with honey. It can readily be understood that the population might be benefited by substituting honey for some of the sugar consumed. When the stomach fails to do its work in modifying the sugar, the eliminating organs, the kidneys especially, are severely taxed. A noted physician, now 84 years old, eats honey instead of sugar, believing it will prolong his life and give him better health while living. He says that it is well authenticated that, as our natural craving indicates, sweets are a real need of the system, but that the excessive use of sugar brings in its train a long list of ills. He asserts also that the

health of the present generation, if honey could be at least partially restored to its former place, would be greatly improved.

Prof. Cook, of California, says: "Physicians may be correct in asserting that the large consumption of sugar is a menace to health and long life, and that by eating honey our digestive machinery saves work that it would have to perform if we ate sugar and in case it is overtaxed and feeble, this may be just the respite that will save it from a breakdown." Switzerland produces large quantities of honey, but the demand for it is so great that the price has advanced and the Government has been compelled to fix it. Although we may infer

Fig. 4. Among the bees.

that the Swiss themselves are a great honey-eating people, Dr. Emfeld, of Geneva, seems to think that they might well eat more of this sweet. "If people would eat more honey," he says, "we doctors would starve."

Uses of Honey.

Honey has many medicinal qualities, and is used in nearly all cough sirups, cold preparations, and compounded in many other medicines where delicate flavor, absolute purity, and sweetness insure results not to be obtained by the use of any substitute.

While commonly used in its natural state as a spread on hot bread and cakes, honey may be employed in cooking wherever sugar may be used. The same beneficial effect upon health will follow as a result from its use in the natural state. Foods prepared with it are better and will remain in fresh condition longer than if prepared with sugar or sirup. Bread and cakes prepared with honey will not dry out as with sugar, because honey attracts moisture. It has long been em-

Opportunity Monographs.

As a disabled man interested in how you can "carry on" when you get back home, you can not afford to miss reading the Opportunity Monographs published by the Federal Board for Vocational Education for your special benefit. In them you will find, plainly and simply stated, all the information you need about many, many occupations in which you may be interested. By reading them you will know better what you would like to do, and the representatives of the Federal Board, wherever you may meet them, in hospital or office or by correspondence when necessary, will be in the position to help you make your choice of what you want to do, help you get properly prepared for it, and put you in the proper occupation after you have been prepared to stand on your feet as a worker in it.

Uncle Sam Foots the Bill.

If you are interested in what the Government has planned to do for you in training and placing you in civilian employment, remember that if it is necessary to reeducate you the entire cost will be borne by the Government. Training will be furnished free of cost and you will also be paid as long as the training lasts a monthly compensation equal to the sum to which you were entitled under the war-risk insurance act, or a sum equal to the pay of your last month of active service, whichever is the greater.

ployed in the household in general cooking, as well as in canning and in the baking of many desirable kinds of bread, and numerous varieties of cakes, gems, snaps, and cookies. When used in sweetening tea and coffee it does not cause any loss of aroma. Its recent substitution for sugar is causing it again to be employed in making pies, puddings, and sauces. Confectioners use honey freely, and might well use it more

FIG. 5.—Diversion with the gentle busy bees, without veils or gloves.

freely than they do in making honey nuts, candies, creams, butter scotch, and popcorn balls.

In Turkey, a great honey-producing country, where bee culture is scientifically followed with the noted oriental strains of bees, a popular sweet, known as rose honey marmalade, is manufactured. It is made from the leaves of roses and honey and combines the exquisite perfume of the former with the delightful flavor of the latter in an unusual product of the nature and texture of a marmalade due to incorporating the rose petals with the honey.

Beekeeping Permits Serious Handicaps.

Beekeeping, like many other lines of agriculture, presents an exceptionally attractive and profitable vocation to the disabled men of the war. The handling of bees is interesting and encourages the most valuable exercise, but the muscular effort is small. It probably requires less constant devotion, except during the main honey-flow, than any other country pursuit. Therefore it is especially attractive to the convalescing or those who have recovered from wounds, even if they have lost one or more limbs.

Though handicapped in various ways you may confidently hope to become as near 100 per cent efficient in bee culture as in any other work. A beekeeper should, however, have one good hand and arm.

Heads, you win!

From the neck down you may be worth $1.50 per day; from your neck up you may be worth any price, provided you will get prepared to do well the occupation which you and the representatives of the Federal Board find to be most suitable for you with your handicap.

FIG. 6a.—Mr. Donnegan, beekeeper despite handicap.

FIG. 6b.—Mr. Nicholls, apiarist, lost both legs.

Uncle Sam offers you every possible assistance in the way of artificial limbs, interchangeable devices, and vocational training for the greatest possible success in bee culture. Such opportunity was not offered the disabled veterans of the Civil War, Mr. John Donnegan, of Seguin, Tex., whose photograph shows him using a special strap which he devised to serve in place of his missing hand in moving honey supers, hives, and frames of comb. He has made a wonderful success and spent the greater part of his life as a beekeeper. The ingenious use of a strap around his shoulders with a snap that can easily be attached to a screweye placed in the various articles to be handled, but poorly takes the place of appliances and an artificial hand and arm, which are now furnished free of expense to our disabled soldiers.

Life in the open.

Civil engineering means life in the open. If you like this kind of life, why not consider civil engineering? If you are adapted to it you can find out about this by talking to the representatives of the Federal Board.

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Examples to follow.

A former carpenter whose left leg was amputed above the knee on account of injuries received in battle studied machine designing and is now employed by a railway.

Another soldier suffered with chronic bronchitis and asthma, and found it inadvisable to return to his former occupation as a bartender. He was trained as a motor mechanic and secured an open-air position as chauffeur.

A former laborer was weakened by a gunshot wound in the back and abdomen. He was given a course in mechanical drawing and is now employed in a drafting room.

A soldier suffering from chronic nephritis, formerly a farmer, studied machine-shop practice and is now employed in the tool room of a motor company.

A machinist's helper lost the power to use his left hand, was retrained in a course for steam engineering, and is now employed as a stationary engineer in a roundhouse.

$25 or $10 a Week?

What is the difference between $25 and $10 a week; between comfort and poverty; between independence and the constant fear of dependency; between saving for a rainy day and living from hand to mouth? The difference is one of training. It is the difference between the trained and the untrained man. Therefore, take training.

The American Bee Journal and Gleanings in Bee Culture find many successful apiarists who are partially incapacitated and who would be poorly fitted for most other lines of work. One of these, Mr. Harvey E. Nicholls, of Iowa, when 21 years old lost both legs—one below the thigh, the other below the knee. He did not give up to live on charity, but grew ambitious to make his life a success. He selected beekeeping, purchased a colony of bees and a good book on beekeeping that he might study them and neighboring apiaries together. He realized for the season from the one hive 80 pounds of surplus honey and enough for the bees, which, properly packed, wintered so well that they were strong in the spring for gathering nectar and starting an apiary.

He secured three old hives and two 2-pound packages of bees, also two colonies which he handled on the shares for half. He transferred the bees from the old boxes to standard 10-framed hives. The season's results were 12 colonies and 400 pounds of honey. He also represented the Honey Producers' Supply Co., making something on the side. The next spring, 1918, two more colonies were purchased, added to the dozen, and moved 5 miles into the country, where 45 colonies more were handled for half of the surplus honey. The supply factory work was almost entirely dropped that the bees might have undivided attention. A second-hand Ford was purchased on time, which an artificial leg enabled him to drive as well as anyone.

