

Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.



CONTENTS

JULY, 1918

Honey Markets.....	388
Editorials	393-396
Death of G. M. Doolittle.....	396
Fermented Honey.....	H. H. Root 398
Apiaries at Long Range.....	Helpmeet 399
Honey, Trunks, and Trouble.....	Mary G. Phillips 402
Conversations With Doolittle.....	G. M. Doolittle 404
How Queens Mark Their Hives.....	Jay Smith 405
Shallow Vs. Deep Supers.....	Elmer Gressman 406
Why Wide Spacing.....	T. W. Riggs 407
Marking Hives.....	W. H. Laws 408
Stray Straws.....	C. C. Miller 409
Siftings	J. E. Crane 411
Our Food Page.....	Stancy Puerden 412
Beekeeping as a Side Line.....	Grace Allen 414
From North, East, West, and South.....	416
Swarm Control Plan That Didn't Control.....	421
Heads of Grain from Different Fields.....	422
Gleaned by Asking.....	E. R. Root 426
Just News	428
Bees, Men, and Things.....	429
Talks to Beginners.....	Editor 431
Our Homes	A. I. Root 434
High Pressure Gardening.....	A. I. Root 436

SUBSCRIPTION RATES.—One year, \$1.00; two years, \$1.75; three years, \$2.50; five years, \$4.00. Canadian subscription, cents additional per year, and foreign subscription, cents additional. **DISCONTINUANCES.**—On and after March 1, 1917, all subscriptions, not paid in advance, or specifically ordered by the subscriber to be continued, will be stopped on expiration. No subscriber will be run into debt by us for this journal. **CHANGE OF ADDRESS.**—Give your old address as well as the new and write the name that appears on the paper. **REMITTANCE.**—Should be sent by postoffice money order, bank draft, express money order or check. **CONTRIBUTIONS** to GLEANINGS columns solicited; stamps should be enclosed to insure return to author of manuscript if not printed. **ADVERTISING RATES.**—Advertising rates and conditions will be sent on request. Results from advertising in this journal are remarkably satisfactory. **ADVERTISERS' RELIABILITY.**—The publishers use utmost diligence to establish in advance the reliability of every advertiser using space in this journal.

Entered as second class mail matter at the Postoffice at Medina, Ohio. Published monthly.

THE A. I. ROOT COMPANY, Publishers, Medina, Ohio

Editorial Staff		
E. R. ROOT	A. I. ROOT	H. G. ROWE
Editor	Editor Home Dept.	Managing Editor

We offer you even better service than ever before at our new location.

Come in and see us.

Have you received our new catalog?

Write for our 1918 Bee Catalog now.

BIG MONEY?

YES. READ HOW

If your banker said to you, "Mr. Brown, buy that piece of land next to you at \$100.00 per acre, it will be worth \$2,000.00 per acre this coming summer." Would you buy it to-day or wait—well, until later on? We are sure you would not delay one moment.

We offer you the same kind of buy—that is, make \$20.00 on each \$1.00 invested. Buy your sections and bee-supplies NOW for the sections cost less than \$1.00 per hundred, and next summer when they are filled with honey, they will be worth \$20.00—think of it, those same sections that you bought for \$1.00. The same holds good on other supplies. ORDER NOW and tell your neighbors to do the same, or Mr. Railroad Embargo "will buy that piece of land next to you and you'll be left."

Old Comb

Ship your old comb and cappings to us for rendering. We charge you 5 cts. per pound for the wax rendered, and pay you the highest market price.

Wax and Honey

We always buy Comb and Extracted Honey as well as Beeswax, so when you have the above to offer, write us and you will be well pleased.

FOUR REASONS FOR OUR SUCCESS

HONESTY
QUALITY

Lewis' Beeware

If you have used LEWIS' BEEWARE, you know the quality, if not this is just the time to invest your money where the results are lasting.

"Made Like Furniture"

PRICE
SERVICE

DADANT'S
FAMOUS
FOUNDATION

ROOT'S
SMOKERS and
EXTRACTORS

The Fred W. Muth Co.

Pearl & Walnut Sts.
Cincinnati, Ohio

"Quality Counts With Us."

GLEANINGS IN BEE CULTURE

JULY, 1918

EDITORIAL

IN VIEW of the heavy winter losses, and the difficulty of sending bees by express,



**Big News—
Bees by Mail.**

Dr. E. F. Phillips
of the Bureau of
Entomology and
the Editor of this

journal recently appeared before the Post-office Department, three different times, asking that the privilege of sending bees in pound lots by parcel post be granted. At the last interview we submitted letters from shippers of bees, explaining their troubles in sending by express and the need of the parcel post privilege. We were received favorably at each interview, and on June 18 a new ruling permitting bees to be sent by mail in suitable cages was issued from the office of the Postmaster General.

For style and form of cage see particulars in our department of "Just News." We will have illustrations in our next issue, showing a non-patented cage that meets the conditions of the Department. It uses no wire cloth, ventilation being secured thru saw cuts thru the sides of the box one-eighth of an inch wide and three-eighths of an inch apart. If the reader can't wait till next issue, we will send particulars by mail.

We wish to emphasize here that the mailing conditions must be met absolutely or we may lose this invaluable privilege. One bad mailing package sent by a careless shipper, allowing bees to get loose in the mail, might cause this ruling, so important to beekeepers, to be revoked.



MORE AND MORE come reports showing that the winter losses east of the Mississippi



**Winter Losses
Make Need
of Increase.**

during 1917 and
1918 are probably
much more severe
than those of the
winter of 1881 and

1882. That winter, up to this time, was the most severe on bees ever known; but last winter has proved even worse, if the reports that we are constantly getting are true.

The unfortunate thing about it is that some good beekeepers, who have wintered year after year with an average mortality of from three to five per cent, lost last year anywhere from 50 to 75 per cent.

Practically all bee-breeders thruout the United States have been flooded with orders for bees in nucleus or package form. Reports from breeders in the South show that

the demand for bees has been far greater than the supply. Some of them evidently cashed the checks sent for bees thinking they would have no difficulty in buying more. This they have been unable to do, for the losses in some of the Southern States have been severe. While colonies in the South did not die outright, the weather conditions were so unfavorable that brood-rearing could not progress.

In view of the conditions reported, all patriotic beekeepers should make preparations for increase next year. This may require sugar. The mistake should not be made of splitting up a colony into five, for only an expert can build up the whole five so they will be strong enough for winter, and many experts even would fail to do this. The most one should try to do is to make two colonies out of one; and be sure they are good ones and abundantly supplied with stores in October at the latest.

One reason for the severe winter losses was the inability to buy sugar last fall. The result was that many colonies went into winter quarters with barely enough stores to carry them thru till spring.

The lesson that comes to the beekeeper this year is not to extract too closely. Leave the brood-nest full, and then lay aside a lot of reserve combs of stores. The present price of extracted honey will cause many to yield to the temptation to extract closely and substitute a nine-cent syrup, which, with the water added, will make the syrup cost about seven cents to replace honey at 20 to 25 cents. It looks like a good trade; but—look out.



A YEAR AGO this time the honey-container situation was a serious one for the honey producer. During



**The Honey-
Container
Situation.**

the summer of 1917 no one could be certain of securing either glass or tin

containers. A year ago this month Gleanings summed up the container situation for both glass and tin in these words: "The glass manufacturers are not putting out any glass containers except for use in preserving perishable food stuffs. What glass containers for honey can be secured by even the largest honey bottlers are secured 'hit or miss,' 'catch as catch can.' The manufacturers generally are turning down the

honey bottlers' inquiries for contracts and deliveries or quoting enormously advanced prices without promise as to date of delivery. . . . The exact situation in tin cans is—acute shortage and uncertainty."

The situation today is entirely changed. The glass manufacturers are not only in position and willing to fill all orders coming to them for glass containers, but they are quite actively soliciting such orders. This change in the glass situation undoubtedly arises from a very much reduced demand for bottles for the liquor trade (whisky being practically knocked out) as well as the greatly diminished demand for bottles for soft drinks, the manufacture of which has been greatly restricted by the Food Administration.

The cost of honey as well as the cost of glass has so greatly advanced as to make it impracticable to bottle honey at a price at which the public will buy. When a little honey could be bought in a glass container for ten cents it attracted the purchaser. But when a little honey can not be bought for less than twenty cents it does not attract the purchaser. Accordingly, glass containers for honey are not in demand by the honey packers.

The supply of tin can containers has also improved, largely because of restriction to strictly necessary uses for tin containers of all kinds.

Under these demand and production conditions, it would seem that the manufacturers of both glass and tin containers might offer their products at a lower figure, to stimulate demand. But this is not the case. If, in these war times, any manufacturer anywhere is reducing the price of his product to the jobber or wholesaler (and so to the final user), we have not heard of it. Manufacturers of glass and tin are holding for the same high prices that prevailed when users of glass and tin containers were begging them as a favor to fill their orders.

WHEN THE EDITOR was in Washington recently, Dr. E. F. Phillips said he would

Don't Extract too Closely.

Dr. Phillips' recommendation has great weight, and beekeepers everywhere should lay in a lot of sealed stores in combs, and be ready for a sugar shortage.

There is grave danger, too, even if the Sugar Divisions of the various States were willing to disburse the sugar, that there will be none available this fall. Recent submarine activities along the Atlantic coast may prevent the carrying of sugar from the West Indies to the United States; and, even with the submarine under control, we are advised that there will be a sugar shortage this fall and winter. It becomes doubly and trebly important, therefore, that bee-

keepers should not extract too closely, and that they go further and lay aside a set of extracting-combs of sealed stores to give to the bees next spring. While it is admitted by our best beekeepers that bees, even during a severe winter, will do better on sugar stores, we had better not bank on getting a supply of sugar this year.

IT IS AN open secret of well-informed beekeepers that there was considerable speculation



Speculation In Honey and Other Foods.

in honey last season. It is known that large shipments of honey were made from the West to the East, after the 1917 crop was supposed to be exhausted, and it is said that this was honey that had been held in warehouses for double the purchase price and more. This is history now and does not concern us at this time—except as it may teach a moral for future use.

The man who speculates in food stuffs, while the country is at war, is certainly not acting with that patriotism which should actuate every American citizen. Speculation in honey is just as bad as speculation in any other article of food. Honey is not on the list of foods which the Government has taken over for control, but this is not any justification for the man who tries to speculate. He may for the present be safe legally, but he is not approved in the estimation of his fellow countrymen. To buy honey and hold it for double the price is morally a crime.

We suggest that the beekeepers of the country may render a valuable service to the country and to their fellow beekeepers by accumulating information on this sort of operation. Keep a careful record of the price at which you sell your honey to the buyer. Then, if you get information as to the prices at which this same honey is sold, and if this price is too high in proportion to what you received, report the transaction to the Department of Justice, Washington, D. C. Whether this will do any good we can not say; but it will help to prevent speculation if the buyers know that there are a lot of keen-eyed beekeepers interested in the fact that only honest profits in honey are expected.

What is a fair profit? This is a little hard to answer, for the profit must to some extent be in proportion to the risk taken; but it is safe to figure that any extensive buyer, one who handles honey by the carlot, is making too much if his profits exceed 10 per cent of the purchase price. Whether this is too much or too little, beekeepers may use this figure as approximately the right one, and any cases of a profit of 20 per cent or more should be brought to the attention of the Government authorities. Of course, the dealer who has to pay for bottles and the labor of bottling must receive compensation for these expenses, as well as

for the purchase price of the honey, but the total profit should not exceed 10 per cent of his investment in the transaction.

Let beekeepers form themselves into a vigilance committee for the prevention of honey speculation in 1918. If there are crooks in the honey business, such watchfulness should bring them to light.

We are ready to take our part in bringing the culprits to terms, and would be glad to know of all cases of honey profiteering that come to the knowledge of beekeepers anywhere. Such knowledge must come of provable facts.

If any of our advertisers are exacting unjust profits, they will be denied space in Gleanings in Bee Culture, on the receipt of proper proof.



MANY A SMALL beekeeper and many a beginner in beekeeping does not feel warranted in making



Here's a Way to Help.

an investment in a honey extractor.

Not only is the cost considerable, but the small beekeeper may have so little work for an extractor that it cannot be made to "pay its way." Yet it is a necessity for any beekeeper producing extracted honey.

Here is a chance for all you beekeepers owning extractors to help the "little fellow"—just as many of you are doing. Do his extracting for him—and tell him you will do it for him. You can afford to do this (at present high prices) for about two cents a pound. Lend a hand in these days of food scarcity by helping "the other fellow" who may not be so well equipped as you are.

This need of many a small beekeeper points out the advantages that might be derived from better local organization of beekeepers. Where there are local organizations, it is a simple matter to have all extractors owned by members of the organizations listed, and the names and addresses of all owners of extractors willing to extract for others made known to those needing such services.

Burton N. Gates, head of the apicultural department of the Massachusetts Agricultural College, in a circular sent out to the beekeepers of his State, makes a timely appeal to those owning extractors as follows:

Have you an extractor which is not listed in this office? If so, are you willing to help your neighbor beekeepers? This office has a great many extractors listed, the use of which is offered nearby beekeepers who have none. An agreement blank will be sent those who wish to list their extractors. Inquiry for the service of an extractor may be addressed to this office. Your local agent in beekeeping will be able to help you.

This is a kind of practical help that a state department of apiculture may render its beekeepers everywhere—but more effectively where there are local beekeepers' organizations and county agricultural agents.

The beekeeper owning an extractor can

help local beekeepers not owning one, in just the same way—if he will—whether there is a local beekeepers' organization or not and whether a state department of apiculture is helping or not. How? By just telling his neighbor beekeepers who haven't an extractor that he will do their extracting for them, if they wish him to do it.

It's a neighborly and helpful kindness to do this—especially in these war times when the prices of equipment are high and when every encouragement should be given to producing every pound of honey possible.



IT IS A well recognized fact that the more alcohol a nation uses, the less sugar it requires.



Where We Get the Sweets We Eat.

Now that the consumption of alcohol in the United States is decreasing (and the

probability is great that soon there will be almost no alcohol used as a beverage), it is well for those interested in the production of any form of sugar to study the situation. From a purely selfish point of view, beekeepers ought to be anxious that the prohibition amendment shall pass. But this is not an article on temperance. It is barely possible, however, that in getting rid of one bad habit we may be taking on another. It cannot be expected that sugar will fill jails or asylums, but it may fill graveyards, unless the American people have care in their diet. The editors propose in two editorials to outline the facts regarding sugar in the diet of the American people in order that beekeepers may know where they stand on this important question.

The first lot of sugars that we eat belong in the class which we must regard as not fully helpful. Cane and beet sugar lead all the others in amount in the diet of Americans. We produce in the United States about five per cent of the sugar of the world; and the island possessions, Porto Rico and Hawaii, add another five per cent to the world's supply. But what we produce is but a small part of what we eat, for we import enough so that, when sugar is plentiful, we use about 90 pounds per capita. Directly after the Civil War the per capita consumption of sugar was only about one-third of this (but we used more alcohol), and the rate of sugar consumption has been on the increase ever since. Refined sugar is about as dead a food as one can well imagine. That it has food value we would not deny, and it has the advantage that, when it can be digested, it gives up its energy quickly. It serves no purpose other than the giving of energy quickly. The process of refining removes from sugar all mineral matter and all of the partially evolved sugar. That the human machine needs mineral salts is well known, and that we can digest the gums and similar matter found in raw sugar is equally recognized. However these are all removed, and in refined sugar we get simply

the stimulant sugar—quick results in energy but no lasting good. Probably the refiners are to blame for the fact that we use so much refined sugar and so little of the types that give permanent good, but the fact that sugar production can be carried on only on a large scale leads to such processes. If all of the sugar used in the United States were produced here, it is probable that we would use more raw sugar.

The craving for sweets has led to the making of a product of still less value, glucose. Good corn is used for this purpose. Glucose is the worst enemy of the beekeeping industry because it was formerly used as an adulteration for honey, but this day is happily past. Now it is an enemy of honey only in so far as it can be produced more cheaply and more uniformly. However if it were as good a food as honey, the beekeeper ought not to object to its use. In the early days of the glucose industry, before the later methods were employed, this product contained acids which were directly injurious to the human stomach, but these processes have been improved. Glucose now contains a large amount of gums. We can digest these, but all beekeepers well know that bees will die on such a diet, for their digestive machines cannot handle it. If we object to sugar because it contains no gums, to be consistent, perhaps we ought to commend glucose because it contains so much material of this kind. However the abnormal amount of gum results in a food which has little sweetening value. Glucose is in reality a food which has been partially converted into a substance which can be assimilated. So far as it has been prepared for human assimilation it is a good food, but it lacks the very quality desired in a sweet, sweetness. It is unappetizing, and, worst of all, is sold almost entirely as an adulterant. Doctor Wiley, while Chief of the Bureau of Chemistry, fought this product as hard as he could, not because it was a bad food but because it was not what it purported to be and because it was not called by its right name in most cases.

In the south-central and southern States considerable quantities of sweet sorghums are grown, and this source of sugar has greatly increased since the war began. In classing sorghum syrup with the less desirable sugars we do so, not because it is in any way injurious, but because it is usually an inferior product. The process of manufacture is crude, the product is so variable as to make its purchase a gamble; and furthermore it is subject to the same criticisms as cane and beet sugar, in that it is a sucrose, an uninvolved sugar which places a tax on the human stomach. However, we need not fear sorghum for in all probability its use will decrease again after the war is over. The appetite for this is, in a sense, a cultivated one, and certainly sorghum syrup cannot be called a first class article of diet.

Mention was made in the beginning of this editorial to the fact that the use of sugar

increases as the use of alcohol decreases. This is true all over the world. Every people seems to demand some sort of food from which they can get a quick response in energy, and the speed with which the American people live probably calls for an unusual amount of food of this type. We have learned, or are learning, that in using alcohol for this purpose we are getting results other than those of quick energy, for it leaves a trail behind. However, to increase the use of sugar as rapidly as we have is placing a strain on American digestion that we cannot stand without evil results of far-reaching importance. The products that have been discussed in this editorial are not of the type which do us good, but there are sugars which have better qualities, and these we will discuss in the next issue of *Gleanings*.