The results of the season from May 1 to September 9 were his own 14 colonies increased to 20, the 45 colonies on the shares increased to 85, and cash returns over $800. By adopting the slogan suggested by the Bureau of Entomology, "Keep more bees; keep bees better," he can doubtless greatly increase his income.

He may be appropriately called a self-made man. In addition to a successful start as a beekeeper he is studying to complete a course in high school. He has helped support his grandmother and sister, and, believing in tithing, has given one-tenth of his earnings to charities.

The story of Mr. Nicholls but expresses in part what any disabled man may accomplish with vocational training and devotion to beekeeping or some other occupation that will insure useful and respected citizenship.

Your disability need not interfere with your engaging in this work, but it may take grit and determination to pull you through the early stages. You may be sure when in the ranks of the good beekeepers you will be associated with admirable people who will gladly aid you in any way possible in making good.

The Bee Family.

This interesting family called in bee culture a colony lives in a house known as a hive many of which aggregated form a bee city—an

Fig. 7a. Queen.

Fig. 7b. Worker.

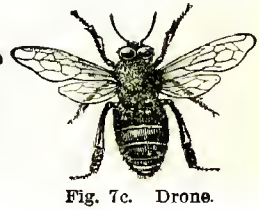


Fig. 7c. Drone.

apiary. The family consists of three types of bees, the queen, Fig. 7–a, the mother of the family and naturally the only one of her nature in

FIG. 8.—The Queen and a portion of her family with the bees detailed as her special guard immediately surrounding her.

the colony. She is a fully developed female bee whose sole duty is that of laying eggs and increasing her family—the population of the colony—which reaches large numbers. The worker, Fig. 7–b, is an undeveloped female, and this type represents the largest number of the colony's population, which may run from several thousand to eighty-five or one hundred thousand in one hive or family. As the name indicates the workers gather all the honey and food, care for the young bees and perform other duties in the hive. The drone, Fig. 7–c, is the male bee. He, as his name indicates, contributes nothing to the upkeep of the family, a family in which truly "everybody works but father." The queen is able to control the strength of the colony. The workers by construction of a queen cell about an egg and by giving different food may develop a queen from what would otherwise have been developed into a worker.

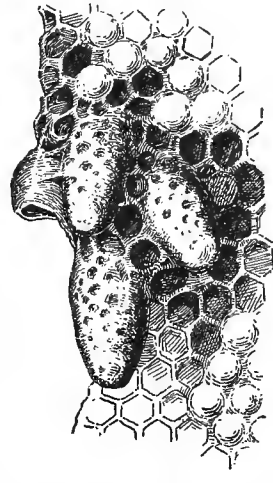


FIG. 9.—Queen cells. Natural size.

Will you Carry on?

If none of the occupations outlined in this pamphlet are possible ones for you to learn, the Government has provided hundreds of courses in other lines, among which there is one precisely suited to meet your needs—one in which you can become 100 per cent efficient, whatever injury you may have suffered.

The scheme of occupations for which training will be provided by the Government free of cost to you includes more different sorts of employments than you have ever heard tell of. If you don't find one that suits you in this pamphlet, get another.

After you have been trained, Uncle Sam will undertake to find an employer who needs your help, or if you prefer to go it on your own, you will be provided with an outfit of tools.

If the training misses fire the first time and you find the new occupation unsuited to you, you can come back for another go in the game, and try a new occupation.

Electrical engineering.

This is an electrical age, but we have not yet begun to know all the uses of electricity, to serve man as he will be served. In this line opportunities are absolutely unlimited. All kinds of positions in electrical engineering pay good wages. Men with many different kinds of handicaps can do the work, but they must have technical training, and this Uncle Sam, through the Federal Board, will provide free of charge while you and your dependents are being supported.

Extent of Beekeeping in the United States.

There are in the United States about 800,000 persons who own bees, although not all of them can be classed as regular beekeepers. Perhaps the average bee owner has about 10 colonies. Since there are many owning bees by the hundreds of colonies, it is obvious that the majority have only two or three colonies. This side line of a few hives on the farm does not really pay, but is just a little luxury. The type of beekeeping presented to you here is for a vocation, and is the practical kind employed by the best beekeepers of the country—by men who make a good living by keeping bees.

The retail price of honey has gradually advanced to 40 cents or more per pound, and beeswax to 42 cents wholesale, notwithstanding the fact that there was produced in 1918 about 250,000,000 pounds of honey. This probably does not cover the entire honey crop of the United States, since a large amount is marketed locally. In fact this product is so greatly in demand that a large percentage is sold at the home of the apiarist. Apiarists can, if attentive to the attractiveness of their product and considerate of their customers, hold them and make of each an advertisement for additional business. The honey crop of the United States is estimated annually at $20,000,000, and yet there has never been a time when any country on the globe could produce enough to make this delicious food a common article of diet.

FIG. 10.—This beekeeper with an apiary of 50 colonies, a garden, small fruits, and a cow on a few acres makes more than a living for his family of five persons. Notice the smoker hanging on the side of the modern 10-frame hive, from which he has taken the heavily loaded frame of bees and honey held in his hands, the cover leaning against the hive and the super leaning against it, which contains two dozen 1-pound boxes of comb honey.

FIG. 11.—A fine apiary in northern New York where the chief sources of honey are white clover and basswood.

Or a Foreman.

If you are disabled for manual labor in your old occupation you can perhaps be trained for the position of foreman. Foremen are needed everywhere. The world needs men who not only know the processes because they have worked at them, but who have executive ability and who have been so trained that they can become leaders rather than followers.

Beekeeping Regions of the United States.

Not all parts of the United States are equally good for beekeeping, and it is advisable for one who contemplates making it his life work carefully to consider the selection of a location. As a rule, it is not advisable to go too far from the country with which you are familiar. Bees may be kept with profit almost anywhere where agriculture is practiced, the returns depending largely on the care given to the bees.

The most widely known region for beekeeping is that of the northeastern quarter of the country, where white and alsike clovers yield nectar. Although these plants reach their highest yield in the northern tier of States, they are also productive farther south. In the northern region bees get considerable quantities of nectar from basswood, tulip poplar, buckwheat, sweet clover, and locust, and in some localities from other plants of decided honey value. The buckwheat region of southern New York and northern Pennsylvania is included in the clover region.

FIG. 12.—An apiary in Seminole County, Fla., in the midst of the palmettos.

Think it over.

If you have not lost your head the world is full of opportunities for you by way of training. You have your head, or you wouldn't be here. What is it you wanted to be that you have never been; that you never had an opportunity to take training for? Think it over, and then ask the representatives of the Federal Board for Vocational Education to help you.

The second region in importance is that in which the bees get their nectar from alfalfa. This plant, which is now grown in all parts of the country, does not yield much nectar except in the irrigated portions of the West and is therefore practically valueless for the beekeeper east of the Missouri River. The honey from this source is white in the higher altitudes of Colorado and Utah, and amber in Arizona, New Mexico, and California.

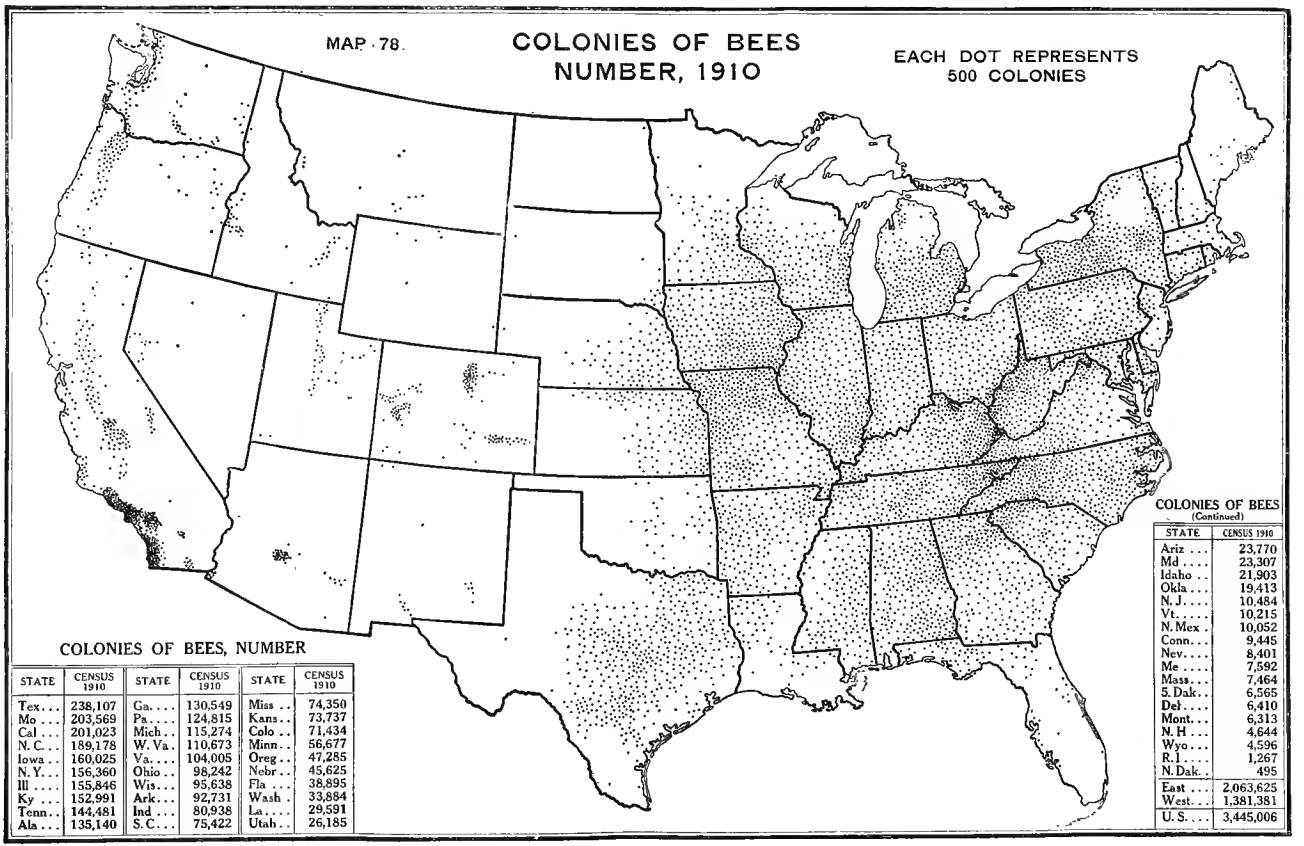
The southeastern part of the country offers many opportunities to the beekeeper, but the business has not been so well developed there. The nectar comes from numerous plants which are influenced by various soils, temperature, and other factors. The honey usually does not come in very rapidly and is often darker than other honeys, but since the plants yield for a longer period, the beekeeper is able to get good returns for his labor.

The semiarid region of the southwest produces many plants which secrete nectar in abundance. This region is subject to drought and there are years when the beekeeper has to feed his bees to keep them alive. However, taking a series of years into account, this region pays as well as any other.

The sage region of southern California offers great opportunities to the beekeeper. The honeys are chiefly white and secretion is abundant when there is sufficient rainfall. In this region also honey is obtained from blossoms of citrus fruits, which being irrigated are not so liable to failure as the plants growing in the desert. The chief problem in this part of the country is to strengthen the colonies in time for the nectar flow from citrus fruit blossoms. This may be done by application of proper care at the right time. In choosing the location for an apiary in the sage region, great care should be exercised to select one where the average rainfall is about 20 inches. Information regarding rainfall may be obtained from the Weather Bureau offices or from forest supervisors. Many of the best locations are in the national forests, where a location may be obtained at a small rental and other beekeepers will not be permitted to encroach.

FIG. 13.—An apiary in the Algeroba belt of Hawaii. The honey is much like that from alfalfa.

In addition to these chief regions, there are many localities where other plants are of sufficient value to make a good crop of honey. Such regions are the buckwheat region, already mentioned; the Spanish needle region of the Kankakee swamps of northern Indiana and Illinois and the Delaware River Valley; the willow herb regions of northern Michigan and Wisconsin, Maine, Washington, and Oregon; the sweet clover regions of Alabama and Kentucky; the blue thistle region of the Shenandoah Valley; the raspberry region of northern Michigan; the smartweed region of the Middle West (corn belt); and the bean region of southern California. There are many other restricted regions as valuable as those mentioned.



COLONIES OF BEES, NUMBER

STATE	CENSUS 1910	STATE	CENSUS 1910	STATE	CENSUS 1910
Tex. . .	238,107	Ga. . . .	130,549	Miss . .	74,350
Mo . . .	203,569	Pa. . . .	124,815	Kans. .	73,737
Cal . . .	201,023	Mich. .	115,274	Colo . .	71,434
N. C. . .	189,178	W. Va. .	110,673	Minn. .	56,677
Iowa . .	160,025	Va. . . .	104,005	Oreg. .	47,285
N. Y. . .	156,360	Ohio . .	98,242	Nebr. .	45,625
Ill	155,846	Wis. . .	95,638	Fla . . .	38,895
Ky . . .	152,991	Ark. . .	92,731	Wash .	33,884
Tenn. .	144,481	Ind . . .	80,938	La. . . .	29,591
Ala. . .	135,140	S. C. . .	75,422	Utah . .	26,185

COLONIES OF BEES
(Continued)

STATE	CENSUS 1910
Ariz . . .	23,770
Md	23,307
Idaho . .	21,903
Okla . . .	19,413
N. J. . . .	10,484
Vt.	10,215
N. Mex .	10,052
Conn. . .	9,445
Nev. . . .	8,401
Me	7,592
Mass. . .	7,464
S. Dak. .	6,565
Del. . . .	6,410
Mont. . .	6,313
N. H . . .	4,644
Wyo . . .	4,596
R. I. . . .	1,267
N. Dak. .	495
East . . .	2,063,625
West. . .	1,381,381
U. S. . . .	3,445,006

FIG. 14.

Variation in Seasons.