In Memoriam G. M. Doolittle.

Gilbert M. Doolittle died at his home near Borodino, N. Y., on June 3, 1918, aged 72 years, 1 month and 19 days. Altho Mr. Doolittle had suffered from serious ill health for a long time, his final illness was of the duration of only two days, death resulting from prostration due to the extreme heat of June 1 complicated with the results of contracting a severe cold. His whole long and useful life was spent on a farm in the immediate neighborhood of his birthplace. He was born the son of a farmer and beekeeper, and from his very infancy he was himself a beekeeper.

By the death of G. M. Doolittle, the voice of a great beekeeper-teacher has been stilled. For almost half a century he unceasingly taught the principles and details of good beekeeping thru the apicultural journals to a great audience of both beekeeper learners and beekeeper experts. Among all the correspondents of the bee journals no writer, perhaps, has been more closely followed than Mr. Doolittle. The readers of *Gleanings* thru many years have expressed in thousands of letters their appreciation of him as a teacher. So universally was his opinion sought that *Gleanings* Editor, early in 1900, asked him to conduct a department in *Gleanings* entitled "Conversations with Doolittle." In that capacity Mr. Doolittle has been a continuous instructor to the American beekeeping public for more than 18 years. He has been a regular contributor to this journal from the first year of its publication, 1873.

From his earliest years, Mr. Doolittle was a very close observer, and his statements as to the actual operations that take place within the hive (or what we now technically call bee behavior) can be regarded as authentic. He came to be generally accepted as an authority on all manner of domestic economy of the bees.

Mr. Doolittle was a large man in every way, of magnificent physique and command-

ing presence, the possessor of a fine voice, a ready and witty speaker, a good storyteller, and an excellent writer. In the telling of witty stories that illustrated valuable points in beekeeping, he surpassed any beekeeper we have ever known. At the great Buffalo beekeepers' convention in 1897*, we recall that he was frequently called on, and each time he brought down the house with roar upon roar of laughter and applause. His stories always had a good point.

One of Mr. Doolittle's most emphatic teachings was that the beekeeper must follow nature—that no beekeeper could succeed if he did not follow nature's rules. One of his chief theorems was that good queen-cells must be reared in strong colonies built up to the swarming pitch, and, as a corollary of

While cell cups are now made in a wholesale way by machinery, the basic principle is Doolittle's. He was also the first man to demonstrate that queens can be reared in an upper story with a laying queen below. All in all, Doolittle's method of rearing queens is essentially those of all modern methods now in vogue, and this one contribution to beekeeping has done more to make better queens and consequently better colonies than any other one thing in beekeeping practice. His book on "Scientific Queen Rearing" is acknowledged today as containing the best of modern methods of queen-rearing.

Years ago Doolittle originated the slogan "rich in stores." He talked it first, last, and all the time. He insisted that unless a colony at the beginning of the season had a great abundance of stores it would not build up as will a colony that has plenty of stores. Here again he was absolutely right, and was ever preaching this fundamental doctrine of good beekeeping. He developed a unique system of swarm control for the production of comb honey. This system is fully outlined in his book published under the title of "The Management of Out-apiaries."

Mr. Doolittle, while not original in the idea of melting wax by means of solar heat, was one of the first in this country to exploit the principle, and for years there has been on the market what was known as the Doolittle solar wax-extractor. He was one of the pioneers in the treatment of American foul brood. His ideas, away back in the early days, were entirely in harmony with those of Quinby, both of whom were absolutely right. During those days there were many false teachers and false teachings; but Doolittle's teaching and practice on the subject of foul brood during all that time were such as stand the test of present-day knowledge.

In the early days of the A B C of Bee Culture, Mr. Doolittle prepared, at A. I. Root's suggestion, a series of comments showing wherein he differed from Mr. Root. The fact that the two men saw things so nearly alike was remarkable. That they differed in details was only natural. The fact that he was so nearly always right was because he spent hours and days studying his bees—because he learned at the hive.

One outstanding feature of Mr. Doolittle's beekeeping was that he was not only a good instructor, but he put his teachings into successful practice. Some men, like Langstroth, the peer of all instructors, never could make money from their bees. Others, like Quinby, one of the best authorities in his day, have made money, even with box hives. Doolittle always profited from his bees, and always succeeded in getting crops.

Mr. Doolittle was more than a successful beekeeper and natural-history student. He was a big-hearted friend, a good citizen, and a Christian gentleman.

Long will the good live after him that he has done. Peace to him!



The late G. M. Doolittle preaching from the pulpit so long occupied by him.

this, he often said that good cells could not be built unless honey or sealed stores were supplied daily. He rightly and stoutly held that no queen-breeder could succeed unless he observed these two rules. He was first to prove that good cells could be built under only two impulses—the swarming impulse and the supersedure impulse. Good queen-breeders now recognize these two propositions as fundamental.

Altho Doolittle did not invent artificial queen-cups, he was the first man to develop the process. His method of making artificial cell cups started a new era in queen-rearing.

*See Gleanings—page 671 for 1897.

DURING these days when the slogan of every beekeeper is to produce more honey, there is grave danger that quality may be lost sight of in the pursuit of quantity.

There are beekeepers who begin extracting as soon as the bees start sealing over the cells; others count it perfectly safe to extract as soon as the honey is one-fourth to one-half sealed; still others will not extract until the majority of combs are practically sealed, when none of them are less than three-fourths sealed.

Probably not one beekeeper in a hundred can tell by the taste or appearance whether

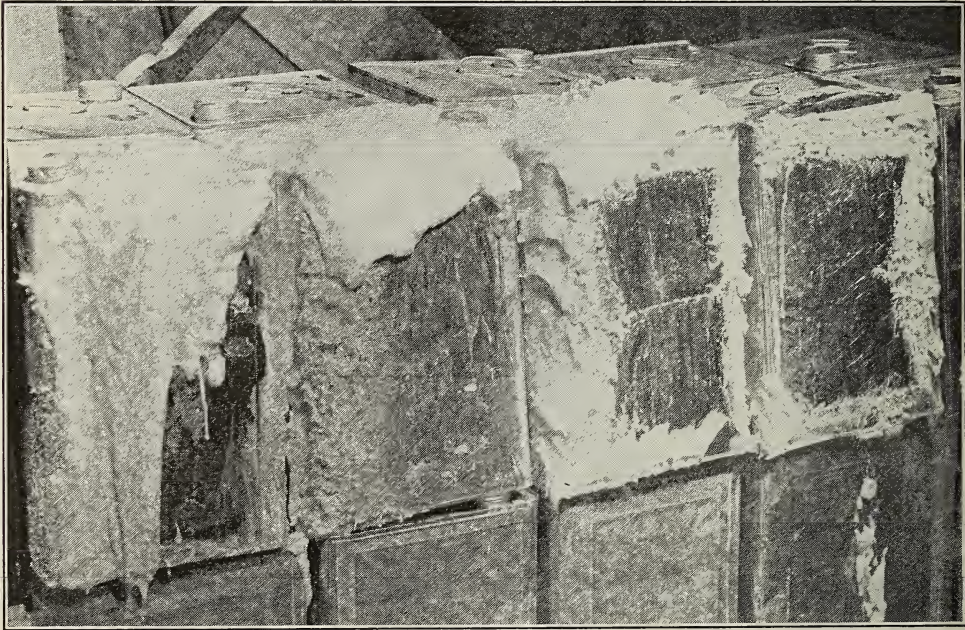
BEWARE FERMENTED HONEY

Danger of Spoiling the Year's Work by Not Waiting Till the Bees Have Ripened the Honey

By H. H. Root

(granulated hard, when first bought) which, tho kept in a warm, dry room, fermented and expanded as shown. This honey was not extremely sour to the taste, and yet there was a very perceptible flavor of fermentation, practically ruining the whole lot. Some one extracted the honey too green, thereby doing the whole industry incalculable harm. The mere fact that the honey is granulated hard at first is not by any means proof that it is fully ripe. Remember that

duced. The supreme test comes when honey is kept past January and February, on into March and April. The illustration shows part of a lot of honey



Here are some results of extracting unripe honey.

extracted honey, when put up in cans and kept in a dry place, is proof against fermentation. So far as the taste and appearance are concerned, honey that is not quite ripe enough when extracted comes so near to that which is fully ripened that the beginner at least is tempted to think it all foolishness to wait until the combs are three-fourths sealed over. Right here is where the great mistake is made, for it is penny wise and pound foolish to extract honey not thoroughly ripened, no matter what the circumstances are.

It is impossible for all honey to find its way to the home of the consumer within six or even nine months from the time it is pro-

this particular honey was apparently all right in November.

Strange to say western honey is not as likely to ferment when kept over into March, April, and May as is eastern honey. This may be because the western producers are more careful, during extracting, not to take unsealed honey; or, it may be due to the drier air, prevailing in the west. If it is the fault of the beekeeper, let this fact be heralded from the house tops: one can not extract partially ripened honey without being the loser in the end. The first year a man may get as much for his honey as the other fellow, but he has done the whole industry (including the other fellow and him-

self) an injury, and sooner or later his reputation will suffer. A reputation may be created by consistent advertising, but that reputation cannot be maintained without producing the right kind of honey. It takes longer to live down a bad reputation than to build a new one from the start.

Think of carefully protecting the bees thru the winter, attending to them during the early spring months, wrestling with the swarming problem—and then, after a whole year of work, being so shortsighted at harvest time as to refuse to wait until the bees have entirely completed their product!



SOME years ago we were confronted with a new problem in beekeeping; viz., that of operating our three apiaries, about two hundred colonies for

APIARIES AT LONG RANGE

How the Work Can Be Done in a Few Weeks and at One Time. It is Possible and Practicable—If

By Helpmeet

comb-honey, located seven hundred miles from home, and with but five or six weeks available each year for the entire work.

The location furnishes a single short major honey flow, seldom more than a month in duration, from which the entire honey crop is gathered, and some minor honey flows from other sources but never enough for a surplus. Swarming occurs during the honey flow. The beekeeping year is divided, therefore, into two parts—the honey flow and the other eleven months. We count on being present during the honey flow, but do not see the bees during the other ten and a half or eleven months of the year.

With the old conception of beekeeping, involving frequent visits and numerous items of attention thruout most of the year, as a handicap, it required considerable careful planning to be able to provide in July all the items of attention a colony is expected to need until the next June. This is especially true in a location in which the seasons are replete with exceptions to the rule and where but few things really occur exactly as expected.

The Three Requirements.

The numerous items of attention formerly bestowed upon each colony from July until June were mentally rehearsed, then arranged in columns on the basis of their purpose. After some juggling three columns remained. (1) Those items either directly or indirectly concerned with stores; such as examining colonies to find which are short of stores, feeding, equalizing stores, etc. (2) Those items concerned with extra room for certain unusual colony activities; such as an unexpected but welcome fall flow, minor honey flows from spring flowers, and the heavy brood-rearing during spring. (3) Winter and spring protection.

If disease is not imminent or present, any other items of attention from July until the following June are not necessary to honey production in this location, altho they may be ever so interesting and attractive to the enthusiastic beekeeper.

Accordingly we supply each colony in July with enough stores to last until the next June, even tho little or none should be gathered during this interval. At

the same time we supply sufficient room for a possible ten-or fifteen-pound fall flow that sometimes, though seldom, materializes, as well as room for the heaviest spring brood-rearing of the strongest colonies, in order that none of the colonies should want in either of these two requirements. In other words, we do our fall feeding and our spring feeding the previous July. At the same time we give extra room for a possible fall honey flow or spring honey flow as well as room for the heavy spring brood-rearing. This is done by supplying each colony with an extra hive body about two-thirds full of honey as a part of its permanent equipment. This extra hive body is removed only during the honey flow when comb-honey supers are on the hives.

This takes care of all the usual requirements of the colonies for the eleven months excepting winter and spring protection. Since the bees are wintered outside, this could probably also be given in July before we leave them. We have not tried this yet, largely because of a lack of time, and partly because it would seem too great a departure from orthodox practice. We feel that when we do our spring feeding and give extra room for spring brood-rearing the previous July, we have been sufficiently radical. We have the winter cases put on by unskilled labor, and, when we are able to have it done, we have them taken off just before our annual arrival.

Stores, protection, and room, the three requirements of the colonies during the eleven months, are thus provided, and we could do but little more to help the bees along in preparation for the next honey flow even by constant attention during our absence. This plan involves the giving of more stores than are needed sometimes and more room than is needed for extra colony activities some seasons. It means an extra investment in equipment and honey but saves much labor and fussing and, best of all, provides assurance that all the requirements of the colonies are supplied in ample time, which

unfortunately is not always the case when the needs are supplied as the emergency presents itself.

Thus far we have been agreeably surprised each year when making the first visit to the yards in June to find that the bees have prospered during our absence even better than formerly when they had attention throughout the year. The plan has now been in operation long enough to convince us that it is entirely practical. It has enabled us to reduce to a system the work of the eleven months. We wish this could be said of the remaining one month.

The Honey Flow.

We try to arrive on the scene at the beginning of the honey flow. By corresponding with beekeepers in the same locality we usually are able to time our arrival fairly well. But the uncertainties of a fickle climate sometimes badly upset our plans.

The first work in each yard is devoted to reducing each colony to a single story, clipping the queens and putting on comb-honey supers. We put most of the brood in a single hive body to be left with the colony and the combs of honey with smaller patches of brood and empty combs in the other hive body. The bees are shaken from these extra combs that are taken away, and the hive bodies containing them are piled up on top of the weaker colonies. They are piled up eight high, the piles being propped with fence rails to prevent their being blown over. These "piles" soon become exceedingly strong colonies because there is more or less emerging brood scattered through the various hive bodies. Later, after considerable of this brood has emerged, some of the hive bodies are slipped forward or back to allow additional entrances. The colonies in these "piles" do not attempt to swarm, and most of the combs are usually filled with honey, which gives us the extra story of honey to put back on the other colonies after the comb-honey supers have all been removed. This preliminary work is a hard and disagreeable job and usually makes us wish we were equipped for extracted-honey production, which would save all this shaking and sorting of combs.

Sometimes the colonies are so strong at this time that two comb-honey supers are needed at once. Some colonies are extremely touchy just at this time, responding to this reduction to one story by immediately preparing to swarm. This has led to a modified treatment of certain suspicious-looking colonies some seasons by which most of their brood is temporarily removed when they are reduced to a single story.

Swarming.

The remainder of the work during the honey flow is devoted primarily to a fight against swarming, which in some seasons is a battle of such proportions that honey production seems only incidental to the main issue of the fight. Fortunately, however, not all seasons are like this, and we sometimes have time to enjoy a certain

amount of freedom from the burdens that these ruthless taskmasters are able to impose upon us.

All colonies that are at all liable to swarm are examined each week, and, if the honey flow is rapid, the supers are examined and rearranged every three or four days, for we want each colony drawing foundation far in advance of its needs during the first half of the honey flow. For this reason we have never been able to handle our apiaries by visiting them only every ten days, as some beekeepers do.

We have no set rule for the treatment of colonies that are preparing to swarm. Like the physician we want to see the patient before writing a prescription. In general, when conditions of the colony and the character and advancement of the season are such that it seems best to do so, we remove the brood from the colony that is preparing to swarm. When another set of symptoms are present and the character and advancement of the season are such that a different treatment is indicated, the queen is removed. The subsequent treatment in either case is modified by existing conditions, but usually, when the brood has been removed, most of the emerging bees resulting from the removed brood are later returned to the colony. The colonies that have had the queen removed are requeened with a young queen just as soon as they will tolerate this without swarming again. As the years go by, we note a growing tendency to remove queens more often than in former years.

Other Work.

The sections are folded and foundation put into them as needed, the writer being boss and chief operator in this department. For this work, advantage is taken of rainy days, when both can help, even tho the sections may not be needed this year, for we want at least one super per colony ready to put on the bees when we arrive the following June. During poor seasons we are sometimes able to make repairs on the equipment and repaint some of the hive covers. A certain amount of requeening is attempted every year, largely in connection with swarm control.

Toward the close of the honey flow we begin a concentration of super work, first reducing the super room of each colony to one super. Later these last supers are removed and the unfinished sections assembled into a smaller number of supers which are returned to certain selected colonies. At this time each of the other colonies is given an extra hive body well supplied with honey. These are taken from the "pile" mentioned above. Thus, by a single operation, these colonies are supplied with all the items of attention they should need until next June, except packing for winter and unpacking the next spring. When all colonies have had their comb-honey supers removed and have been given the second hive body containing their stores, we say

"goodbye" to the yards until next June. This is frequently done before the honey flow has closed entirely, for we do not always have time to wait for this.

We leave the work of scraping, packing, and marketing the honey for others to do. In doing this we feel that we are being cheated out of some of the best fun connected with comb-honey production.

Results.

The crops of honey have averaged considerably higher since we have been so far away from the bees. Whether it is because the seasons are averaging better or because the bees are at all times better supplied with stores than formerly, we do not know. European foul brood is all around us and formerly took its annual toll in two of our apiaries, but none has been seen in any of our colonies since the inauguration of this system six years ago. We think this is largely due to the fact that our colonies are now stronger in the spring than they were under the old method of management. We do not care to recommend this method of beekeeping to those who can see their bees offener. It takes too much of the enjoyment out of the work and makes it a strictly business proposition. On the other hand, we can not picture ourselves ever going back entirely to the old methods even though the bees were all in a single apiary in our own back yard.

I have written this using the plural of the personal pronoun, meaning my husband and myself. I am a beekeeper by marriage only. I feel, of course, that my assistance is quite necessary to the production of a crop of honey and it is difficult to believe that it could be done without me. I have not gone along to help every summer; yet, strange to say, the season's work has been accomplished without my aid. At least it has been so reported to me, altho I find it hard to believe. Since I am not able to claim credit for all the work, I shall have to sign myself the

Helpmeet.