All years are not equally good for nectar secretion, and some years the flow is so poor that feeding is necessary to keep the bees alive. Such years are of common occurrence to the poor beekeeper, while they are rather a rarity to the good, highly skilled beekeeper. By this is meant that the good beekeeper is able to keep his bees in such condition that they are able to take advantage of every hour of nectar secretion, while the poor beekeeper does not do this. In the best years every person owning bees will get some honey, but it is the person who studies the business who can make it pay almost every year.

Distribution of Bees in the United States.

The accompanying map shows where the bees in the country are mainly located. It indicates also the extent of the business in different sections and gives some idea, by the number of dots on the map, of the most successful territory for beekeeping. Care must be taken in drawing conclusions of this kind, for a field or territory may be overpastured, as it were, by bees as well as by cattle. Bees, however, travel many miles. Large apiaries should not be too close together, at least 3 or 4 miles apart. Although the honey flows of the South do not equal those of the North in intensity, yet, as will be observed from the map, there are more bees in the Southern States than in any other part of the country. Bees in the South can be purchased at small cost, for they are not appreciated and are poorly equipped, being hived largely in boxes and "gums" which are of course unprofitable. They may be transferred to modern hives, after which they may be managed for

FIG. 15.—The farmer's apiary will profitably compensate intelligent attention and the bees will in turn increase the yield of farm crops, orchard, and small fruit by cross pollination of the flowers they visit.

extracted honey, which is the most profitable manner of handling bees in that section and the most effective way of avoiding swarming. The convenience of the modern hive and frame enables the increase of colonies by division.

Beekeeping Should Be a Specialty.

Frequently one sees articles advocating the keeping of a few colonies of bees so that one may have all the honey desired. This sounds rather well, but such advice does not work out well in practice. Only those

FIG. 16.—An apiary at Lares, Porto Rico.

persons who study and devote themselves to the business are successful beekeepers. They make money, some big money. One Indiana man's 1918 honey crop exceeded $20,000. Success requires making beekeeping the chief vocation, for the person who does not rely upon it for his living is likely to be busy when the bees most need his care, and being constantly engrossed in other things he does not take the time to study the problems of the beekeeper. Beekeeping is pre-eminently a specialist's job, and it can not be recommended for the disabled soldier except as a specialty. To be convinced of the necessity for specializing you have only to visit farmers who have a few colonies of neglected and sometimes diseased bees, in some out of the way place, which never pay and are a menace to the success of all good beekeepers in the neighborhood.

Need of Specialists in Beekeeping.

The war revealed an insufficient number of available scientific apiarists in the United States capable of giving instruction to those desirous of engaging in commercial beekeeping. There are many sufficiently trained, but they are reaping such financial returns from their bees that they can not be induced to take up the work of training others. The increasing educational work of the Federal Government

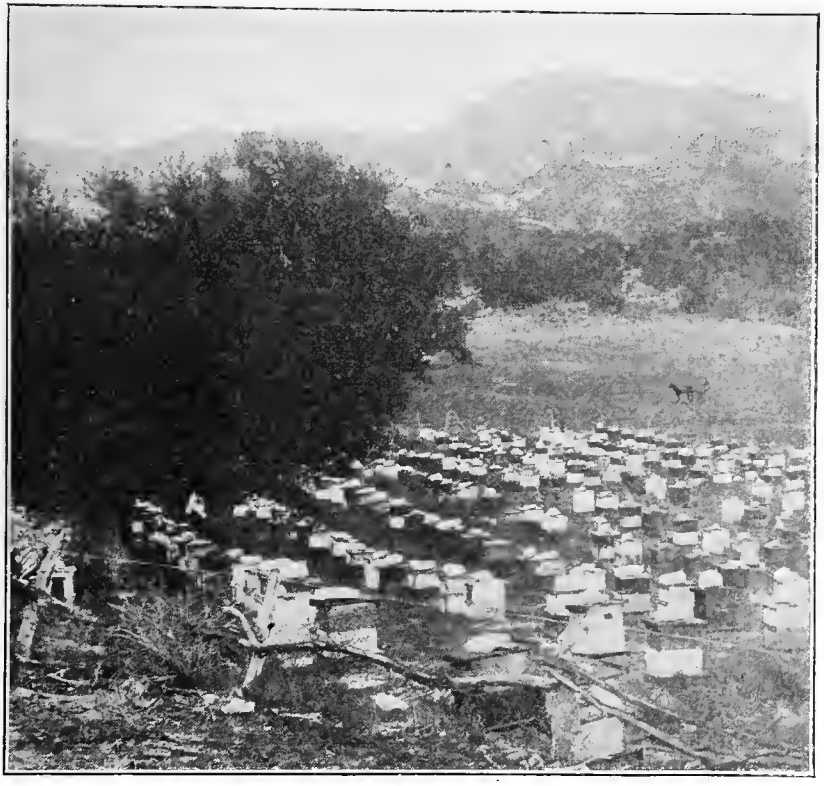


FIG. 17.—An apiary in an orchard in the limestone hills.

and of the several States in bee culture will afford men desiring to undertake such work opportunities to secure positions. For this service thorough theoretical training is required as well as good apiary practice on a commercial scale. The teaching of beekeeping is a new field for agricultural colleges and one which they gladly enter when scientifically trained apiarists can be secured for giving instruction. Were qualified teachers available the list of colleges at the close of this monograph offering instruction in beekeeping would be much longer. However, intensive and thorough short courses are being conducted as indicated in the list, and these present exceptional opportunity. Many more short courses will be arranged. The training is, it is true, mainly theoretical, but it can and should promptly be made practical by forming a connection with some successful apiarist.

Become a Skilled Workman.

If you are handicapped for unskilled labor, become a skilled worker. Nothing perhaps can be done for you to make you fit for unskilled labor, but there are a great many things that can be done for you to make you fit for skilled labor. You ask, How? The answer is by training from the neck up. The opportunity is given you to make the most of your natural capacities and of your past experience in the development of skill in the occupation for which you are found to be best fitted.

Other Branches of Agriculture as Side Lines to Beekeeping.

It is quite possible to combine beekeeping with other branches of agriculture, provided they do not necessitate much attention at the time when the bees require every care and thought of the beekeeper. General farming and beekeeping do not combine well, for the reason that swarming usually comes at a season when the farmer is busily engaged with his cropping. However, you might, as a bee specialist, form a business combination with the farmer and develop a paying apiary, and also give attention to some useful side lines. Gardening, fruits, poultry, Belgian hares, flowers, etc., combine profitably with beekeeping, but before engaging in any combinations, careful inquiry should be made of successful beekeepers of the region regarding the time of the principal honey flows. Information should be obtained also from persons following the suggested side lines as to when these occupations require most attention. This will enable one to determine the best combination to adopt. The beekeeper who neglects his bees during swarming time, or when nectar is coming in freely, may expect to lose fully nine-tenths of the crop. Honey, like hay, must be made while the sun shines. Side lines must not interfere with the apiarist being ready, with colonies strong, when the sun shines sufficiently to cause honey plants to bloom and nectar to flow freely.

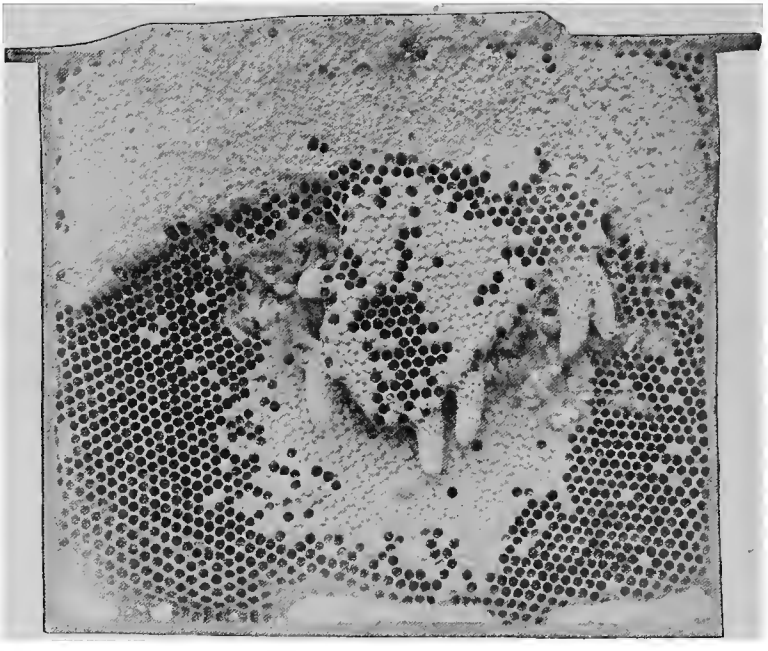


Fig. 18.—Queen cells built for swarming on a comb that was spaced too far from its neighbor.

Many garden crops may be grown and small truck farming may be followed on areas located in close proximity to the apiary. Crops should be selected that will require the least amount of time when the apiarist is busiest with the bees. The tomato, greatly in demand for canning supply, does not materially interfere in its planting, cultivation, or harvest with the principal honey season.

Bees Valuable to Horticulture.

By careful management and by employing some help in certain seasons, horticulture—small fruits and orcharding—may likewise be profitably undertaken without interfering with apiary work. Bee culture and horticulture may in fact be combined to mutual advantage. The nectar from the fruit bloom is always regarded as an advantage and comes when nectar from other sources is not available.

In flying from flower to flower bees carry pollen and thus produce cross-pollination. They are of value also in the pollination of buckwheat, the clovers, and of many other farm crops. Horticulturists have learned to appreciate this service so highly for orchards and small fruit gardens that few commercial fruit growers will be without a good-sized apiary in the orchard if there are no bees in flying reach. It is impossible to measure the good that is accomplished in this way, but since many varieties of fruits are not fertile to their own pollen, it is obvious that were it not for the bees and other insects which carry pollen there would be much less fruit. Of course not all the pollen is carried by honeybees, but this is the only species of insect which may be taken to the orchard to insure pollination.

Fig. 19.—A pretty swarm on a limb.

The Work of the Beekeeper.

The average citizen has but a vague idea of the duties required of the beekeeper for success. The idea prevails commonly that bees require but little care. That is all wrong. Careful study, frequent attention, and real work are essential. The work of the year may be briefly summarized as follows: First, the beekeeper provides such conditions as will encourage the colonies to produce young "workers"

For tanketeers.

Perhaps you operated a tank over there, and you may have been born and reared on a farm, or may have become interested in some sort of farming or may now become interested in it. There never was a time when there was such a demand as now for persons skilled in the operation of farm machinery, particularly farm tractors. Read the Opportunity Monograph on farm occupations published by the Federal Board. There you will learn all about opportunities in agricultural pursuits—poultry farming, stock raising, gardening, dairying, fruit culture, and other lines.

to the fullest capacity of the hive before the secretion of nectar begins from the principal honey plants. Second, he prevents a division of the working force of the colony by swarming, through the well-understood means of discouraging it. In addition to these activities, he provides the additional space necessary for storage of the surplus honey crop at the right time. To have the bees reach their greatest strength in time for the first honey flow taxes the skill of the best apiarist, but by a careful study of the flowers from which the principal nectar crop is obtained in this locality the beekeeper is able to create sufficiently in advance conditions which will greatly multiply his working bees. Failure to do this and failure to appreciate the importance of being prepared has caused many beekeepers the loss of the best honey flows of the year. In such cases the beekeeper often does not know that he is missing the largest flows, because his colonies do not acquire their full strength until after these flows have terminated.

It may seem unnatural to fight the swarming instinct, as swarming is the natural way for new colonies to be formed. It is, however, the nature of bees to swarm at a time when swarming will result in a division of the working force, and just at the period when they should be concentrating on the principal flow of the season. Therefore the bee keeper arranges, if possible, that any increase in the number of colonies shall be made when it will not prevent the gathering of nectar. This requires vigilance just at the swarming season, since no satisfactory way has been devised for treating the whole apiary long in advance of this

FIG. 20.—Hiving a swarm of bees.

season to check the swarming instinct. There are, however, ways of control by weekly visits during the swarming season—ways which can not be explained in this short monograph, but which can be learned from literature or in an agricultural college course in beekeeping.

The busy season for the bee keeper begins about two months before the main honey flow, continues through the swarming season, and ends when the comb honey is taken from the supers or when the honey is extracted from larger frames which have been added to enable the use

Learn safety engineering.

Being disabled learn to help others avoid disabilities. There is opportunity for a considerable number of disabled soldiers to get training for safety engineering at Government expense while being supported, together with their dependonts. Look this up by talking it over with the agents of the Federal Board.

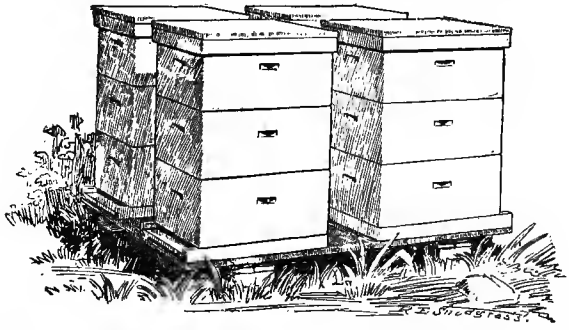


FIG. 21.—Colonies of bees in summer position in groups of four. This arrangement is advantageous whether or not the bees are wintered in four-colony packing cases.

of the extracting machine. Afterwards there is less rush, the only important work being early preparation of the bees for winter. Every latitude in the United States has its winter problem, and it is of the first importance that prospective bee keepers realize that success depends more on proper wintering than on any other one thing.