Comment on the Plan.

[The plan of working bees a few weeks during the honey season may at first seem to be impossible with the great majority of beemen in the country, and, while this may be true to a large extent, it is nevertheless true that not a small number of practical honey-producers in the country are doing something similar to this and have done it successfully. The plan is not here offered for general adoption, but only to call attention to what some professional men, especially school-teachers, are doing.

Of course, the greatest objection to the plan is that foul brood might get among the bees during the nine or ten months when they were out of the direct care and supervision of the owner. But out of this nine or ten months should be eliminated four or five months while the bees are in winter quarters, when they need little or no attention. There remains only the danger

of bees contracting the foul-brood disease during the breeding season in the spring and in the fall just prior to being put into winter quarters. But immediately after the honey flow, a queen a year old will let up on her egg-laying, so there will not be as much breeding in August as there would be in the spring.

European foul brood comes on in the early part of the season as a rule, and, if it were in the locality, it might visit such an apiary not immune and out of the direct control of the owner. On the other hand, European foul brood with a good strain of Italians can be and is being controlled so that it is not a serious menace in most cases.

We have remaining the problem of wintering, which is not serious during average winters, providing the bees are put up by the owner exactly according to directions.

Colonies of bees are often lost during winter because beekeepers tinker with them too much in the fall, rearrange their brood-nest or disturb the honey. The plan here described involves the principle of leaving bees alone, as far as conditions will permit, and then packing them well for winter.

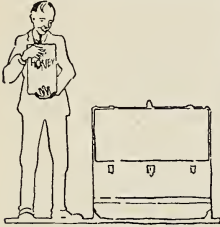
Since at the close of the honey flow each colony is given an extra hive body well supplied with stores, no feeding is necessary during the beekeeper's absence. The reader should note the importance of the extra hive body two-thirds full of honey as a factor in the elimination of superfluous visits to the apiaries. This reserve of stores is ready for the bees to draw upon whenever they may need feeding during the beekeeper's absence, thus becoming an automatic feeder. It feeds the bees when feeding is necessary, and also affords storage space during minor honey flows, all without any attention whatever from the beekeeper. This abundance of stores when combined with ample winter and spring protection and sufficient room for unlimited brood-rearing the next spring, should result in rousing colonies at the beginning of the honey flow without any other attention from the beekeeper.

The plan outlined above does not in any degree involve neglecting the bees when attention is necessary. In fact, it involves intensive care during the honey flow in supplying conditions at that time to insure the maintenance of the colonies until the beginning of the next honey flow.

The average person, however, will do well to go very carefully about adopting a plan like this on a very large scale. This is only another way of saying that the average person will do better to see the bees several times during the season; but it is not saying that some good beekeepers can not and do not do what is here described. Foul brood may be said to be the most serious obstacle, but a good beeman, if he has not too many careless neighbors, can eliminate either type of the disease, to a very large extent, while he is among the bees the five or six weeks during the honey flow.—Editor.]

DID you ever travel with honey?

With Honey, yes, of course, on your wedding trip; but I mean with the beautiful, amber, sticky, gaummy, viscid liquid that you put carefully into a can with the screw-top on so tight that, by George, it can't come open! You put the can then, of course, into the bottom of your trunk, pack beside it



"You put the can then, of course, in the bottom of your trunk!"

Shakespeare's Sonnets and the two books on beekeeping that you have had by you all summer, and fill in the rest of the bottom layer with shoes and underwear. Above that comes the overcoat which you have not worn, but which your wife insisted upon your having with you, your best suit, white shirts which have not been out of the drawer since you came, some odds and ends of socks and underwear which you forgot to put in the bottom, and there's the next layer! Then you look around the room and throw in everything in sight—that's the top layer—the clothes you had on last in the apiary, collars, a few socks which appear in unexpected places, a bundle of your wife's letters, mostly unanswered, a nightshirt fished out from under the bureau, a bunch of neckties, a few soiled shirts, more books, a smoker that you forgot to pack with the bee things, and last of all, two bee veils. There you are, all packed except for closing the trunk! Of course, that's a very different matter, which requires the combined efforts of the landlady's husband, little boy, and you, for the trunk is a small one, and somehow things take up more space than they did when your wife packed them; but at last, when all three of you sit down hard, altogether now! the lock snaps and you are ready to go. After all, it is a simple matter to take a can of honey east to your sister, and think of her pleasure when she sees the clear liquid flow into her syrup jug, and her admiration and surprise when you assure her that you have been producing that fine honey by the ton!

Now all of this is what Mr. Bud Tomlinson did last summer when he had shipped his last load of honey to market and had put his bees in shape for winter, and there was no rappier, more contented man than he in the world as he stepped on the train for Chicago. Little did he know what Fate had in store for him, lurking just around the corner, and with her usual irony about to use for his undoing the very source of his content—his honey! We have all been

HONEY, TRUNKS, and TROUBLE

A Traveling Experience That Many a Beekeeper Has Been Thru. Poor Mr. Tomlinson!

By Mary G. Phillips

Bud Tomlinson, who stepped off the train in Chicago that day as calm as a summer sea. His trunk, having come up to the city by the local on which he rode, was carried by the transfer company to the baggage station and dumped on their platform, where Mr. Bud Tomlinson expected to find it, to check east, when he arrived some time later.

Mr. Bud Tomlinson had taken his time about checking his trunk; he had had lunch, had seen a wholesale honey dealer, and most important of all, had bought a large Teddy-bear for his sister's baby, and some pale blue silk for an evening dress which he knew his wife had been wishing for. He hoped that he might squeeze these things into the trunk, opening it at the baggage station. There was no hurry—his train did not leave until evening, and the afternoon was still young. He walked about among the trunks on the platform, but failed to find his own. Where could it be? He knew it had come up on the local—it must be here. A solicitous baggage master offered help, but the trunk containing the precious honey was apparently missing. At length Bud's gaze suddenly fell upon a lonely piece of baggage standing on end in the middle of the alley.

"What's that?" he said. "That looks like mine, out there in the street!"

"That?" inquired the baggage man innocently, "Oh, that! We can't accept that! That darned transfer man brought it here and thought he'd put one over on me! Wanted me to accept a trunk all messed up with



"Wanted me to accept a trunk all messed up with something sticky from top to bottom."

something sticky from top to bottom! I told him where to go with that trunk, and shoved it back on his truck—then he got fresh and said he wouldn't have it—he was so full of the stuff that his hands stuck to the steering wheel and he almost ran a lady down, and if I wouldn't let him put it on my platform, he'd dump it in the alley! Well, after that you bet I wouldn't have it so he dumped it out there, and there it sets. It can set there till Doomsday for all o' me—I won't touch it, I know that—it's covered with something messy that sticks all over you. It don't smell so bad, tho. Don't know what it is, but it might be dangerous."

Poor Bud Tomlinson's heart sank as he

there — there never has been a beekeeper who has not once—just once—packed honey in a trunk and then—but wait! let me tell you of the unsuspecting

slowly walked out to have a look at what he felt sure was his property. It was—and the baggage man was entirely correct about the stickiness, for honey seemed to exude from every pore—if trunks can be said to have pores.

“What’ll I do with it? Can’t you send it on as it is?” he asked the disinterested baggage man. “It’s only honey that has got loose somehow.”

“We certainly cannot!” he replied. “We can’t handle a piece of baggage in that condition! Can’t you wash it off or something? There’s a hydrant inside.”

Bud looked around him. The outlook was not encouraging. Two small boys collected



“Two small boys collected from nowhere”—

where you get the buckets, just get them.”

While the boys were gone, Bud took off his coat, laying it with his parcel containing the Teddy-bear and the silk on the edge of the platform, rolled up his sleeves, and opened the trunk. From the top edge of the lifted lid, dripped the limpid sweetness, but for the first time in his life Bud Tomlinson did not stop to admire the color and texture of his honey. The inside of the trunk lid seemed to have been painted with a thick layer of honey, and the contents of the trunk swam in a sticky sea! How there could be sufficient honey in one five-gallon can to surround and encase every article in that trunk remains a mystery, but such was the sad state, as you probably know from experience. A little



“The contents of the trunk swam in a sticky sea.”

honey goes a long way!

For two solid hours Bud Tomlinson lifted clothing from the trunk, dipped it into a bucket, sloshed it up and down until most of the stickiness had disappeared, and then with legs wide apart wrung the clothes and dropped them in a heap on newspapers spread at one side of the offending trunk. The boys enjoyed carrying bucket after bucket of water, slopping it over their legs as they came, and they were not in the

least abashed by the audience which gathered all too quickly for Mr. Bud Tomlinson. He was not enjoying himself, but with heroic fortitude he kept his eyes glued (or perhaps I should say “honeyed”) to his work and made no reply to the facetious youth who begged him with tears in his voice to tell whether he was paying a bet or was this the way he preferred to do his washing. There was a cheer when the baptism of the overcoat took place, and another when he wrung the water from his best suit. As for the books—never before were Shakespeare’s Sonnets so cloyingly sweet, never did bee books contain so much about honey! These Bud discarded as beyond hope of redemption from the stickiness which had penetrated most of the leaves, and the last he saw of them urchins were scuffling for portions to lick. When every

thing was out of the trunk, there was the empty honey can with the screw-top still tightly on! He knew he had made that safe! But in the side of the can was a gaping hole made by a nail protruding from the side of the trunk. This was no comfort to Mr. Bud Tomlinson, for had not his wife advised him to buy a new trunk before journeying again?



“Dipped it into a bucket, sloshed it up and down.”

To soothe his anguished feelings, Bud lighted his pipe and sat on the platform, swinging his feet, to rest and smoke while the little boys poured their buckets full of water into the now empty trunk. When it seemed fairly clean inside, it was closed and more water poured over the outside, so that a fair-sized rivulet ran down the alley, and helped to disperse the audience. Just as the tobacco and the fact that the job was nearly done were bringing balm to his soul, Mr. Bud Tomlinson suddenly straightened into action and with a yell he dashed for a package floating lightly down the stream of dirty water! It was his package, containing one large white Teddy-bear, and one delicate piece of blue silk!

This was entirely too much for the equilibrium of even the dignified Mr. Bud Tomlinson, and he let go! He addressed no one in particular, but the facetious youth and the small boys who comprised his appreciative audience listened attentively to his remarks about trunks in general and their ancestry, about honey and baggage masters, about the futility of attempting kind deeds, and various other matters, and when it was over Bud Tomlinson felt better. He hurled and flung the damp garments from the heap on the paving into the wet trunk and last of all deposited on top a very wet Teddy-bear and a soggy package of silk. Then he went into the baggage room and checked that trunk east. That’s about all.



CONVERSATIONS with DOOLITTLE

Conditions That Surround the Purchase of Queens from Breeders

[Our readers will be glad to learn that before his death, which occurred on June 3, Mr. Doolittle had written several "Conversations" in advance, and these will appear as usual for several months to come. His widow has written us that it was his custom, on account of the depressing influence of hot weather on his health, to write his articles for summer in advance of the coming of the heated season. Accordingly, Friend Doolittle will still "converse" with Gleanings readers for a time, altho his heartbeats have been stilled.—Editor.]

"The subject of superior stock is now the most interesting to me of any connected with the bee business. But there is one thing that I do not understand, and that is that so many queens sent out by breeders turn out to be poor when they are received by the purchaser. I have never advertised queens for sale, but have bought queens from nearly every breeder in this country who claims to have anything superior, and I am sorry to say I am generally disappointed. Should not the daughters be all that is claimed for their mothers?"

At present, the most promising field in which to turn our energies loose, is that of improving our stock. Our hives and method of management are probably not perfection, but they are at least fairly good, our method of putting up honey and marketing it may possibly be considerably improved; but, at present, too many of us look at bees in something the same way a storekeeper here used to buy butter—"it's all butter," he would say. The man who has kept bees for several years, trying different strains has reason to believe that there is quite a difference in bees, and so he sends for queens from those who advertise having such that are superior to most, if not all others. When they prove to be little, if any, better than those he already has, of course he is disappointed.

To my mind there are several reasons why the queens may not be as good as we expect from reading the advertisements. (1) The young queens may not have been so well reared as the mother was. (2) The young queen may not have mated as well as her mother. (3) Beekeepers who are accustomed to seeing queens in their own apiary are quite likely to be disappointed when they begin buying queens and having them come by mail. A queen sent by mail is quite likely to be small and insignificant looking as compared with a queen that is laying in a full colony. Not only is the shipped queen smaller, but there is a dinginess about her that is in striking contrast with the bright, fresh color of the queen at home on the combs of her own colony. Time and again some beekeeper who has purchased a queen and has bad luck in introducing her,

and perhaps bad luck in other ways, sits down and writes to some of the bee papers, not in as pleasant terms as our questioner has. Some buyers had expected a large, golden-yellow queen, and, above all, had no idea that the one purchased would not be accepted by the bees, as the directions for introducing had been followed as found upon the cage. But the queen was received and lost, and she was small and dark colored, and the accompanying bees looked little better than hybrids.

Does a purchaser expect to get a queen whose condition will be as good when received as when the queen was put into the cage? Just consider for a moment what a hard time those bees have had while they were cooped up in the little box and being rushed about for a week or more in a mail bag, with the temperature ranging from 90 to 100 degrees in the shade. Is it not a wonder that the bees are alive? Many mail bags are grabbed from a crane while an express train is traveling from 40 to 50 miles an hour.

Then, again, think of the effect on the bees when a mail pouch is thrown from the door of a car with the train going at the rate above mentioned. Some years ago I was standing just outside the door on a platform next to the station to see one of these trains come thru on the New York Central, not knowing that the mail was thrown off there from this train called the "Fast Mail." Some ten rods before it got to where I was standing, a door on the mail coach opened and a bag was thrown out. I saw it bound in the air, strike the farthest end of the platform, give two or three more bounds, when it proceeded to roll along, going slower all the while, and looking very innocent, but just as it looked as if it was going to stop, Doolittle was lying prone on the platform amidst laughter from others, while the bag went on a rod or two further, after knocking me down. I then and there thought of a batch of queens I had mailed the day before to start out on this train bound for Australia, and what would happen to others going to Ohio, Iowa, and California. Sometimes the mail pouch is left at some station in the hot sun with a temperature of from 110 to 140. And what is still worse, when queens are sent down into the southern tier of States, the mail pouch is sometimes placed on the top of a stagecoach and carried for a score to fifty miles into some back town, and all the time Old Sol is doing his best to cook the contents enclosed.

These things are often overlooked by the purchasers of queens, and a few are unkind enough to accuse the breeder of sending them inferior queens. It is hardly thinkable that a queen-breeder would select out and

FROM THE FIELD OF EXPERIENCE

knowingly mail an inferior queen. His reputation is at stake. "Handsome is that handsome does," and certainly, queens, when in the colonies and nuclei of the queen-breeder, do look and appear beautiful, and give promise (so far as he can judge quality from appearance and indications) of being superior.

There is one thing apiarists are always pleased to have done, and that is to have the buyer come right to the apiary and make his own selections. Then the queens can be seen in all their glory. Of course all who desire to purchase queens cannot avail themselves of this pleasure.

There is one more point that queen-buyers would do well to heed. Do not remove the old queen until the new one is at hand. Many breeders can and do send queens by return mail, but it is not always possible to do this. More often a week may pass with orders for only two or three, and the next mail bring orders for from 50 to 100. This upsets the "by return mail" business.

Borođino, N. Y. G. M. Doolittle.



HOW QUEENS MARK THEIR HIVES

Proof That "Sense of Direction" and Not Color Directs Their Flight

It is generally believed that a queen has a good eye for color, and that this will enable her to find her hive when she returns from the wedding flight, if the hive in which she belongs is of different color from those near by. I have done considerable experi-

menting along that line, and, while I am going against popular belief, my experiments have led me to believe that color plays little or no part in aiding the queen to find her way home.

That color does help the worker bee I have proved to my own satisfaction. Here is a typical experiment: My hives are close together. One hive near the center of the apiary contained a virgin queen. In order to help her identify her home, I took red chalk and colored the front of the hive a bright red. The worker bees came home, but they did not like the looks of that red thing right where their home was. Yes, that was the place all right, but they were positively certain their house was white, so after careful investigation they decided to risk one that had the right color, even if it was not exactly in the right spot. This they did with the result that at least a pint were killed and dragged out.

So arguing along this line, one would feel safe in assuming that the queen also would closely observe color. But, as stated, they don't do it. In fact, I have laid down many a program that the bees ought to follow, but they would not.

Last season for lack of room, I had my mating nuclei close together, hanging eight on a square stand so that two would face each way. These stands were about six feet apart. In order to help the queen locate her nucleus, I painted part of the fronts different and distinct colors: bright red, green, white, black, and yellow. I have stood by these and witnessed many queens return, or try to, and I believe they are guided by an



Where Jay Smith Observed Queens Marking Their Hives.



FROM THE FIELD OF EXPERIENCE



instinct or sense of general direction and not by color or any little distinguishing marks.

The queens would invariably come back, go up to the entrance of their own hive or of the one nearest to it, and go in one or the other, regardless of the color. Frequently they would go behind the hive and try to get into the screened ventilator. I found my nuclei were too close together and the loss was over 25 per cent. In another part of the yard I painted them all one color, and the loss was no more than with the ones with different colors.

That queens are led by a general sense of direction, rather than to any fine detail, I have noticed many times. For instance, if a queen has a flight from two different localities a number of feet apart, when she comes back from the second she will return to neither, but usually go halfway between the two.

I have had virgin queens that had had a flight escape from my hand when I was taking them to another hive. They would fly away with the usual circling, but would return somewhere between the place from which they escaped and their old home.

The accompanying photo will illustrate a case that occurred last September. I had a batch of queen-cells built in hive No. 2. I intended to make a photograph of these and therefore took extra pains in grafting them so all would be accepted. I think all but one in the 40 were accepted and were being drawn out into long beautiful cells.