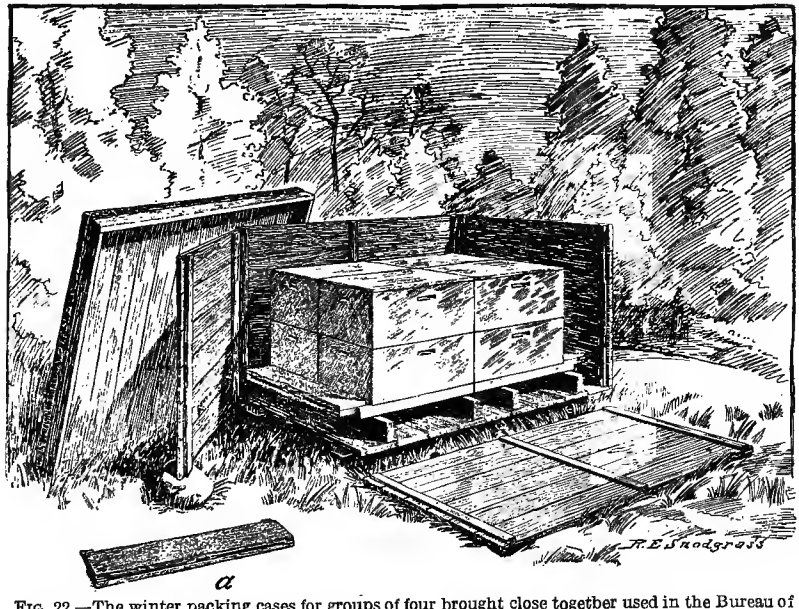


FIG. 22.—The winter packing cases for groups of four brought close together used in the Bureau of Entomology apiary: a, Detail of tunnel to hives. Provision may be made for room for a third hive body to be added in the spring.

Winter Occupations.

It will be evident that most of the work of the bee keeper comes in the spring, summer, and fall. When your bees have been properly prepared for winter with plenty of stores, there is nothing to be done

Your Opportunity.

Mr. Disabled Soldier, it has been said that opportunity knocks once at every man's door, and knocks but once. There is a great deal of truth in this. Opportunity is knocking at your door when the Government authorities offer you the generous service of Uncle Sam in helping you to go "over the top" in civil life successfully.

for their welfare until the early spring and "flying-out" time. There are, however, many profitable winter jobs for the bee keeper. Equipment should be stored, repaired, and put in complete readiness for the next season. Many bee keepers turn their time into money by retailing the honey crop during these out-of-season months, and when all their own honey is sold they buy from other bee keepers to supply the trade. By developing a home market you will get the profit not only of the producer, but as well that of the wholesaler and retailer.

Everyone ought to have free a part of each year for study and recreation, and the winter is the free time for the bee keeper, while his little workers themselves are resting. Wintertime well employed in study will prepare you for better returns. A thorough study of some new phase of beekeeping can be taken up every winter. There is an abundance of literature, and you can greatly profit by the experience of other bee keepers and experiment-station records. Interest and determination to acquire knowledge of your chosen vocation will be the best evidence of your suitability for bee culture. Your enthusiasm may cause you to cover the literature speedily. If there remains time unemployed, you may desire to take up some other line of work, either physical or mental. Some bee keepers have found it pleasant and

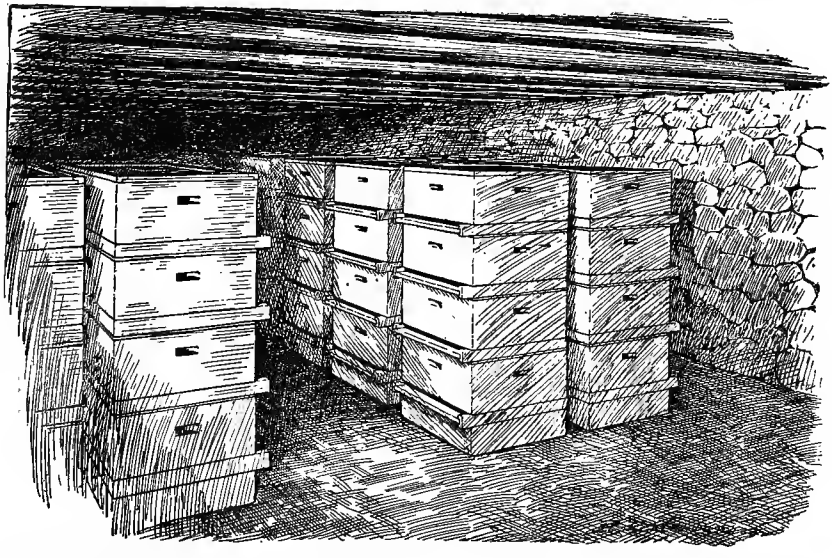


FIG. 23.—Interior of bee cellar with hives in piles of four. Insulation above the ceiling is not shown. Some apiarists provide special bee cellars or caves for wintering bees, but the winter packing cases seem to be preferred except in the region of more severe weather.

profitable to teach in the winter. Teaching interferes but slightly with beekeeping. Mornings, evenings, Saturdays, and the long summer vacations can be devoted to the bees. The teacher should produce extracted honey to avoid the difficulties of swarm control.

Farm mechanics may prove advisable for a winter vocation and become an income-bearing side line for one who is handy with tools, tractors, trucks, and other machinery. The demand for able mechanics to repair and place in overhauled readiness for spring use all the up-to-date machinery now used on the farm is constantly growing. (See Farm Mechanics Opportunity Monograph, Vocational Rehabilitation Series No. 36.)

Number of Colonies Needed to Make a Living.

In deciding on beekeeping as a life work, one should have some idea of the necessary amount to invest and the work entailed. There are many persons in the country who earn a livelihood almost or entirely from bees, and the number is increasing every year. In the Eastern States, where the weather during the summer may interfere with the work of the bee keeper, a skilled man may care for perhaps 600 colonies. In the West, however, where the weather does not so greatly enter into the bee keeper's calculations, this number may be increased to 1,000. In giving these figures, it is assumed that the bee keeper is able to put in a full day's work, is capable of considerable physical effort, and is a good manager. If he does not possess these qualifications, he may be much behind in his work at critical times, which necessarily means loss of honey, perhaps a total loss of the year's work.

FIG. 24.—An apiary handled by negroes in their pioneer farming in the South

During and since the war, prices for honey have been high, making the returns larger than one may ordinarily expect. Perhaps the safest plan is to use figures which applied before the war, although in all probability honey prices will not for a long period, if ever, drop to their former level. With honey figured at prewar price of 25 cents a pound retail, the good bee keeper may confidently expect to average $10 a colony. This is on the basis of extracted honey, which will probably be produced by those about to engage in the business, certainly after the first year's experience. The expense in addition to labor per colony will not average more than $1 a year. Income may be greatly increased by selling honey locally at retail.

For one whose physical condition does not permit regular and hard work, the number of colonies must be correspondingly smaller, at least at first. When one has thoroughly mastered the business, the actual physical labor may be greatly reduced and by the proper hiring of

If You Do Not Take Training?

You will go back home under a handicap, worth less below the neck possibly than ever before. The only way you can overcome this after the hospital authorities have done all they can for you is by making yourself worth more above the neck. That means training. The Government will provide this for you entirely free of charge. Your instruction will be paid for and you and your dependents will be supported while you are getting your education. What is the answer? Choose the course you want, after consulting with the representatives of the Federal Board. Make up your mind to take the training. After you have gone home on a furlough, tell the folks that you are determined to make your future and theirs safe.

unskilled labor the bee keeper may be saved much of the hardest part of the work. Women have made a success of commercial beekeeping, and while unable to do the hard physical work, they have had it performed under their personal supervision by hired labor. Comb-honey production is lighter work and not so many colonies are necessary to get the same financial returns if the bee keeper retails his comb honey at the apiary. However, with large apiaries composed of hundreds of colonies the conditions change and comparison of financial returns are favorable to the production of extracted honey. The large commercial bee keepers follow extracting.

The Outfit Needed.

In addition to the colonies of bees properly hived, the bee keeper needs some other equipment. This chiefly consists of a small house in which to prepare the equipment and extract the honey, keep miscellaneous tools for fitting out the apparatus, and usually an automobile truck for moving bees and honey. It is usually not profitable

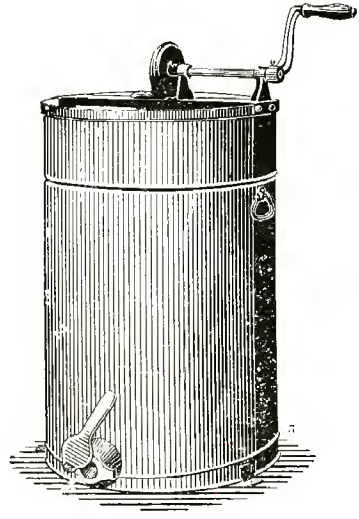


FIG. 25.—Honey extractor.

to keep more than 100 colonies in one apiary. It therefore becomes essential to rent or buy small tracts of land—about 4 miles apart—so that 100 colonies may be kept in each place. This necessitates moving supplies and from time to time colonies of bees. For this a small 1-ton truck is preferred by most commercial bee keepers. At first necessary hauling may be hired. The home apiary is usually best equipped, and frequently it is the practice to haul in the honey to the home apiary after extracting. Many use a small auto for this service. Another plan is to have an extracting house rigged up on a trailer to the auto or truck, so that it may be moved from place to place as needed. Usually the only labor employed at the time of extracting is unskilled, but if your disability is troublesome when preparing for winter or in doing other work, you can hire such help as you may need. Even during the swarming season you may hire somebody to take down the hives while you examine the combs for queen cells and perform the various operations necessary for swarm control.

Investment Necessary.

The investment which the general bee keeper makes in his business is nine-tenths brains and study and one-tenth money invested in bees and equipment. If he invests money only, his failure is a foregone conclusion.

The price of hives and other equipment has greatly increased during the war, and there is not much likelihood that it will decrease materially during the next few years. However, by making inquiry the bee keeper may frequently find opportunity to buy equipment from persons who have failed to make a success because of unwillingness to study the problems of the apiarist or of inability to devote to the work the time necessary. Such failures are sufficiently clear proof that the bee business requires devotion. The country is full of discarded hives which have been bought by persons who have conceived the idea that it was only necessary to buy a colony of bees and that the bees would "work for nothing and board themselves."

If new hives completely equipped for producing extracted honey are bought at present prices they will probably cost from $4 to $5 each. The bees to start a colony will cost perhaps $5 if purchased from dealers in bees, but may be obtained for much less by arranging with some apiarist to fill the the hives one supplies with swarms as they come off. Frequently such arrangements may be made with some bee keeper who, not caring for more colonies and to avoid buying hives, will gladly sell swarms as they issue, at a nominal cost.

In proportion to the return, there is no other branch of agriculture requiring so small a financial investment as beekeeping. Before the inflation of prices due to the war two colonies of bees on an average paid the good beekeeper as well as an acre of corn, and the investment was, of course, much less. It is estimated that an apiary of 300 colonies will yield a net income equal to that of a good 160-acre farm and be quite as reliable from year to year. However, the statement made should be kept in mind—the investment which the beekeeper makes is chiefly brains. This is a commodity which can not be purchased from the hive dealer or secured with any number of swarms. In fact, the more bees and equipment you have without the use of brains and training, the worse off you are.

Examples to follow.

A locomotive fireman was disabled by paralysis as result of gunshot wound. He etudied electrical engineering and has a position as electrician.

A blacksmith, who lost lung tissue through a gunshot wound, studied machine-shop practice and is now a section tool fitter with a plate-glass company.

A former machinist suffered from weakness on account of the service, but studied mechanical drafting and now has a position as a mechanicaldraftsman.

A boilermaker, afflicted with rapid heart action and weakness, took a course in boiler drafting, and secured a permanent position as a boiler draftsman.

Is There a Future for Beekeeping?

There is demand for all the honey that can be produced in the United States, and there was never a time in the history of the industry when the honey market was so well established. Of course, during the war, when there was a shortage of sugar, the demand for honey was abnormal, but it seems improbable that the market will ever revert to prewar conditions in price or demand. Many persons learned to use honey who will continue purchasing it, notwithstanding they may now buy all the sugar they wish. Honey is not a substitute for sugar in the diet, but more properly takes the place of jellies and jams. With the development of the bottle trade in honey, which has been rapid during the past five years, there is an increasing demand in the wholesale markets. The introduction of prohibition has unquestionably caused the use of more honey and of all kinds of sweets. This has already become quite evident. The sugar stringency resulting in the war-basis distribution had its application in many States simultaneously with prohibition. It was not difficult to enforce the curtailment of sugar to confectioners in wet States, but most difficult,

The Untrained Man.

What becomes of the man who does not take training? He goes back home to compete with normal men who are not handicapped. After a few years, the disabled man can no longer rely upon patriotism to hold him in a position where he can not do the work in competition with the trained normal man. He is too proud as an ex-soldier to be sustained by charity. There is only one way out for him, and that is to take training so that he can maintain himself in the after years with dignity as an ex-soldier of the Republic, able to carry on in civilian life successfully just as he did in war.

and in fact impossible, in the prohibition States, where it was actually necessary to increase the sugar allotment to candy makers. Investigation proves that former users of alcoholic beverages were large buyers of candies and other sweets.

There is an abundant opportunity for the development of local trade in honey in almost all parts of the country. The future of beekeeping is inviting. There is every reason to expect that it will continue to develop rapidly for several years and that it will long continue to be an important minor branch of agriculture. From its very nature, owing to the limited supply of nectar, it can never be one of the leading branches of agriculture, but there is abundant nectar to build up beekeeping to ten times its present capacity.

Need of Training.

From the requirements indicated for good beekeeping, it is evident that you will need all the information obtainable before engaging in the business on a commercial scale. Such training you may secure through the agency of the Federal Board for Vocational Education from courses in beekeeping in some of the agricultural colleges. After you are well equipped with all that one of these colleges can give you, then a good plan probably will be to arrange for a season, or part of a season, in the apiary of a thoroughly good commercial beekeeper. This selection must be made with great care. Not all beekeepers who are fairly successful in honey production are as careful in their work as they should be, and by working with the wrong man you might get into beekeeping habits that should be avoided. A man should be chosen who makes a study of the behavior of his bees, one who is familiar with the literature of his vocation, and, if possible, one who is able to succeed in regions where most of the beekeepers fail to get the full crop. After a season with such a man—and there will be many who will be glad to have your services in this way—you should be able to care for 100 colonies managed for extracted honey, provided your disability does not prevent you from doing the work necessary. By that time you will have a good idea of the amount of work which 100 colonies require.

You should avail yourself of every opportunity to visit apiaries and talk with expert bee men. Visits to and careful surveys of the apiaries of others who are successful may be worth almost as much to you as a season's close application.