When the day came for them to be sealed, I looked at them and was astonished to find every cell not sealed but every larva removed and all royal jelly cleaned out. I knew that meant they had a queen, and I was dumbfounded to know where she came from as the hive was made queenless and broodless only a few days before. I soon found the queen and recognized her as one from hive No. 1. On recalling an incident of a few days preceding, I soon saw how the queen from hive 1 happened to be in hive 2. This is how it occurred.

Hive No. 1 contained my breeder, and the bees were superseding her. After the virgin was several days old, I thought I would remove her and let them raise another. So I took her to a queenless colony, No. 3. In trying to introduce her, she escaped and flew away. After I had stood there some time, she came back and I caught her. I believe this was her first flight. I thought I had better not try to introduce her and therefore took her back to her old hive, No. 1. Now she had had a flight from No. 3, but not from No. 1. Next day she took her wedding flight and was mated. In returning her instinct took her halfway between No. 1 and No. 3, so she entered hive No. 2. This happened to be my cell-building colony,

and, being queenless, the bees accepted her much to the detriment of my cells. In a day or two she began to lay, so I left her there in her adopted home. Jay Smith.

Vincennes, Ind.

[Mel Pritchard, our queen-breeder and a very close observer, says that he has always supposed that queens mark their location each time they take a flight; but he says he may be wrong, as he has had no experience with queens that have taken flights from two or more locations. Mr. Pritchard also says he had supposed that queens took note of color, but that he has no proof of this.—Editor.]



SHALLOW VS. DEEP SUPERS

This Man Doesn't Agree with J. E. Crane and Other Deep Super Advocates

There has been some discussion as to the advantages of the shallow frame in producing extracted honey. Keep it up until we have a better argument than that we just happened to have this or that equipment. I consider the above subject a very important one just now because many are changing over from comb to extracted honey on account of the high price of the latter. Then there is the beginners' class, which will be large, as beekeeping, without a doubt, will take a big jump in the next few years.

The beginner will be reading everything he can get hold of, from the best textbook down to the Government bulletin, after which he will be none the wiser so far as a definite decision is concerned. If a person wishes to start in a new business and seeks a little information from those of experience, he will be advised above all else to begin right, because he will be hampered all thru by making a wrong start. But when such men as J. E. Crane say that the shallow frame is a first-class nuisance, it certainly is a stunner, and I think some have not got over it yet. Others will say that it can never be decided which is better—the shallow or Langstroth size, on account of that big word "locality." But that is just where the shallow frame comes in. It can be adapted to a strong flow or a light flow of honey—to a large colony or a small one.

In my early beekeeping experience I used the Langstroth frame exclusively, mainly because the large producers used it; but things have changed greatly.

The auto truck is one of the greatest agencies for improvement that has come up for a long time, especially for beekeeping. This truck affords rapid transportation facilities in hauling honey to a central extracting station, an advantage which is practically impossible with the Langstroth size of frame, since the deep Langstroth frames flop back and forth, bruising and breaking



FROM THE FIELD OF EXPERIENCE



the combs. An apiarist who uses shallow frames can drive the auto truck right into the beeyard and load up the honey after smoking and jouncing out the bees, the jouncing part being impossible with large combs. The frames should be self-spacing, with projections wide enough so that eight frames will fill a ten-frame super. It is impracticable to have wider spacing for the Langstroth frame than the regular equipment, as they would make all kinds of trouble by getting mixed with the brood-frames. There can be no hand-spacing in a well-equipped beeyard. A great saving is in the foundation that can be used. Full sheets of section foundation fill the bill, cutting the cost nearly one-half, if you take the time of wiring into account, wiring not being needed in shallow frames.

I find that queen-excluders can be dispensed with, as the queen is crowded out during the honey flow; and if there should be any brood left it is usually capped. By using an extractor with large pockets, the extracting may be done nearly as rapidly, since two shallow frames may be placed in each pocket. The great argument against shallow frames is the extra handling, which is only in uncapping and extracting, as no separate super frames are handled at the beeyard. If you have your extracting-house arranged right, they can be handled very rapidly.

Hamburg, N. Y. Elmer Gressman.

[Many beekeepers do not recognize this last objection, believing they can uncap two shallow combs in fully as short a time as one deep one. We think shallow frames should, however, be wired to prevent the combs breaking when extracted.—Editor.]



WHY WIDE SPACING

Saves on Investment and Time and Makes the Colony Strong

Altho most of us agree that $1\frac{3}{8}$ inches from center to center is correct spacing for our frames before they are filled with comb, in my practice after they are filled, I find so many advantages of wider spacing that enumerating them may be of service to a few readers of *Gleanings*.

Wide spacing eliminates at least one comb from each story, thus saving at least 10 per cent to 12 per cent on the investment for combs, and in no case have I observed any necessity whatever for the missing frame.

It makes one less frame to handle per story, which in a day's work amounts to a considerable saving, and, in a season, to a great deal. Also, it is nearly always much easier to get the first frame out.

It gives just the right amount of new tender wall between the old cocoons of the brood and the cappings to allow the capping knife to work to best advantage. What is

nicer than uncapping good, thick, well-filled frames of honey?

One frame less per super affords quite a little more storing room. There is one less bee-space to be left vacant. This is a slight advantage with strong stands.

Many beemen think they obtain more wax in the cappings by wide spacing. I never could satisfy myself that it amounted to much, one way or another. Below the cappings the walls of a cell are extremely thin—like the thinnest tissue paper. Leaving out one frame gives just $1\frac{3}{8}$ inches more of this thin wall distributed over the different combs. I can't make myself believe that it amounts to very much—at least not much more than the cappings would from the frame that is left out.

Some beekeepers claim that wide spacing reduces swarming. I firmly believe that it does myself; and I have a number of good reasons for believing it.

A brood-nest spaced wide requires a larger number of bees to maintain the same sized cluster. That is, the cluster must be composed of more bees and less comb, and the difference is quite appreciable, particularly in the spring. This tends to prevent chilled or overheated brood, and allows a considerably larger force of nurse bees to care for a given quantity of brood, as well as a larger proportionate number of field bees to procure pollen, water, and nectar during the early brood-rearing period. I notice, in spring, the bees frequently have a tendency to extend their brood-nest beyond what they can properly care for, which results in chilled or partially starved brood. I notice this condition most frequently among bees of poorer hereditary habits or tendencies. I find that my best stock nearly always have lavishly fed brood, and it is their habit of properly caring for their young, keeping them warm, and giving them plenty to live and grow on, to which I attribute their better working qualities, individually longer lives, and general excellence. We do not expect good results from any kind of poorly raised stock—why expect bees to break the rule. This habit of being "good mothers" is almost entirely hereditary, (altho of course influenced largely by weather and circumstances) but it is very largely encouraged and helped by the wide spacing, and may be controlled to a considerable degree by contraction of the brood-nest.

In putting your bees away for the winter, give them plenty of good stores and nice, wide spaces to cluster in. They can maintain their temperature much better, and, it seems to me at least, that they come out in noticeably better condition in the spring.

Of course, the bees, and beemen, like the $1\frac{3}{8}$ -inch spacing for getting combs drawn out, but hereafter, for my part, I want my combs $1\frac{1}{2}$ to $1\frac{5}{8}$ inches apart.

Overton, Nev.

T. W. Riggs.

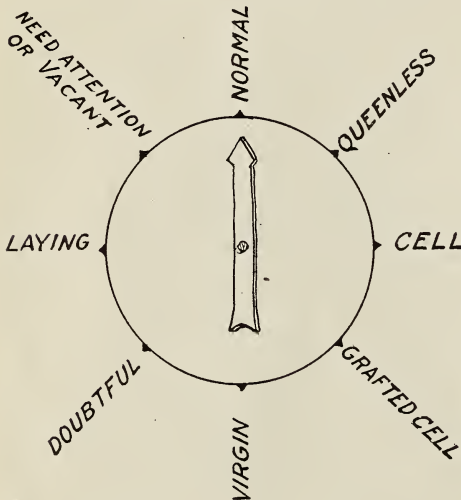
FROM THE FIELD OF EXPERIENCE

TO MARK THE HIVES

A Simple, Effective, and Inexpensive Plan is Here Offered

Many have been the ideas suggested and used for outside markings to hives and queen-rearing nuclei that would indicate the internal conditions of such when last examined. Half-bricks, sticks, stones, and even dirt have been used as markers, but all were faulty.

One of the best markers, and one which most nearly approaches perfection, was an index card put out and used for many years by A. I. Root. These cards were about the size of an ordinary postal card; were printed on heavy manilla paper, and were intended to be tacked to the front of the hive or nucleus when in use. Two dials were represented with a bent pin in each as markers—



one to indicate the date; the other, internal conditions. Objections to these cards were that they would become weather-beaten and fade out with a season's use; the pin pointers would become loose and not stay where wanted, and these cards could not be read at long range. The half-bricks were about the next best thing, as they were less liable to be blown or knocked off, and by certain positions could be made to tell about all we would want to remember. These, however, were bothersome.

After using the foregoing for a number of years there occurred to me a method of marking that could be read from a distance—one that would stay put, always be in place, and yet not be cumbersome or in the way of manipulations while working in the hives. Accordingly I attached to each hive a small index hand that might be turned in a circle, and from any place in the apiary one could read the condition of any nucleus

when last examined. For ten years now I have used this indicator, and I, together with several other queen-breeders, have found that it just about fills the bill; and for simplicity and ease of operation it has no equal.

A small piece of board four or five inches long, about an eighth of an inch thick, and pointed at one end like an arrow is used as an index hand, a common nail being placed thru the center and driven into the front of the hive and bradded on the inside. No circle or figures of any kind are made on the hive; but of course, when the indicator is turned it describes a circle, and this circle we imagine divided off into degrees like the points of a compass or face of a map. For convenience we call the top of this imaginary circle north; so when our index hand points toward the top of the map or hive we are to understand that our hive is in a normal condition, with tested queen, etc. If turned one-eighth of a turn to the right we have "queenless," and the indicator stands on northeast. The next step in the operation will be to give a ripe cell; and when so given we again give the indicator an eighth turn, and then it stands on east, and means "cell." Should the index be on a full colony which is a cell-builder, we would give the indicator another eighth turn to the southeast, and that would mean "cell-building." Again returning to the nucleus, if upon examination after having given "cell" we find a virgin on the combs we turn the marker to south (straight down), which means "virgin." If upon the next examination we do not find her laying, and feel an uncertainty as to her presence, we turn to southwest, which is termed "doubtful"; but in all probability we have overlooked her ladyship, and the next time we open the hive we shall find her laying. Then the indicator is given another eighth turn when it will point straight west, indicating "laying queen." We have now reached the seventh point on this imaginary circle, and there is but one more, which we seldom use, and that is northwest. So when the hive is not in use, or our nucleus absconds, gets robbed out, or needs rebuilding, we place the indicator on this point.

Beeville, Tex.

W. H. Laws.

For my own use I prefer a self-spacing frame, with the top and the bottom bars, as well as the end pieces, all one inch in thickness—a frame somewhat similar to Dr. Miller's. I use little ½-inch dogwood twigs. Lengthwise thru the pith, I drive thin nails into the upper ends of the frames, thus furnishing horizontal projections which space the frames nicely. By this arrangement there are no grooves, no trouble about spacing, and no metal against which to bump the honey knife during extracting time.

Fishers Ferry, Pa. Freeman E. Reeder.

J. E. CRANE,
I'm quite in
sympathy
with you and
Editor Root as
to the matter of
breeders and
tested queens,
page 234. You say,
"A queen can

hardly be fully tested in much less than a year." Isn't that a very moderate statement? The average queen that is sold as tested is born hardly later than August. In that same year you can tell practically nothing about what her bees will do at storing, and must wait till the close of the season the following year, and at that time she will generally be a year old or more. But I think it safe to say that 9 out of 10—I'm inclined to say 99 out of every 100—queens sold as tested, are less than two months old when sold. And that's all right according to the agreed definition of a tested queen, which is, "A queen whose progeny show she has mated with a drone of her own race." According to that a tested queen need be only 21 days older than an untested one. But you and I would want a good deal more than that to satisfy us with regard to a queen fully tested. Yet there may be said to be something quite definite in the word "tested," as generally used. But when we come to the term "select," we're on uncertain ground. What is a "select tested queen," anyway? Suppose a man has 100 queens that have begun to lay, and the markings of their worker progeny show that each has met a drone of her own race. How many of them may be called select, and why? If the best looking one of the lot is chosen as select, the conscience of the seller would no doubt be easy. And it would be about as satisfactory if the best of the remaining 99 should be chosen. And would he keep on selecting the best one of the lot on hand until only one was left, thus making 99 out of the hundred, or at what point would he stop and say I have no more selects? The problem is too much for me.

* * *

I move a vote of thanks to Miss Iona Fowls for her very full and satisfying discussion of Demaree and similar plans, and especially the diagrams, page 338. Miss Fowls raises the question whether any of us know what the Demaree plan is, and whether it should be credited to Demaree. When any plan is devolved, it is generally the case that it is more or less a putting together of things previously known, and if Demaree was original in any one item, or in any new combination of old items, it seems fair to apply his name to the plan, especially if he is active in its promulgation.

As to what the Demaree plan is, I have been in the habit of thinking of it as the plan of putting the brood above an excluder, with the queen and empty combs or



foundation below the excluder. Was not Demaree original in doing that? To be sure, Langstroth antedated Demaree by 27 years in the matter of

putting brood in an upper story, but he didn't put the queen in the lower story, and Demaree did. Langstroth left the queen with the brood in the upper story, and says she was almost certain to descend and lay her eggs in the new combs. There was no "almost" in Demaree's case; he put the queen in the lower story with the empty combs, and made sure she would stay there. That use of the excluder made all the difference between success and failure as a reliable method of prevention of swarming. Langstroth says that as long as bees have an abundance of room below they very seldom swarm. How seldom? Honest Injun, Iona, just between you and me, do you believe that it would be so seldom that you would feel safe to leave an out-apiary for a week or more without an excluder in the yard and expect to find that not one colony in ten had begun to think about swarming? I may say in passing that I gave some trial to the Langstroth plan, and would not think of placing dependence on it. Sometimes the brood-nest was above, sometimes below; oftener it was partly in both stories.

As to the Fowls plan. I like it—much. I like the brood hoisted away up. Not that it makes any difference about swarming. For if there is no thought of swarming with the brood in the second story, as is the case with many, how can there be less thought of it with the brood higher up? But I like the abundance of super-room, and the brood so easily got at to kill cells. Moreover cells are more sure to be started and matured so far from the brood-nest, and often this is desirable.

* * *

"Grace Allen informs us on page 287," says J. E. Crane, page 350, "that she picked the first clover blossoms March 31. It is May here in Vermont and we are yet looking forward to some time in June before we shall enjoy such a pleasure." In this northern edge of Illinois I picked the first white-clover blossom May 22. All of which goes to show that the season is somewhat mixed up. At any rate, I may say of the season here what Mrs. Allen, page 353, says of the season in Tennessee, "This has been an absurd sort of season here, so far." Some of the time it has been one of the most backward seasons I ever knew, yet I think I never knew clover to bloom quite so early. I can always count on the beginning of storing ten days after the first bloom, if there is any storing at all from white clover. It is close to that time now, clover seems

abundant and promising, and I am anxiously uncertain whether next week I shall be giving more supers or feeding against starvation.

* * *

Dr. Phillips is quoted, page 347, as saying that if we had only the flowers from which surplus is stored there might be no surplus, the plants that each yield only a little making a considerable total. I suspect that Dr. Phillips had in mind not only the amount of the yield, but its continuity. Take two localities, A and B. At A there is a heavy yield from a single source, and nothing at all from any other source thruout the season. At B there is a much lighter yield from the same source A has, and small amounts from numerous other sources thruout the season, the total amount of nectar secreted being less than the total secretion at A. Yet the surplus stored at B may be greater than A's surplus. Altho B's total be less than A's, it is continuous, keeping up constant breeding, while at A breeding is more or less neglected until the big rush is on, and then there are not enough bees for it. Even if breeding should be kept up, the bees at A can do only so much gathering, anyhow.

* * *

After reading the excellent instructions for imbedding wire, page 344, you may sigh because you haven't the electric current. Well, you can follow the plan devised by Miss Emma Wilson, and given to the public some years ago. Indeed I suspect that the electric plan is an outgrowth of Miss Wilson's plan. Instead of electricity you use the heat of a lamp or oil stove. Take your wired frame, holding it flat, and lay your foundation upon the wires. Move the frame slowly over the heat, following the direction of the wire, letting the tips of the fingers of one hand press lightly upon the part of the foundation over the heat. A little practice will teach you how fast to move and how much pressure to make.

* * *

A. I. Root, please pardon an old friend for insisting upon exactness in quoting scripture. You say, page 370, "The dear Savior, when he made a little repast for his followers, gave them fish and honey in the comb." Instead of his giving to them, didn't they give to him in response to his request? In Luke 24:42, we read, "And they gave him a piece of a broiled fish, and of an honey-comb." Even this needs revision, for in the revised version we read: "And they gave him a piece of a broiled fish," no mention being made of honey.

* * *

"In order to prevent after-swarms from the old hive, all queen-cells except one may be torn down, and in a week or so the colony examined for eggs," page 368, June Gleanings. I wonder if it wouldn't be better to make that "two weeks or so." It is generally counted that a prime swarm issues about the time the first cell is sealed.

It will be at least a week more before the virgin emerges from her cell, and she does well if she begins laying when eight days old. That makes two weeks and a day after the prime swarm before eggs are laid, provided everything is sped up in good style. But things do not always go so fast as that, and besides it is not so easy to find the first few eggs that are laid; so I wonder if it is best to look for eggs much short of three weeks after the prime swarm issues.

* * *

"If I should remove a queen from a hive for a few days, keeping her in a nucleus, could I return her to her original hive without introducing?" is a question asked, page 365. I should say it depends. If, after her removal, another queen is introduced, then the old queen can be returned only by being introduced just the same as she would to a strange colony. But if no other queen is introduced, and queen-cells killed, the old queen may be safely returned with the nucleus in about ten days without any precaution whatever. I've tried it dozens, if not hundreds, of times. I don't know that the bees remember her at all as their own queen, for I have sometimes given them a nucleus with a strange queen with equal success. Incidentally I may mention that this takes all the swarm out of a colony, whether it contemplates swarming or has already swarmed.

* * *

In a certain time after a prime swarm has issued, if no eggs are found in the mother colony, it is considered advisable to give a frame containing eggs and young larvæ, page 368. That is supposed to hurry up the young queen if she is slow about laying, or to show that the colony is queenless if queen-cells are started. I followed that practice for years in the case of young queens in nuclei. Then some of those New England fellows said that giving such a frame was quite likely to cause the disappearance of the young queen. Since giving up the practice I think I've had fewer losses, but I'd like to be sure. One thing I may mention is that it is not always certain that a nucleus is queenless when cells are started on the young brood given, for sometimes I have found cells started and then found the young queen laying all right a few days later.

* * *

You seem, A. I. Root, to be taking a good bit of comfort from eating baked apples, page 370. I eat them daily before dinner, but I take them raw. I get the vitamins, and are they not lost in the baking? In spite of that, your way may be best for you and mine for me.

* * *

"That queens lay more eggs during the first year than in any other" is spoken of as "a well-established fact," page 336. I wonder, now, I wonder. Some have thought they laid more the second year. Have we anything more than guessing, either way?

THIS has been a wonderful spring to study the wintering problem, especially for the bee inspector. In the best yard I have seen so far, the bees were wintered in a large dry cellar.



We have had two or three weeks of good May honey weather and bees have stored enough from fruit bloom and dandelions to carry them well into clover. The dandelions are indeed a blessing in building up our colonies for the summer harvest.

I have no disposition to call Herbert Coffee a liar because he says he had an Italian queen leave her hive and enter a black colony and take possession. We have had a black queen enter an Italian colony and perform the same trick, much to our disgust. See page 363.

Commend me to E. S. Miller for his cheerful, hopeful spirit in regard to European foul brood, see page 277. To the brave, hopeful, courageous person who is willing to work with his bees, it is not so bad; but for those who never open a hive from one year's end to another, it is indeed "a calamity."

That is a most interesting article by Iona Fowls, page 338, on the "Best Swarm Control Plan." I take it that the plans given are for hives run for extracted honey mostly or wholly. It seems to me that where section honey is to be produced the placing of supers of brood above would be apt to injure the appearance of the surplus honey.

The Editor calls attention on page 332 to the variation of nectar secretion on different soils. This is a matter that has not received from beekeepers all the attention it deserves. The variation is very noticeable here in Vermont, the heavy clay soils in the Champlain Valley yielding far more honey than the lighter soils farther east.

George M. Darrow of the Agricultural Department at Washington has been detailed to the War Department for work in the agricultural re-education of soldiers returning from France to base hospitals. He proposes to instruct them in beekeeping, as well as along horticultural lines, which will doubtless add many to the ranks of the beekeepers of our country.

The advice of Dr. Miller, on page 348, is worth more to any young beekeeper, if followed, than any thing else in the June issue

of Gleanings. He says, "abstinence and moderation in youth pay big dividends in old age," and he is right. His experience reminds me of the life of

Ludovico Cornaro, who lived in the sixteenth century. It will well repay any one who desires to live long and well to look it up. It surprises me more and more to note in regard to those who have given a free rein to their appetites, how large a number have dropped out in the race of life long before they should.

On page 161 Mr. Byer says he finds no difference whether bottoms of hives are packed or not. My experience has been the same, and I have had more than a hundred so packed for many years.—Later. The foregoing was written the last of April or early in May. Since then it has seemed as tho this year the hives packed on bottom have come out better than those without bottom packing.

In a paragraph on page 350, Gleanings, June, I am made to say "It has seemed to me bees will spread their brood faster when allowed to put their brood into several combs." What I intended to say was that they would spread their brood faster when not allowed to use several combs but compelled to confine their brood to two or three combs until they were well filled.

J. L. Byer on page 358 reports that his bees which were fed on sugar syrup are in much better condition than those supplied with honey for winter stores. The strongest, he tells us, were ready for supers even before fruit bloom. This doesn't look as though the sugar syrup was a very bad winter diet for bees, as we have sometimes been led to believe. [And yet the same Mr. Byer a few years ago took the Editor to task for favoring sugar syrup as against natural stores. A severe winter like the past is an eye opener sometimes.—Editor.]

Dr. Miller informs us, page 349, that he would never be caught but once without combs of sealed honey for spring feeding. He says further that these combs may be "often, if not generally, of fall, dark honey." Now say, Doctor, I have had no fall honey stored by bees these fifty or more years, and only in two or three seasons any late summer honey. By the middle of July to the first of August the game is usually up with us, and the solid combs of sealed honey must be secured before this time if at all, so we prefer to eke out a short winter supply with sugar syrup.

DID you send for that canning bulletin, No. 839, about which I told you in the last issue? You really cannot afford to be without it.

Many women have the idea that vegetable canning is difficult and entails a great deal of hard work. I always thought so myself, especially when it was supposed to be necessary to use the intermittent method of sterilization. But last year I started early in the summer canning our garden surplus, a few cans at a time, and by winter my storeroom with its rows of attractive-looking canned vegetables in the clear glass cans was the pride of my heart. And I learned to really enjoy canning, work which I had always disliked heartily before.

In the first place, don't attempt too much canning at one time. I started out to use a washboiler with a wooden rack in the bottom holding a dozen cans. By the time those were filled with cleaned, blanched, and cold-dipped vegetables and the boiler was filled with water, I was at the point where life did not look at all attractive. And when the period of sterilization was over and I had removed part of the cans, the wooden rack had aspirations to float on the surface and upset several cans. Then there was the task of emptying the large boiler. After that washboiler experience I made a trip to the hardware store to hunt a utensil deep enough to hold four quart jars on a false bottom, and found an enameled stock pot which seemed to be just the thing. Other housekeepers have used new garbage cans or large lard pails successfully. Whatever you select should be deep enough to hold the cans submerged in water to the depth of at least one inch and should have a close-fitting cover. If you can procure the individual wire can holders with handles, they are most convenient. With their aid it is easy to can vegetables of different kinds requiring different periods of sterilization. A wire cake cooler will do very well, but you need some sort of tongs for removing the cans from the water bath. A wire frying basket is convenient for blanching and cold dipping the vegetables, but a square of clean cheesecloth will do just as good work.

That stock-pot canner of mine worked overtime last summer. There was scarcely a day that it was not on the burner of the gas range with two to four jars of vegetables in its depths. It was not much work to prepare the vegetables for canning along with the dinner vegetables. If you are fortunate enough to have growing girls in your family, let them do part of your canning. I know a seventeen-year-old boy, who thought his mother was not canning enough of a certain favorite vegetable, and so while she was

OUR FOOD PAGE

Stancy Puerden



taking her afternoon nap and bath he took her canning time-table, and when she came downstairs there were several cans of vegetables processing in the

cooker. Those vegetables and others which he later canned kept perfectly.

Here are some of the vegetables which we found especially delicious canned: string beans, peas, asparagus, lima beans, young carrots, beet-top greens, beets, both the small ones canned whole and the larger ones sliced. Canned corn is also very good, but we prefer it dried. Beans and corn may be canned together for succotash. Two vegetables which the Puerden family voted as not worth while canned were cauliflower and summer squash. While they did not spoil, the flavor of the cauliflower was unpleasantly strong and the summer squash was overcooked and insipid. Root vegetables which keep well in a cool cellar I made no attempt to can. My mother worried about my spending so much time canning. She had always heard vegetable canning was very difficult. When she came back from the South in the spring and we invited her to dinner and served some of our canned beets, she said, "These are the most delicious canned vegetables I ever ate. I would not know that they were not gathered fresh from the garden."

It would be easy to fill four pages with canning talk and then leave much unsaid. I want to emphasize just a few points and then follow with a time-table for the hot-water-bath method.

Do not try to can anything but fresh, clean vegetables. The sooner you get them into the cans from the garden, the better. Test every jar by partially filling with hot water, sealing and inverting it. Blanch according to the time given in the table and dip immediately in and out of cold water, the colder the better. Drain the cold-dipped product, peel, if necessary, and pack carefully in the clean jars, adding one teaspoon of salt to every quart jar of vegetables. Fill the jars of vegetables with boiling water, or if fruit, with boiling syrup, adjust rubbers and covers and partially seal. Sterilize the product by immersing the jars in boiling water to the depth of at least one inch for the required length of time, counting from the time the water begins to boil. Remove the jars and complete the seal, inverting to cool. The table which follows is for quart jars. For altitudes 4,000 feet or more above sea level, add 20 to 25 per cent more time to this schedule.

To can asparagus tips, blanch 5 minutes, cold dip, and sterilize 2 hours; string beans, okra and green or ripe peppers, blanch 5 minutes, cold dip, and sterilize 2 hours; carrots, beets and other roots or tubers, blanch

5 minutes, cold dip and peel or scrape, if necessary, and sterilize 1½ hours; lima beans, corn and peas, blanch 5 to 10 minutes according to age, cold dip, and sterilize 3 hours. The corn should be blanched on the cob. Greens of all sorts, blanch in steam 15 minutes, cold dip, and sterilize 2 hours.

In order to avoid a condition known as "flat sour" in such vegetables as asparagus, peas, beans, and corn, use no vegetables which have been gathered more than six hours, and then blanch, cold dip and pack one jar of product at a time and place each jar in the canner as packed. The first jar will not be injured by the extra cooking.

Fruits may be prepared and packed in the jars without the preliminary blanching and cold dipping except in the case of certain hard fruits such as hard apples, pears, or quinces. As you probably all know, fruits may be canned very successfully by the old-fashioned, open kettle method. However, such fruits as black and red raspberries which cook to pieces easily are much more attractive if packed in the can, the boiling syrup poured over them and then sterilized 16 minutes. Or the jars may be first sterilized, the fruit put in them, the boiling syrup poured over them, the jars sealed, immersed in the canner in boiling water, covered closely and left until cold. By either of these methods there will be a large proportion of juice in the cans, but the berries will remain whole and the juice will be delicious in flavor.

If I were not writing to beekeepers or beekeepers' wives, I would not have the face to suggest canning with honey at the present prices, but maybe you will like to try a few jars. The syrup may be made in the proportion of one part honey to one part water, or varied to suit the individual taste. Heat it to boiling, pour at once over the fruit, and proceed as with the sugar syrup.

A Correction.

On page 351 of Our Food Page for June between the words "scientific" and "investigators" there is an interrogation point which is very much out of place, so much so that it cost me the better part of a night's sleep when I discovered it. I have suspected before this that the Gleanings force did not take good care of their punctuation marks, for it is not the first time they have made me say something which was not intended. Please, Mr. Editor, keep those punctuation marks under lock and key when my copy is being set up, and don't let any into my page until I have personally censored them.

I did not mean to question the science of those investigators. They are among our foremost chemists engaged in valuable original research work, and I meant no sarcasm when I called them "scientific investigators," altho I still think it is too bad of them to try to take that nice word "vitamines" away from us. By the way, "food hormones" is a name some chemists like to apply to those interesting little bodies.

The need of conserving wheat, meat, and meat products was never greater than now. Wheat and wheat flour are especially needed, and, if we fail to use the substitutes as we should, it will result in serious want for the people of Europe. Upwards of five million men, women, and children have already died of hunger, half of Europe is on the verge of starvation, and it is estimated that the vitality of almost twenty millions more has been weakened to the extent that makes them practically useless as wage earners.

I believe the food slackers are becoming scarce in every locality. They cannot face those women who have given husband or son to their country's service, those women with brave smiles on their faces, but with that look of heartbreaking anxiety in their eyes.

Now that we have so many delicious fresh fruits and vegetables it is not so hard to cut down on the use of wheat and meat. For months back I have used no wheat flour in anything but yeast bread and have used one-third substitutes in bread. We have also cut down the amount of yeast bread we use, for it is almost impossible to make yeast bread without wheat or rye flour. We use quantities of muffins, cornbreads, and other quick breads which can be made entirely wheatless, and all our desserts are entirely wheatless. There is no object in cutting out all cakes and pastries, for if made wheatless, as they can be, they save wheat by saving bread.

Piecrust may be made of barley flour, a combination of barley flour and rice flour or of cornflour. The pastry is more difficult to handle, but it can be done. A very little baking powder helps to make it flaky. We like the rolled-oats piecrust, a recipe for which I am giving below. It is good in texture and flavor and more nutritious than the ordinary piecrust.

This month I am giving a bread recipe which the head of the Puerden house pronounces the best ever. He has delicately hinted that it would be well to do no further experimenting with bread recipes. To tell the truth the results (unpublished) of some of my experiments in attempting to use more than one-third substitutes in bread have not been successful, and I have come to the conclusion that we would eat less yeast bread, but what we do eat shall be good bread. My reason for not scalding the rolled oats in this new recipe is that it does not keep well in warm weather. I believe the Cream of Maize called for in the recipe is sold in some localities under the name of Cerealine. Be sure to mix your bread much stiffer than when made of all wheat flour. Neither the substitutes nor the flour as milled at present have the absorbing power of the old white flour.

VICTORY BREAD.

- 1½ cakes dry yeast
- 3 pints liquid
- 2 or 3 potatoes riced
- 3 teaspoons salt
- 1 tablespoon honey
- 3 cups rolled oats
- 5 cups Cream of Maize
- ½ teaspoon soda
- flour (about 4 qts.)

(Continued on Advertising Pages.)

LAST month I said that locality was a very important factor in honey production, and admitted that, side liners though we are, we had moved part of our bees to the country. Well, during May the contrast between those and the ones left in our yard at home was certainly interesting to watch. Needless to say, the country bees have outstripped their city cousins. So for the most part we are running these home hives for increase, and, in the fall, if they aren't all moved, lock, stock, and barrel, to the country it will be because at the last minute we couldn't bear to give them up out of the home surroundings. Probably it will result in two or three being left here for our pleasure and the rest being moved.

* * *

May was pretty warm, day after day going over 90 degrees; and working in the sun, one became every bit as hot and sticky and tired and mussy as Miss Dorothy Quincy Wright warned, in one of her interesting Country Gentlemen articles last winter. But at that it has been a pleasure, out there in the quiet of the country, with brown thrush and mockingbirds and cardinals around, and the shade slipping graciously along under the trees. We're a picnicky pair, anyway; so sometimes I have gone out on Saturdays, for on that day Mr. Allen can join me at about 1 o'clock, and we eat our lunch like real farmers on the grass under an apple tree. Some day soon those apples will be a part of our lunch. Mulberries already have been.

* * *

Dr. Miller speaks, page 349, June Gleanings, about the kindly treatment afforded baby queens by any colony. One day not long ago, I was looking thru a super to which I had raised some brood a little before and where I therefore expected to find queen-cells. There they were, and one cell had the little door already cut open, and the royal antennæ were waving out into the world. I remembered a queenless colony whose cells I knew were just started, and, as it was rather weak, I thought a queen reared by this big, strong colony might be more vigorous, so I carried the comb over to this other hive, cut out around the cell, and laid it in the doorway, with the little hinged lid facing in. The bees passing in and out gave it a look or two, but seemed not particularly interested. After a few minutes out ran the baby queen, right into the hive. The next day she was still there, as were also the cells, but later the cells must have been destroyed, for there was a laying queen two weeks earlier than otherwise would have happened.

* * *

That day that I deposited the emerging queen on the doorstep of the other hive and stood



watching the emergence, I turned back with the comb in my hand to the open hive it was taken from, only to find it swarming! Out from the entrance and

out from the open top they came pouring. Given a new hive for a brood-chamber, with the old brood-chamber (all cells cut out) on top of the supers, that colony became a hummer.

* * *

A day or two ago I came across a young queen and an old one in the same brood-chamber. Being here at home, where I was making a little increase, I took the old queen and two combs of brood away, leaving the young queen to the tender mercies of the colony in the old hive; and I expect to find her laying soon.

In this connection, how long before a young queen goes on her flight would she be expected to mark her location? Not knowing how old she was, nor how far she had progressed in her career, I hesitated to carry her to the other hive, lest I muddle her geography with disastrous results. Yet I suppose this seldom happens, as I have never noticed this point raised in discussions on introducing virgins. Suppose, tho, a young queen had played about the entrance for a day or two, getting her whereabouts into her somewhat undeveloped head, and then was taken from that hive to another in the same yard, perhaps the day before she would normally take her flight; would she be quite sure to establish the new location before venturing on the wedding trip?

Another queen experience of last month was the finding of one colony with four or five frames of nice worker comb all rough and bumpy with drone brood—evidently a failing queen. It was not a pretty sight. The queen (August, 1916, purchase) was of course promptly executed. I wonder how Fabre, rejecting the doctrine of the parthenogenesis of drones, would have explained this kind of thing!

* * *

Stancy Puerden once said that if she wasn't careful, people would be wondering if she would ever stop talking about cornmeal. Well, I, like Dr. Miller, hope she will not. (And what an excellent department it is, by the way.) But long before this, doubtless, some people have wished that I would stop talking about winter-packing in the South. Well, I probably shall skip August! September will be about time to start again. Tho of course, for that matter, the winter-packing subject itself is quite skippable, you know. All I am going to say this month is that I have wondered myself as to the efficacy of the leaves as packing—Mr. Crane suggests, page 350, that they might not be packed down tight enough—I don't know,

yet when the sides of the big box were removed, the leaves stood there stiff and firm and hard and self-reliant. Anyway, as the Editor advocates, we are going to give it another trial next winter. Yet honestly, Mr. Editor, why wouldn't a quadruple case be as effective in a small yard as in a large one? The details you mention—entrances, wind protection, stores, strength of colony, and age of queens—would not enter into a comparison between the packed hives and the unpacked ones at their sides, as these conditions were practically identical thru-out the yard.