Overcoming Your Disability.

Beekeeping means outdoor life under healthful conditions, well suited to facilitate recovery from insipient tuberculosis, neurasthenia from shell shock and other afflictions. At first in some of the manipulations of the apiary there will be more or less difficulty which will arise directly from your disability, but by the exercise of ingenuity you will be able to devise ways of doing the work. If you have lost an arm, you will need an artificial arm or some device for lifting the hives and hive parts. Racks to hold frames while working with them, trays and small tables are used and you will improvise other conveniences. If your disability prevents your getting about easily, you will be able to arrange your apiary so that there is the least possible amount of walking. Light stools are employed for sitting while working over hives. After training, the sooner you get to work the better. You will find that actual work with your artificial limbs and devices has a greater therapeutic value than mere exercises and work is incomparably more interesting.

AGRICULTURAL COLLEGE COURSES IN BEEKEEPING.

One of the best ways to acquire a thorough knowledge of beekeeping is to take a course in one of the agricultural colleges which offers such work. It must, of course, be understood that the knowledge so gained must of necessity be largely theoretical, for there is not time in a college course for much practical work. However, if the work is properly presented the student should be able at the close of the course to begin with 100 colonies and then he may work up in beekeeping practice as he increases the number of colonies. The following colleges offer good courses in this subject:

University of Minnesota, College of Agriculture, St. Paul, Minn.
College of Agriculture, Ames, Iowa.
Agricultural College, Storrs, Conn.
College of Agriculture, New Brunswick, N. J.
Agricultural College, East Lansing, Mich.
Agricultural College, College Station, Tex.
Agricultural College, Manhattan, Kans.

Your time will not be fully occupied with the beekeeping course and practical training at any of these institutions. You can at the same time take valuable courses in other subjects, such as fruits, gardening, flowers, and poultry, which combine well in practice with beekeeping. Farm mechanics (see Monograph on the subject) may be made a part of your training, and prove a valuable winter side line after you become a bee keeper, as the bees will not require your time during the winter season.

The Bureau of Entomology, United States Department of Agriculture, has held and has announced many valuable short schools for bee keepers in various parts of the United States and there is contemplated a course of intensive training for disabled soldiers who desire to take up beekeeping. These will probably be arranged in several of the principal beekeeping regions, and in proximity to the district offices of the Federal Board for Vocational Education.

SHORT SCHOOLS IN BEEKEEPING.

San Diego, Calif., November 25–30, 1918.
Davis, Calif., December 1–7, 1918.
Visalia, Calif., December 9–16, 1918.
Ithaca, N. Y., February 24–March 1, 1919.
Lafayette, Ind., April 7–12, 1919.
Ames, Iowa, April 14–19, 1919.
St. Paul, Minn., April 21–26, 1919.
California five weeks beginning November 17, 1919.

LITERATURE FOR THE BEE KEEPER.

Bulletins For Free Distribution.

Farmers' Bulletin 447. Bees.
Farmers' Bulletin 653. Honey and its Uses in the Home.
Farmers' Bulletin 695. Outdoor Wintering of Bees.
Farmers' Bulletin 820. Sweet Clover: Utilization.
Farmers' Bulletin 961. Transferring Bees to Modern Hives.
Farmers' Bulletin 1005. Sweet Clover on Corn Belt Farms.
Farmers' Bulletin 1012. Preparation of Bees for Outdoor Wintering.
Farmers' Bulletin 1014. Wintering Bees in Cellars.
Farmers' Bulletin 1039. Commercial Comb Honey Production.

Bee Journals Published in the United States.

American Bee Journal, Hamilton, Ill.
Gleanings in Bee Culture, Medina, Ohio.
Domestic Beekeeper, Northstar, Mich.
The Western Honeybee, Covina, Calif.
Beekeepers' Item, New Braunfels, Tex.

Books of Interest to Bee keepers.

These may be obtained from dealers in beekeeping supplies, from publishers of bee journals, and from general book dealers:

ABC and XYZ of Bee Culture, A. I. and E. R. Root.
Beekeeping, E. F. Phillips.
Langstroth on the Hive and Honey Bee, revised by C. P. Dadant.
Fifty Years Among the Bees, C. C. Miller.
Advanced Bee Culture, W. Z. Hutchinson.
Productive Beekeeping, F. C. Pellett.
Practical Queen Rearing, F. C. Pellett.
First Lessons in Beekeeping, C. P. Dadant.
Bee Primer, C. P. Dadant, Free to Soldiers from American Bee Journal

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All disabled soldiers, sailors, and marines, whether in or out of the hospital, should address their communications either to the Federal Board for Vocational Education, Washington, D. C., or to the district office of the Federal Board of the district in which they are located. The district offices of the Board are located at the following points, respectively:

District No. 1.—Maine, New Hampshire, Vermont, Massachusetts, and Rhode Island. Office: Room 1201 Little Building, 80 Boylston Street, Boston, Mass. Branch office: Rooms 324-326 Masonic Building, Portland, Me.

District No. 2.—Connecticut, New York, and New Jersey. Office: 469 Fifth Avenue, New York, N. Y.

District No. 3.—Pennsylvania and Delaware. Office: 1211 Chestnut Street, Philadelphia, Pa. Branch office: Room 491 Union Arcade Building, Pittsburgh, Pa.

District No. 4.—District of Columbia, Maryland, Virginia, and West Virginia. Office: 606 F Street NW., Washington, D. C. Branch offices: Room 400 Flat Iron Building, Norfolk, Va.; Room 411 Park Bank Building, 104 West Lexington Street, Baltimore, Md.

District No. 5.—North Carolina, South Carolina, Georgia, Florida, and Tennessee. Office: Room 823 Forsyth Building, Atlanta, Ga.

District No. 6.—Alabama, Mississippi, and Louisiana. Office: Rooms 412-432 Maison Blanche Annex, New Orleans, La.

District No. 7.—Ohio, Indiana, and Kentucky. Office: Rooms 1212-1214 Mercantile Library Building, Cincinnati, Ohio. Branch Office: Home Service Section, American Red Cross, Park Building, Cleveland, Ohio.

District No. 8.—Michigan, Illinois, and Wisconsin. Office: 1600 The Westminster, 110 South Dearborn Street, Chicago, Ill. Branch office: Room 807 Owen Building, Detroit, Mich.

District No. 9.—Iowa, Nebraska, Kansas, and Missouri. Office: Rooms 815-824 Chemical Building, St. Louis, Mo. Branch office: Room 413 Massachusetts Building, Kansas City, Mo.

District No. 10.—Minnesota, North Dakota, and South Dakota. Office: Room 742 Metropolitan Bank Building, Minneapolis, Minn.

District No. 11.—Wyoming, Colorado, New Mexico, and Utah. Office: Room 400 Mercantile Building, Denver, Colo.

District No. 12.—California, Nevada, and Arizona. Office: Room 997 Monadnock Building, San Francisco, Calif.

District No. 13.—Montana, Idaho, Oregon, and Washington. Office: Room 539 Central Building Seattle, Wash.

District No. 14.—Arkansas, Oklahoma, and Texas. Office: Room 810 Western Indemnity Building, 1000 Main Street, Dallas, Tex.

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