Yes, indeed, I'm going to try it again, because my judgment says it ought to be worth while—in spite of the insistence of my experienced and successful beekeeping friends, who affirm that strong colonies with young queens in good hives need be packed "in this locality" only with generous quantities of honey and young bees. There's a story going the rounds here this year of a hive that a horse kicked over in the early winter, and that was never righted, but lay there on end, bottom board and cover both fallen off, thru all our cold, snowy, blizzardy, below-zero weather, and then met the spring strong and chipper and ready for business.

I smiled when I read, under the caption, "Making a Start," "It is best to buy a good colony of bees in a standard hive. . . . It has sometimes been advised to start by buying bees in a box or any old hive, and transfer them to a modern hive 'for the experience.' It is the sort of experience to dampen the ardor of the most enthusiastic, and an experience which the wise and thrifty veteran avoids as he would a pestilence." That interested me particularly, because recently some dear friends of ours, after buying a good colony in a standard hive for \$10.00, had a chance to pick up a supposed bargain at \$6.00. Soon they admitted they would appreciate some help, as the second purchase quite evidently needed to be transferred, and the inside of the brood-chamber looked forbiddingly solid. So we went to the rescue. It was a homemade eight-frame hive. Of the eight combs, three fell to pieces when tugged out—a sticky conglomerate of comb, brood, bees, and honey. The remaining five we put over an excluder to save the brood, but later several of them may well be discarded. The old hive, made of 1/2-inch lumber, was thrown on the kindling pile. So after all, the \$6.00 bought not much more than the bees themselves.

I am sure our courteous editor won't mind my correction of a mistake in this department last month. As a matter of fact there were two, but I wouldn't have mentioned merely the use of the phrase "bee escape" instead of my own words, "bee space"; although it did change the meaning. I know mistakes will happen, especially in these days of shift and change in the personnel

of offices. But I can not let the mistake in the verse go by unnoted. I had planned ever since starting the little bee verses to do one on the swarm, for it is such a big, important incident in bee life. And I wanted the very form and fashion of the lines to suggest the interwoven rhythm and swing and gleam and romance of a swarm in mid air. Of course, the result didn't even approach the aim, but like Dauber (do you know Masefield's Dauber?), thru the work of doing it, I knew for a little space the "joy of trying for beauty." So I just hurt all over when I found two lines transposed in the fourth stanza. For one thing, the very grammar thus went wobbly, and left one hunting for the subject of the verbs in the line "Draw close and fold over and under"; and then, anyway, the way it got printed isn't the way the swarm really goes. Look at the splendid June cover page. Not until the bees had drawn close and folded over and under, did the wonder of the completed cluster hang there on the tree. So the fourth stanza should read, as my carbon copy does:

Like sun-motes they hover suspended,
 Aquiver, ecstatic and singing;
 Then slowly go swaying and swinging,
 To a restful old cherry tree near—
 Draw close and fold over and under—
 Till there on the tree hangs the wonder!
 The song and the shimmer are ended
 And only the silence I hear.

But we all make mistakes, don't we? And transposing two lines in a verse, even about a swarm of bees, isn't like pulling the wrong switch, or getting orders mixed in battle.

One beeman may work while another is lollin'—
 Still bees gather nectar and baskets of pollen.
 One beeman is poor, one in riches in rollin'—
 Still bees gather nectar and baskets of pollen.

How about it, Mr. Editor? I know what Worcester and Mr. Allen and I say, but there's a heap o' folks agin us. And for that matter, how about this?

One beeman whose yard is quite near a metropolis
 Complains because hives are so sticky with propolis.
 Be the name of the beeman Smith, Johnson or Hollis,
 Bees will make hives sticky, somewhat, with propolis.

We ought to pronounce such common words as propolis and pollen alike, we beekeepers—main liners and side liners all. But we don't. Won't you say something, Mr. Editor?

WAR DESOLATION.

The homes are gone—the little farms
 Are plowed with shells—there are no trees,
 No grass, no flowers, no ripening grain,
 No gently humming bees.

Strong men arose, breathed hard, and marched;
 And came not back; by night and day
 Were flame and roar—dazed women fled—
 The bees all flew away.

The land is torn and brown and bare
 And death screams down the ghastly hours;
 Where once were garden plots with bees
 Humming in the flowers.

When peace shall come at last, and bring
 Her gifts to tired lands overseas,
 Once more may orchards and green lanes
 Be murmurous with bees.



FROM NORTH, EAST, WEST AND SOUTH



In Northern California—The southern portion of the valleys of our district this season obtained their share of normal rainfall, while the northern portion received only half its normal. The rain was not well distributed, as April and May were comparatively dry months. Consequently the fall honey plants are not expected to give a rank growth. It is difficult to forecast the honeydew flow. Caterpillars on the willows are becoming very abundant but as yet there are few ladybugs appearing. Both these pests are known to cause considerable damage to the aphids.

The main honey flow practically everywhere started about three weeks earlier than last season. At this writing, June 5, many beekeepers are operating their extracting crews. The alfalfa crop promises to be heavy. Alfalfa growers are experiencing much difficulty in securing help, and it seems likely that alfalfa will be allowed to bloom even more profusely this summer than was the case last year. The Tulare County orange honey crop amounted to four or five carloads. One carload that has been sold brought the beekeepers nearly 21 cents per pound. At this writing bona fide offers of 23 cents have been turned down by some producers. Last year the average amount of honey stored per colony did not amount to much over 25 pounds, but this season several producers averaged 75 pounds per colony. There was no pollen scarcity, as was the case in 1917, after this season's orange honey flow. Taking the situation as a whole the outlook for a normal or even better than normal crop is excellent. Were it not for disease and scarcity of help, both of which are seriously handicapping beekeepers, it would be safe to assume that there will be a larger crop for 1918 than there has been for the last four years. Inspector Lynch of Stanislaus County states that this year the county has 75 per cent more disease than last. It is American foul brood that is causing practically all the damage.

It is interesting to note that according to the last U. S. Census (1910) there were 6,362,000 farms. Colonies of bees were reported on 9.2 per cent of the farms. By means of comparison with other products it is shown that 6 per cent of the farms grew barley, 4.4 per cent alfalfa, 5.1 per cent tobacco, 4.4 per cent sugar cane, 6 per cent sugar beets, 14.5 per cent grapes, and 9.6 per cent sheep. The very fact that 585,304 of the farms in the U. S. possess bees tells us that the status of beekeeping has risen to a very important position amongst other agricultural industries.

During the past month the advance of our co-operative marketing exchanges has been very marked. Considerably over 50,000 colonies of bees thruout the State are within

the organization and at the present rate of securing signatures we are getting between 2,000 and 3,000 colonies daily. The Promotion Committee fully expects that 75 per cent of the colonies in the State will be in the organization this winter. When it is understood that it has been hardly over two months since the campaign started and that the exchanges have secured over \$25,000 within this short period, it must become evident that this co-operative movement is meeting with the hearty approval of nearly every beekeeper. Northern California has now three local exchanges organized. They cover the territory of the Owens Valley, and the upper and central San Joaquin Valleys. On June 6, the lower Sacramento Valley will be organized. There yet remains unorganized thruout our section the upper Sacramento district and the district comprising the counties of Monterey, Santa Cruz, and Santa Clara. This territory will be worked within the next two months. M. C. Richter.

Modesto, Calif.

* * *

In Southern California—This part of the State experienced about three weeks of as cool weather as was ever known here during the month of May. It cut off fully one week of the orange flow and held back the sages and other wild flowers. Work of extracting has been very much delayed by this cool weather, and many beekeepers were two or three weeks late in getting their orange honey extracted. June 1 it turned warmer and the black sage is still yielding some honey, altho on most ranges it is pretty well past its best honey-yielding period. The wild buckwheat and the white sage promise some honey, but few beekeepers even hope for much of a crop. A freak storm with a heavy thunder shower passed over some parts of southern California, giving as much as two inches of rain in some localities. This will help the late plants to a longer blooming season. Beekeepers in the great sage belt of Los Angeles and Ventura Counties differ in their opinions about the prospects of a crop. However, most of them expect about half a crop or one 60-pound can per colony. The bees were slow to build up and this, together with the ravages of disease, has very materially cut down the yield of honey in almost all sections of the State.

By the time this reaches the readers of Gleanings all of the migratory beekeepers will have moved from the orange districts to their summer ranges. Apiaries that were located within a mile or two of each other to gather orange honey are now, in many instances, a hundred miles apart. This is but the onward course of events, constantly changing in our business as well as every other line of industry. We must get on the band wagon and keep up with the procession



FROM NORTH, EAST, WEST AND SOUTH



or we will soon be back numbers and listed among the down-and-outs.

The San Bernardino County Beekeepers' Club held its monthly meeting Saturday, June 1, with a very large attendance. Word had been given out that honey buyers would be present at this meeting, and beekeepers having honey for sale were requested to bring samples. This honey would be sold at auction to the highest bidder. (A very successful sale was held in this way last year and the producers were again ready to sell by the same method.) Many samples were brought in, representing about 1,400 cases of fine extracted orange honey. Producers of the county had fixed 21 cents a pound as the minimum price they would consider for white orange honey, and they stood pat when the representatives of various firms declined to start the auction at that figure. It was reported that the buyers were ready to offer 20½ cents per pound. But the beemen declined to open the auction at that figure, insisting that the opening price must be 21 cents. After considerable discussion it was decided to call the auction off and not put the honey up for sale in that way. The honey sold last year at their auction for 13.85 cents for the water white and 13½ cents for the white. The year previous the price paid for white honey was 6½ cents per pound.

A second carload of cans and cases was ordered by the club at quite a saving to members when compared with the price individuals would have to pay for small lots.

Some sales of orange honey have been made at 21 cents, but many producers—especially those producing a considerable amount of honey—are not selling, as they feel sure of getting a higher price later on. White honey is the kind most sought, altho buyers are willing to take light amber at from 17 to 18 cents.

The Riverside County Beekeepers' Club will hold its regular monthly meeting Saturday, June 8, at 5:30 p. m. A family picnic supper will be enjoyed at Fairmount Park, Riverside. The club will furnish coffee, cream, and sugar, while those attending are requested to bring their own basket supper. Following the supper a business meeting will be held when State Organizer Massey and J. D. Bixby, a member of the promotion committee, will both speak in favor of the State organization. Honey buyers and those having honey for sale will have an opportunity of getting together for the sale of the season's crop. Members of the San Bernardino County Club have been invited, and beekeepers from Los Angeles County will also be present. An exceptionally fine meeting is expected, as these "picnic meetings" are always very popular and well attended.

My sister, Elizabeth Andrews, expects to leave in a few days for France to do recon-

struction work along apicultural lines. She is one of 15 chosen from Stanford University Alumni for special work and will be under the supervision of the Red Cross.

Corona, Calif.

L. L. Andrews.

In Michigan—Beekeepers in the southern part of the State are not feeling very optimistic regarding this year's honey crop. Dry and cool weather has prevented secretion of nectar in many localities. In the southwestern part of the State there is not a very good stand of white and alsike clovers; and not much of a crop is expected from these sources. Reports from the central and northern parts of the State are very encouraging. In many places fruit bloom and dandelion have yielded several times the usual amount of honey.

The high cost of living and travel has hit the State Inspection Service pretty hard. Instead of having two regular deputy inspectors, as during the past year, it now looks as tho the number would have to be reduced to one, in order to keep within the limits of the appropriation provided. As next January is the time of the next meeting of the State Legislature, this might be a good time to consider whether or not the candidates are friendly to the interests of the beekeepers.

Plans are now under way for the next meeting of the State Beekeepers' Association. This will be held in Battle Creek some time during the latter part of November or the first of December. The exact date will be announced in the August numbers of the various bee journals. The holding of the meeting at Thanksgiving time, as has been done for the last several years, will be abandoned. It is hoped that each of the county associations will send one or more delegates. A new premium list will be arranged. Make plans now for attending and for bringing along an exhibit.

East Lansing, Mich.

B. F. Kindig.

In Iowa—Iowa, especially the central part, has experienced a veritable deluge for over a month, about 20 inches of rainfall being the record at this writing (June 6). The fruit bloom has been seriously injured, especially cherries. The weather has been very unsatisfactory for the flight of bees on account of coolness and incessant showers. A very heavy rain and hail storm struck central Iowa when cherry and apple trees were in full bloom, washing the pollen quite thoroly. If this weather continues, the bee business in Iowa will likely have a backset for another year. The clovers are beginning to bloom profusely, but the bees can't gather no nectar thus far because of cool and rainy conditions.

If the Iowa beekeeper does not retail his honey at 25 cents per pound this year, he



FROM NORTH, EAST, WEST AND SOUTH



might just as well quit his meanness of complaining about low prices.

The second annual short course for Iowa beekeepers was held at Ames Experiment Station, May 13 to 18. The sessions were addressed by a large number of Iowa's best beemen, as well as a number from outside the State. Practical, instructive work and demonstrations in the experimental apiary of the State College were thoroly appreciated. These courses are always given free of charge to those attending and will prove a blessing to Iowa beemen by teaching them to do their work in a practical, uniform way.

The 1917 annual report of the State Apiarist and Iowa Beekeepers' Association has not yet been issued by the state printer. As soon as it is ready, a copy will be mailed to each member whose dues are paid for 1917. Anybody else desiring a copy should address the State Document Editor, Des Moines, or Prof. F. Eric Millen, State Apiarist, Ames.

Every Iowa beekeeper ought to belong to the Iowa Beekeepers' Association. There were over 300 paid-up members Dec. 31, 1917. If you have not paid your 1918 dues (50 cents), do so at once, sending it to Hamlin B. Miller, Secretary-Treasurer, Marshalltown, and thus keep in touch with the beekeeping interests of the State.

Marshalltown, Ia. Hamlin B. Miller.

* * *

In Idaho—The month of May was discouraging to honey producers in southern Idaho. Bees came thru the winter in remarkably fine condition, built up rapidly, and have been extraordinarily heavy for weeks. About May first cold weather came upon us, accompanied by high winds, and our bees were confined to hives for days. Nectar, which had been coming in quantity sufficient to stimulate brood-rearing, was cut off, and the majority of our largest producers were compelled to feed, some using all low grade honey on hand and calling upon the Idaho Food Administration for sugar in quantities up to two tons.

During the month we had frost on 12 nights, three of these being heavy and two of the killing variety. All of our fruit districts admit their crops are seriously damaged, some having lost their entire setting of apples. The first cutting of alfalfa has been frozen in a number of districts in this corner of Idaho, but this will not seriously effect honey producers because very little surplus is obtained from it, the bulk of our crop being stored in July and August from the second and third cuttings of alfalfa.

For some days the weather has been much improved, and with favorable conditions from this time forward honey producers will secure the best crop they have had for several years.

Honey buyers from Coast to Coast are

now writing and wiring freely in an effort to contract honey for fall delivery, or to have orders booked subject to approval of prices at time of delivery. None will name price at this time, or make an offer, but all want to tie up stock for delivery later on. No contracts are being made in this section of Idaho.

P. S. Farrell.

Caldwell, Ida.

* * *

In Ontario—Since sending in copy for June Gleanings, a large number of reports have been received from many parts of Ontario, and while conditions vary a great deal, good wintering and almost total losses coming from points not far apart, yet the situation on the whole is little changed from conditions of a month ago. As already stated in past numbers, wintering conditions for the past season, briefly summarized, point to the fact that wherever bees had abundance of good stores they wintered fair to good; while, on the other hand, where stores were scant or of poor quality, the bees wintered very poorly. At our yards around home here, stores were given in abundance for all ordinary winters, but judging by results, the quality of food was poor. On the other hand, our bees up north, where the stores were over half sugar syrup, never were in better condition. In the first instance, losses are nearly 50 per cent counting colonies too weak to be of any use; while in the other case, loss is practically nil and bees in rousing condition, nearly all ready for any clover flow that may come.

Naturally, my ideas previously expressed as to the comparative safety of a goodly proportion of sugar syrup in the winter food supply, on the one hand, and stores of doubtful or inferior honey in the other case, have not by any means been modified; and, for our severe climate, the sugar syrup is beyond all question the safest, taking one season with another. Just one instance gleaned yesterday while I was traveling on the train homewards from visiting an outyard some miles away. Meeting a friend I asked how the bees had wintered in his locality. He stated that many had lost very heavily but mentioned one beekeeper who had no loss at all. And he at once added, "But he fed heavily on sugar syrup last fall."

Generally speaking, a place quite near a large body of water is not a very good location for beekeeping. Some one says at once that anybody can see that fact, as water takes up space within foraging reach of the bees and never produces any nectar. While this is so, yet I have rather in mind a body of water quite large, but not large enough to prevent bees from flying to the other side. A short time ago I had the privilege of calling upon a friend, Mr. J. D. Oliver of Fenelon Falls. Mr. Oliver lives on the north side of Sturgeon Lake a few miles out from Fenelon Falls. The lake near Mr.



FROM NORTH, EAST, WEST AND SOUTH



Oliver's place is a mile or more across. On the north side where Mr. Oliver lives, little if any buckwheat is grown, while on the south side quite an acreage is grown. He told me that during August fishermen often tell him they have picked up a lot of his bees out of the lake and saved them by putting them in the boat; and Mr. Oliver said to me, "I wish they wouldn't mention it at all as it is simply heartbreaking to know that thousands perish in trying to cross." As all who have had experience with buckwheat know, during weather that is at all cool, bees loaded with buckwheat seem to get partly stupified and fall down frequently when on homeward flight. Some years the buckwheat flow depletes Mr. Oliver's colonies to a very serious extent, and, of course, that means less successful wintering not to mention loss of surplus.

From reports to hand so far, moisture conditions throughout the Province vary a great deal at time of writing (June 7). Here at my home in York County the fall of rain has been rather deficient, while up at Lovering in Simcoe County, where I have two apiaries, rainfall has been so abundant that grain on low land has suffered. Yesterday I met Mr. Clark of Cainsville, Ont., and he stated that in the vicinity of Brantford rains had been abundant. Passing thru Mariposa Township, Victoria County, a noted alsike district, at time of our conversation, I noted that alsike along the track was showing quite a lot of bloom but was very short; and Mr. Clark stated that in Brant County, where he lives, alsike was twice the length of that we were looking at. This all goes to show that conditions may be very different in localities not far apart.

Many inquiries continue to come in for honey, some of the large firms already being on the lookout for supplies for later on. Of course, all honey is now off the market and any new crop obtained will go on a bare market, with many eager to buy it. For very many reasons a good crop of honey is to be desired, but unfortunately, in too many cases the very first essential towards getting honey—bees—is absent.

At date of writing, no appointment has yet been made to fill the position vacated by Mr. Pettit, but I understand that a gentleman, well known to the fraternity both in Canada and the U. S., has been approached and is likely to be appointed in the near future.

The pound-package business has received a bad knock-out this year, no question about it. In a former issue I stated that many orders from the South had been cancelled by the shippers. That had better be amended to read, "about all orders have been cancelled." One large firm of dealers had placed orders for thousands of pounds of bees for customers, and, speaking with the man-

ager over the phone a few days ago, he stated that they had not received a single pound. Probably many combs will be melted up in apiaries depleted by winter losses, and in too many cases it is to be feared that good combs will be destroyed by moths, if they are not looked after.

J. L. Byer.

Markham, Ont.

* * *

In Texas—Much is being said now about food conservation and increased production, and this principle is being brought to the attention of the beekeepers as much as possible. However, it is being disregarded by far too many owners in many sections of this State. There is an attitude of indifference on the part of many to increase and conserve as to bees, tho the principle is being applied to all other phases of agriculture. In a recent visit to a section of great possibilities the most notable thing I observed was the neglect of the bees. Many were entirely too busy trying to increase the planted acreage instead of putting their bees in shape to gather some of the tons of nectar that was going to waste. Many cannot understand that nectar is produced as a natural resource and only bees are capable of transforming it into the finished product, honey.

I am working hard to arouse the beekeepers of this State to produce their quota of honey. With the bees that exist in Texas and a normal average production per colony, the honey output should be over two and one-half times what it has been in the past years. For the low average production there may be several reasons which can be summed up in the term, "gum." Those who keep their bees in box hives first indicate an attitude of indifference, something very hard to neutralize. Furthermore, it is such beekeepers who keep bees to "rob" in order that they may secure the family supply of honey. Only a few days ago I was treated to the sight of an "apiary" of 35 hives which netted the owner a scant supply of "chunk" honey—and much effort. I was told of another apiary of 75 box hives in this same vicinity. These conditions are being broken down rapidly in those counties where the apiary inspection service is organized. Further efforts will be made to conserve the natural resource of nectar, if the local extension service is able to follow its desires and obtain a specialist in apiculture. The extension service has realized the need of this work for some time but has not been able to secure the necessary funds.

Mr. Jackson, formerly Assistant Entomologist in connection with Apiary Inspection Service, has resigned and reported for duty with the Laboratory Division of the medical branch at Fort Leavenworth, Kan. The short time that Mr. Jackson was in Texas he made many friends among the



FROM NORTH, EAST, WEST AND SOUTH



beekeepers and all will wish him the success that is due him.

During the past year honey has been brought to the attention of the public as never before; every advantage of honey has been told again and again. People who have been brave enough to venture have found out that the claims were true. This will undoubtedly result in an increased demand for honey in the United States. If the present conditions are maintained, the American people again will be without honey. The foreign governments have representatives who have gone thru the country contracting for the big shipments of honey at a margin on the market price.

It is, indeed, too bad that there are so many beekeepers who would rather hinder co-operative efforts than assist and share the benefits. The Texas Honey Producers' Association is being fought by many who should be giving the same efforts to boosting. The benefits of co-operation are not new, but to some they are not conceivable. Co-operation is bound to succeed—everyone better receive his share of help.

College Station, Tex. F. B. Paddock.

* * *

In Florida—Reports from Florida bee-men are, taken on the whole, encouraging this month. The flow from saw palmetto has been exceptionally good, furnishing in many instances as large a surplus as did the orange. From the Tampa district come reports of 60 pounds per colony and "double the amount secured from orange." Also a report of a small surplus from persimmon, which is unusual in Florida. On the creeks and swamps of the southern part of the State a good crop is being harvested—"two to three extracting supers." In this immediate neighborhood we have not done nearly so well, and, tho we have some honey, very little will be extracted until we see what the prospects are from cabbage palmetto and partridge pea in July. We have been disappointed so often that, this year of all years, we cannot afford to let our bees get to the state where they can not say, "there are millions of honey at our house." It will not hurt us beekeepers to Hooverize and eat substitutes, but our bees will fare better on their regular diet, and we may buy more Liberty bonds later than we would if we squeezed the last drop from our bees now.

As to the quality of the crop of palmetto honey, it is fine, equal in every respect to the orange. If the honey secured in other localities is equal to that made in my own yards, it should class even higher than the orange, for orange honey this year was not up to standard. Some honey I tasted at my swamp yard this week is of such exceptional flavor that it should rank as high even as the orange honey of 1914. This was a blend of

palmetto and basswood, and there is reason to expect that all honey produced on the swamps thruout the State will be of the same high grade.

Many beemen are kicking themselves for selling their orange honey at from 15 to 18 cents per pound. Now they find that the buyers were expecting to pay 20 cents f. o. b. shipping point. The tendency now will be to start the price at 20 cents, and get all they can above that.

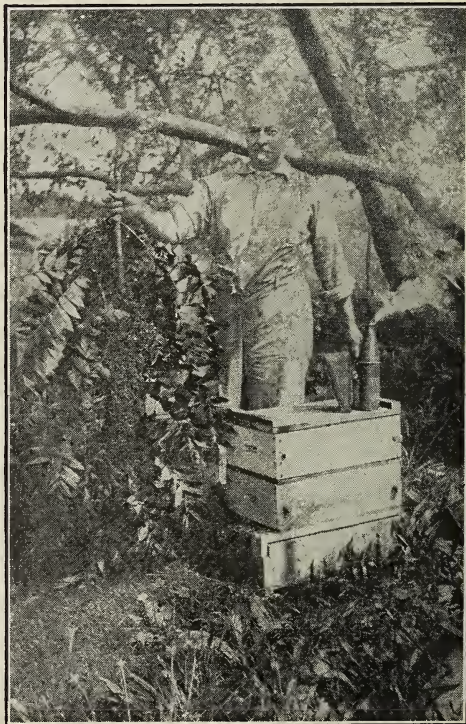
From northern Florida and south Georgia reports are conflicting. Some localities speak of good crops from tupelo and black gum, others of partial failure. The gallberry was badly hurt by the late, cold weather.

A few blossoms are now open in the cotton fields and the bees are already paying attention to them, some going into the blooms for pollen, but more working on the outside nectar glands at the base of the bloom. It is uncertain if cotton will prove to be a honey-producer in this part of Florida, for there has never been enough planted to make a showing until this year. Those whose bees are within range of the cotton fields this year are watching it closely.

Apopka, Fla.

Harry Hewitt.

* * *



L. W. Lighty, widely known as an agricultural writer for *The National Stockman and Farmer*. He is also a beekeeper as the picture of him shows.

SWARM CONTROL PLAN THAT DIDN'T CONTROL



"Them bees is gittin' ready to swarm, an' they ain't got nuthin' to swarm on."



—"Sneeze!"



Well, I'll be binged! Ain't they too cute. Makin' use er my whiskers."



"Hellup, Hellup! Marier, hellup!"



"Now if I kin get 'em over ter the hive with-out—"



"Come and help me, ye big fool!"



"Marier, save me, quick! I'm goin' ter sn—snee—"



"Reckon they's any bees aroun', Marier?"
"Not's I knows on. Why?"
"I want ter sneeze."

(Cartoon by E. W. Kemble, entitled "How Doth the Little Busy Bee," published by Harpers, several years ago.)

HEADS OF GRAIN FROM DIFFERENT FIELDS



escape is a single-end Porter, the end projections being cut back to $\frac{3}{8}$ inch, the round opening covered with excluder and the back end of each escape cut open so you can see thru it. In fact, when both escapes are in the board you can see thru the side openings from side to side.

This escape-board, besides being used for removing honey, may be used when putting on wet extracting-supers. Place an escape in one opening of the excluder and a plug $\frac{1}{2}$ by $1\frac{1}{4}$ by 2 inches in the other opening. When all the combs have been placed on, the plug is drawn out halfway, allowing the bees to go up and down. When the combs are clean, the plug is pushed in and the escape soon clears the super of bees.

Lambert, Ont. E. T. Bainard.

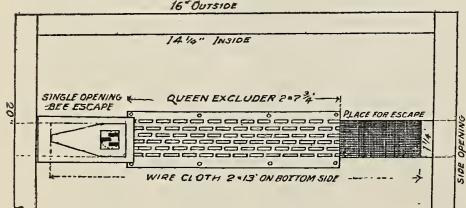
Two Remarkable Odor Experiences. A few days ago I was helping a friend treat his bees for European foul brood. There were four hives about six feet apart each way with a small pear tree in the center. We had dequeened the two front hives, and were working on the third, dequeening and shaking on to sheets of foundation. One queen he mashed against a tree. In a little while there was a small swarm clustered on the tree from the ground up. We got some soap and water and washed the tree trunk all over and thought that we then had the queen odor suppressed. But as soon as the tree dried, on the bees went again by the quart. This time we got some phenol sodique and water, one to five, and painted the tree trunk all over. But as soon as it was dry the first 20 bees alighted on a space less than 4 by 4 inches, just where the queen was killed, and not a bee anywhere else on the tree. In an hour the tree was covered with quarts of bees from both hives.

Now, was this caused by the odor of the queen? and is the odor stronger when the queen is mashed? C. E. Fowler.

Hammonton, N. J.

[The odor of a queen has lasting qualities that seem to overcome all other odors, even that of the skunk, and Mr. Fowler's experience is just what might have been expected under the conditions stated. I saw a demonstration of this fact that, I think, beats even Mr. Fowler's experience with the mashed queen. One day my son George had his insect-mounting box at the basswood grove showing it to some visitors. Among his specimens was a queen-bee. We had been making up nuclei that morning and there were a lot of stray, queenless bees in the air. The mounting box was left open a few minutes when bees began to cluster on this dead queen. She had been in the mounting box more than a year, and moth-balls had been in the box all of this time, the odor from which is supposed to overcome all

A Bee-Escape Direct to Outdoors. The escape-board is constructed of half-inch boards nailed on a $\frac{1}{2}$ by $\frac{7}{8}$ inch. A space $1\frac{1}{4}$ inches wide is left open the entire length between the edges of two of the boards. On the bottom side this opening is covered with galvanized wire cloth except a small opening at each end where the bees go down thru from the escape. The top of the opening is covered in the center with queen-excluder zinc, and



a $3\frac{1}{4}$ -inch opening is left at each end of this for the bee-escape to fill. The bees, when leaving the escape, can go down into the hive or straight outdoors, passing thru the side opening in the rim. The light thru these side openings helps to draw the bees outdoors. The scent coming up thru the wire and excluder attracts the bees of the super down to the excluder; but as soon as a bee puts her head thru the excluder she can see daylight from the side openings right thru the escapes, and therefore makes her way outdoors thru the escapes. The

HEADS OF GRAIN FROM DIFFERENT FIELDS

other odors. There were also a worker-bee and a drone in the collection of mounted specimens, but the bees paid no attention to anything except the mummy queen.—M. T. Pritchard.]
Medina, O.

Safe and Sane Queen Introduction.

For introducing valuable queens, I have for a number of years used the following plan without loss: About a week prior to introduction I draw about one-half of the brood from a good strong colony and after shaking enough bees to make it reasonably certain that the queen is in the lower hive, I place the brood above the queen-excluder and lower hive. Then before introducing the new queen, I move the upper hive containing brood to a new stand, thus getting rid of the old bees—the ones that do all the mischief. With this plan there is no time wasted in looking for the queen; there are no old bees nor young brood in the hive; and there is a laying queen up to the time of introduction. These I consider ideal conditions.

Oswego, N. Y. F. H. Cyrenius.

[While the plan above given is by no means new, the principle of getting rid of the old bees is good and one that has been used a good many times by some of our good beekeepers.—Editor.]

Disappearing Disease Is Not Paralysis.

I notice that some of the bee family have been troubled by what they called the "disappearing disease." I see Grace Allen's name among the rest. It seems to me that she and the others have got paralysis and disappearing disease mixed as to terms. She says the disease attacked a hive under a peach tree, and it was the only one affected. There were dead bees around the hive, and others in the hollows of the ground round about. If I were asked for an opinion, I would say unhesitatingly that the trouble was paralysis. I have the same conditions in the apiary I am writing from today. All the complaints say the same—dead bees around the place. Disappearing disease is literally disappearing disease and is a totally different matter from paralysis. You can cure paralysis by changing the queen; but you can cure disappearing disease only by changing the location. In disappearing disease there are no dead bees about the hives nor about the ground. The hives have become weaker, and the bees have disappeared—absolutely disappeared.

I have had an apiary of 150 hives, all three-story and strong, attacked by it, and every succeeding visit showed the hives weaker and weaker all the time until they dwindled down to a handful of bees, and the queen with a patch of brood two inches



Adam A. Clarke of Le Mars, Ia., an experienced beekeeper, entertaining a group of professors and students (Western Union College). His guests at the home apiary were shown the whole process of bee and queen rearing by Mr. Clarke, as well as the actual processes of caring for honey from the comb to the bottled product. It was a day that gave good beekeeping a boost in Iowa.

HEADS OF GRAIN FROM DIFFERENT FIELDS

across. The cause is, undoubtedly, local. Something is lacking in the feed, or some particular food is lacking altogether, or, perhaps not enough of any food. I have known hives which had got to the stage described to pick up wonderfully upon being moved to a new location and to become roaring strong in a very little while.

The reason it has been called "disappearing disease" is because the bees do literally disappear. If bees die in the hive from any cause, the other bees can be seen carrying them out and flying away with them, and some will be found around the hives on the ground; but with this disease I never saw any dead bees at all. Presumably they die while they are away in the fields foraging. It is a peculiar disease and it is a good thing we do not have a great deal of it. All the

same, apiaries have to be watched, as it may come on at any time. Major Shallard.

Glenbrook, N. S. W., Australia.

An Appeal for the National Association.

The National Beekeepers' Association has in the past done much for the beekeeping fraternity. In the opinion of some it has made mistakes. Because it stands for education and extension work in beekeeping some whose motives are selfish will not support it. All these retard the growth of the National little compared with the majority of the rank and file of beekeepers who are simply indifferent to what might be accomplished by a strong national organization.

There has been much written about the



A recent demonstration given by State Inspector Green of Pennsylvania. Don't overlook the veils on display here.

HEADS OF GRAIN FROM DIFFERENT FIELDS

future of the National and the possibilities of its future. Wesley Foster of Boulder, Colo., who was the Secretary-Treasurer of the National for 1915, in an able article published in the December Review of that year, said, "You will not receive more benefits unless more join, and no more will join unless they get more benefits, so there you are." This sums up everything and also shows the solution of the problem—and that is, get members and more members. But how to get them, "Aye, there's the rub." The National has no publicity department, and it is only through the courtesy of the bee journals that it is possible to reach part of the beekeepers.

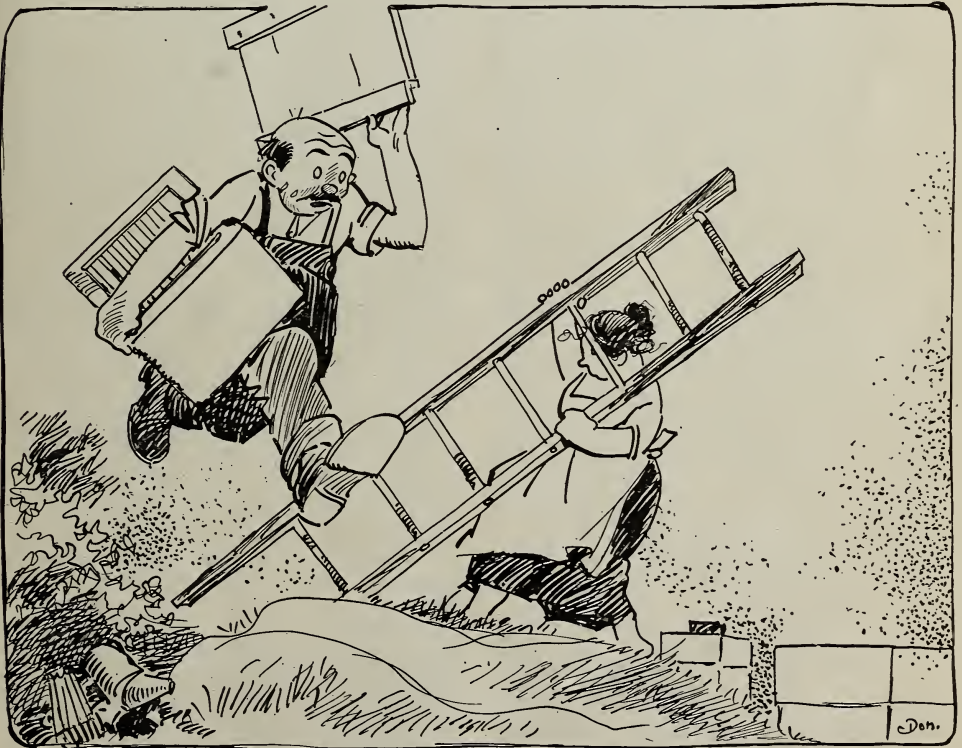
To each of you that reads this far I say: Why shoulder the expense and responsibility of the National work on a comparatively few, when your support would make an organization that would be able to do what not even the most optimistic have thought possible? Forget the past, think of the future, if you wish, but remember nothing is certain except the present, and the present need of the National is members. Officers of local and state organizations, you could

help greatly. Some state secretaries are sending in lists of new members each week. Why not you? A little talk, a little publicity, is all that's needed.

These are just a few hard facts simply stated, and I hope you will not forget them. Now just a few more: The annual dues of the National Beekeepers' Association are \$1.50 per year. To become a member it is only necessary to send this amount to the Secretary-Treasurer or pay it to your local or state secretary who will send it on. You will get a receipt by return mail. You will not get a year's subscription to the Domestic Beekeeper, successor to the Beekeepers' Review, as formerly included. The National is not now financially interested in any bee journal, but National members can secure thru the Secretary-Treasurer any or all the bee journals at 75 cents each per year. This offer is good for the rest of this year only. If you wish the Market News Service on honey issued by the Bureau of Markets, direct from Washington, mention it when you send in your dues.

Floyd Markham,
Secretary-Treasurer N. B. A.

Ypsilanti, Mich.



THE BACKLOT BUZZER.

BY J. H. DONAHEY.

Serves me right, got stung on the crazy bone, and Ma said it couldn't a happened if I'd had my veil on.

QUESTION.—Intending to do a little trading in buying up honey and retailing, mostly thru the mails in a small way, I should be very much obliged if you would give some information in

Gleanings as to the definition of the term "hoarding" as to law. Even if one puts a fair and conservative price on his goods, he can not expect to sell at once, but will have to keep part on hand, maybe for a few months. Formerly we sold thru the mails, and were sold out about March. I believe that a man who distributes honey thru the mails is more of a benefactor to the people than anything else, because there are many places where honey is not produced, and consequently is high. But even in carrying on a very small business I wish to be found inside the limits of the law.

Wisconsin.

G. A. Lunde.

Answer.—We ourselves are not familiar with the term "hoarding," as to law. In any case, whatever it is, it would not prevent you from retailing honey by mail—that is, retailing honey by parcel post in tin packages. We say "tin" because it would never do to send out honey by mail in glass. The packages should not weigh over two or three pounds, and should be self-sealing so there would be no danger of honey leaking. E. D. Townsend of North Star, Mich., and other beekeepers, have sent honey in a small way by mail. It is usually not practicable to go beyond the first zone. It is hardly wise to rely upon the tin package alone. You would have to put it up in perhaps two or three to a box—something that would be strong and would prevent the package from being broken. A tin package alone might get jammed or punched in such a way as to cause a leak.

Question.—Will you please explain how to introduce by the honey method. John C. Laing. Canada.

Answer.—The queen may be caught by the wings or by the shoulders and quickly immersed in the honey, and then poured with the honey down between the frames. The introduction should be made at night or else the entrance made small. When introducing in this way, the honey should not be so cold as to chill the queen; also there should be plenty of honey used, at least half a cupful, and the thicker the honey is, the better. It would probably be a good plan to tip the hive back a little bit, so there will be no danger of the honey running out at the entrance and thus starting robbing.

Question.—Do bees see in the dark, or how do they find their way about in the hive?

New York.

G. H. Parker.

Answer.—Bees probably find their way about their hive in the dark by means of their sense of touch, which is located in their antennæ, and also by the sense of smell, the location of which is not definitely known.

Questions.—(1) In the May issue of Gleanings, page 275, is a paragraph headed "Increase—Prevented or Made." I do not understand the last half of that paragraph. What is the object in tearing



down capped queen-cells in the upper story after the excluder has been placed between? Why not leave a queen-cell to hatch, that queen to be the queen of the new colony? (2) Why

leave the hive for eight days before moving to the new stand? (3) Do bees use queen-cells a second time or do they make new cells each time they wish to rear a new queen? Geo. S. Hall.

Wisconsin.

Answers.—(1) If a capped cell were left while there were still eggs and young larvæ present, the bees would straightway begin more queen-cells, and would shortly swarm out with a young virgin providing there was an upper entrance, or that the queen was able to pass thru the escape. If the virgin were shut up in the upper chamber, and not allowed to mate, of course she would be worthless. Still, if one desires to raise a queen in the upper story, it may be done by tearing down all capped cells, placing a second queen-excluder under the upper hive of brood, making an upper entrance, and, at the end of a week, leaving one capped cell, so that, when the queen hatches she may be mated from the upper hive. (2) The work of the colony should be interrupted as little as possible. If the upper story of brood is left eight days before removing, the original colony will be much stronger, as the number of bees will be increased each day; also there will be less danger of chilling the brood; for if not moved for eight days, by that time all the brood will be sealed, and therefore more easily kept warm. (3) Bees do not use old queen-cells a second time, but build anew every time they wish to raise a new queen. Generally, after the queen hatches, the old useless queen-cells are soon torn down.

Question.—Early in the spring my colony swarmed out and settled in a tree. I replaced the old hive with a new one and hived the bees. The next morning they again swarmed, and this time left for parts unknown. There seemed to be nothing wrong with their hive. What was the trouble?

Oklahoma.

Chas. W. Schlosser.

Answer.—You neglected to tell how the new hive was fitted up. If, inside the hive, there had been some old comb and a frame containing eggs and young larvæ, the colony would probably have stayed all right. Without doubt they had a queen with wings, and after entering the hive and finding it not satisfactory to them, they decided to swarm out and go to a different location. A little young larvæ will often make the colony contented with its new hive.

Question.—My colony has a young queen, and the hive is heavy with honey. I have put on a super, but the bees will not go into it. Instead they are filling their brood-combs with honey. The queen does not seem to be laying much, and there is very little brood, altho the bees are bringing in quantities of pollen. Will you please explain my trouble?

Washington.

Warren A. Worden.

Answer.—We fear that your brood-chamber is honey-bound, that is, that there is not enough room left for the queen to lay.

In order to make room for the brood below, it would be a good plan to put part of the brood, and probably most of it, above, leaving at least a few empty combs below with the queen, and using the queen-excluder between the two stories. The heat will then be just where it is needed, in the upper story where most of the brood is, and the queen will have an abundance of room for laying. Since she is a young queen we believe the colony will then build up very rapidly.

Question.—What becomes of the old colony out of which the new swarm comes? Do they hatch a new queen, or do you have to furnish them with one? or do they set up a democracy and go right on with business?

Thos. A. Banta.

New York.

Answer.—When the bees swarm, they leave queen-cells in various stages of construction in the old hive. The queen goes with the new swarm so that for a few days the old colony is queenless. They do not seem to so regard it however, for with capped cells in the hive, they appear to be perfectly contented, seeming to understand that in a few days a new queen will be present. If one desires to improve the strain, all these cells may be torn out and another queen introduced or a capped cell (in a protector) given them. Otherwise all but one queen-cell should be destroyed in order to prevent after swarms. In regard to the form of government, we are rather inclined to call it a democracy after the queen hatches as well as before. For the queen is a queen merely in name. She has no actual part in governing the colony. Of course the bees vary their actions according to her presence or absence, but other factors besides the presence or condition of the queen call forth just as decided responses from the bees. Each bee seems to govern itself for the good of the colony.

Question.—I am going to install a sorghum mill on my farm where I now have 15 colonies of bees which I intend to increase by about one-third by August. The thought has come to me that the juices of the sweet sorghum might affect my bees, as the plant will be removed only about 100 yards from the original colony complete them? M. E. Ballard.

Texas.

Answer.—Regarding the sorghum mill, it will probably be necessary for you to screen the building, using wire cloth or mosquito netting for the doors and windows of the structure. We have every reason to believe that if the mill should be running during a scarcity of honey, or of natural nectar from the fields, the bees would rob the juices of the sweet sorghum as fast as they run out of the mill, and, moreover, it would cause considerable robbing.

Question.—The A B C and X Y Z of Bee Culture, page 586, says, after getting queen-cells started in queenless and broodless colonies the cells should be given to cell-completing colonies. Why not let the original colony complete them? M. E. Ballard.

New York.

Answer.—The best queens are raised in the largest queen-cells, those fed with an abundance of royal jelly. Such cells may be started by queenless and broodless colonies, for at the start there are plenty of nurse

bees with a quantity of prepared food but no young larvæ to feed—the very condition most favorable for cell-building. However, this is not the best colony for completing the cells for since all the brood has been removed, the number of nurse bees and the amount of royal jelly constantly decrease. If it is desired to use this same colony for completing the cells, the above objection may be overcome to some extent by inserting frames of hatching brood from other colonies.

ANSWERS BY C. C. MILLER.

Question.—How do you think it would work if I divided a colony when they had queen-cells started, putting the queen and most of the brood, say five or six frames, in a new hive on the old stand and moving the old hive off a ways, so the old bees would return? Would this be as good a plan as any to get more honey from the old hive that season, and would it be best to give the "old bees" in the new hive full sheets in the empty space made? I am assuming that they have been discouraged from swarming, of course.

Answer.—If I understand correctly, that last sentence means that you assume that the division you have made will discourage the bees from swarming. That's just the trouble; I'm afraid it won't, and if it doesn't, then the whole thing is knocked endways. Of course the changing of hives cuts no figure and you would have the same result if you should leave the old hive on the stand with the queen and five or six frames of brood, merely taking away four or five frames of brood and putting them in a new hive on a new stand. That much depletion would have no effect; the bees would swarm exactly the same, unless you should destroy all the queen-cells in the hive that has the queen. In a few cases that would prevent swarming, but in most cases would only delay it till a new set of queen-cells should be started. To make it effective you should take all the brood but one from the old stand, and that will probably bring you as much honey as any way you can do, especially if you shake off part of the bees when you take away the combs, leaving with the brood on the new stand only enough bees to keep the brood from chilling. And in following this course you have done nothing more or less than what is called making a shaken swarm. Vacancies in a hive should have frames with full sheets of foundation, unless you want an unprofitable amount of drone-comb.

Question.—In Stray Straws you say the Dadants use shallow frames without excluders. Can you tell how this is or probably could be done? To know this would be worth something to me next season. I had two queens parade thru the second floor (sections) into the attic (shallow frames).

Delaware.

C. A. Colell.

The Dadants use large frames spaced $1\frac{1}{2}$ inches apart. The large amount of room no doubt helps to keep the queen down. But even with eight-frame hives and $1\frac{3}{8}$ -inch spacing, my queens do not go up into sections enough to make it worth while to use excluders. I wonder if you fill your sections with foundation. If they are less than full, and drone comb is limited in the brood-chamber, the queen is likely to go up.

THE Chicago Northwest-ern Beekeepers' Association will send out price recommendations again this season the same as last year. These

price letters are free to all members of the Association and to any beekeeper in the States of Michigan, Indiana, Illinois, and Wisconsin, who has 10 or more colonies of bees. The Secretary would like to have the name and address of every beekeeper in the above States to put on the mailing list. The Association is depending on membership fees to cover the expense of getting out these letters and would like to enroll as members at least 500 of the leading beekeepers in the above and surrounding States. The beekeepers that received these price recommendations last year profited many thousands of dollars by following the advice given. The first letter will be sent out about July 20. Other letters will follow every eight weeks or so. The idea is not to boost prices but to try and establish a more uniform price for honey. The dues to the above Association are \$1.50 per year, which also includes membership to the Illinois State Association and a cloth-bound copy of their annual report, which report also contains the proceedings of the Chicago Northwestern annual meetings.

(Signed) John C. Bull, Sec.-Treas., 1013 Calumet Ave., Valparaiso, Ind.

* * *

The Pennsylvania State Beekeepers' Association will hold a field meet at Dr. E. E. Sterner's apiary at Wrightsville, Pa., on July 6, beginning at 1 o'clock. Prominent beekeepers will deliver addresses that will be well worth hearing.

* * *

The annual field meeting of the Idaho-Oregon Honey Producers' Association will be held on the premises of Gottfried Lohrli, Parma, Ida., Wednesday, July 10. All honey producers of south-western Idaho are cordially invited to attend.

* * *

At the meeting of the beekeepers of Lenawee County, Mich., called together by County Agent C. L. Coffeen, held at the apiary of Kenneth R. Fisher in Adrian on May 28, the Lenawee County Beekeepers' Association was organized with 22 members. The following officers were elected: President, Kenneth R. Fisher of Adrian; vice president, A. S. Tedman of Weston; secretary-treasurer, L. C. Retan of Jasper.

* * *

The Northwest Missouri Beekeepers' Association was exceedingly fortunate during the month of May in having Dr. E. F. Phillips of Washington and Dr. L. Haseman, Entomologist, University of Missouri, pay



the Association a visit at St. Joseph on May 6. A very profitable and interesting field meet was held in the afternoon at the apiary of J. W. Romberger, who

is known among the beekeepers as one especially good in queen-rearing. The Association intends holding a picnic on July 4 at Hyde Park in St. Joseph.

* * *

Wm. Lossing, one of the best known beekeepers in the Southwest, died at his home at Phoenix, Ariz., on May 7.

* * *

The New York State Association of Beekeepers' Societies will have a meeting and basket picnic on Aug. 2, at Hayt's Corners, the summer home and apiary of C. B. Howard, president of the Association. A large attendance is hoped for, as there will be an excellent program.

* * *

R. C. Aikin, formerly of Loveland, Colo., later of Texas, died on March 21 at Houston. Twenty years ago Mr. Aikin was a voluminous writer for the bee journals and his inventive genius was much directed to devices for beekeeping. Among other things he built a mammoth wax-melting solar extractor. Under this solar were a metal pan and a brick arch, so that he used both sun heat and artificial heat, claiming that there was an advantage in combining the two sources of heat in melting up beeswax.

* * *

GOOD NEWS—BEES MAY NOW BE SENT THRU THE MAILS.

As Gleanings goes to press, news comes that Postmaster General Burleson has ruled that bees in quantities may be sent thru the United States mails. This very important postal decision, for which leading beekeepers thruout the country have long worked, was officially announced in the Postal Bulletin of date of June 18 as follows:

Office of the Postmaster General, Washington, June 18, 1918.

Amend paragraph 1, Section 476, Postal Laws and Regulations of 1913, by adding thereto the following as sub-paragraph a:

a Honey bees in quantities may be sent in the mails, without insurance or C. O. D. privileges, under the same conditions as are prescribed for queen bees and their attendant bees when delivery can be made to the addressees within a period of five days. If the cages are wooden the material of which they are constructed shall not be less than three-eighths of an inch thick and the saw cuts therein or space between slats shall not be over one-eighth of an inch wide; if wire screen is used for the sides of the cages there shall be two thicknesses of screen separated by slats at least three-eighths of an inch in thickness. The container shall be provided with a suitable handle and no water or liquid food shall be placed therein. Such parcels shall be transported outside of mail bags.

A. S. BURLESON, Postmaster General.

"I HAVE got off 1,600 lbs. box honey, which I have sold for 25 cents per pound. Extracted sold for 14 cents. I have also worked another small

apiary for half of the honey (box honey) from which I have taken 1,900 lbs. I have also worked a 150-acre farm with the help of one man, and, to tell the truth, I am nearly worked out."—G. M. Doolittle, Borodino, N. Y., April 1873. [His first contribution to Gleanings in Bee Culture.—Editor.]

"Honey may rise too high, but not till it costs more than butter."—L. Deimer, Butte County, Calif.

"Honey prospects are good in this part of the State at present."—H. H. Sarver, Jr., Dallas, Tex., June 8.

"My idea in regard to packing is to pack the cluster instead of the hive."—W. W. McNeal, Clermont County, O.

"Bees did well last year. I only had 10 hives last spring and they paid me \$100 besides the increase, which was 35 swarms."—John W. Reed, Marion County, Ark.

"Conditions in Kansas for a honey crop this year are extra fine. Have had lots of rain and vegetation is very rank."—R. L. Ashcraft, Sedgewick County, Kans., June 3.

"Clover just beginning to bloom, and bees are strong in two-story hives, with one and two supers of drawn combs. Looks like a big crop."—W. L. Lovejoy, Oakland County, Mich.

"Please send copy of June Gleanings in Bee Culture to F. N. Swilley, Trenton, Fla., and mark honey markets on page 324. He is selling 'mixed' honey here for 8 cents."—Geo. E. Pickett, Alachua County, Fla.

"I have been trying to get everybody to run for extracted honey. I have offered them the use of my extractor, and have got some of them started. A good honey crop here."—Fred F. Noble, Seattle, Wash.

"No matter how busy I may be on the sea, I am always thinking of the bees, and am anxious for us to get the Kaiser so that I can get back to the bees. I don't think it will take us long."—Albert S. Blanks, "With the Colors."

"About 70 per cent winter loss in this locality; but prospects this season are the best for a large honey crop since 1913. The trouble now is not half enough bees to gather the surplus honey. Very large clover yield; also linden bloom."—Jas. I. Lutes, Marshall County, W. Va., June 13.

"I am the only one near here who has pure Italian bees, and find very few in other than box hives or gums as they call

BEES, MEN AND THINGS

(You may find it here)

them. I have been on this coast 12 years and have kept bees more or less during this time, but have never seen or heard of any kind of foul

brood or disease at any time. It is a regret to me that so little is known of advanced bee culture here."—Mrs. Annie E. Gould, Harrison County, Miss.

"My bees are in fine shape and wintered well. Clover looks fine and prospects are good for a honey crop."—Jas. W. Bain, Marion County, O.

"Winter and spring loss has been a total of 19 per cent here. Just a little more than the average winter dead. Nearly all my colonies have brood in two stories. Prospects for a good honey flow."—Roscoe F. Wixson, Yates County, N. Y., June 5.

"I have kept bees for three years, but never packed them until last fall when I packed 19 out of 22. I lost two of the three I did not pack, while those I packed are stronger than they have ever been early in the spring. Needless to say I will always pack my bees hereafter."—B. W. Dolson, Marion County, Ills.

"There is more net profit in beekeeping, in proportion to the investment, than in any other rural business, and on the average 30 colonies of bees can be kept where one now exists. The high price of honey is sure to continue until the sugar conditions become normal."—Geo. H. Rea, in a statement to the farmers of Pennsylvania.

"European foul brood is very bad here, and some American is found also. One of the Indiana State bee inspectors inspected about a dozen apiaries hereabouts and found most of them affected more or less. He ordered all box hives destroyed, which have been the chief trouble in this vicinity."—M. E. Bond, Pulaski County, Ind.

"We are having excellent bee weather here and the stocks are weeks ahead of what they were this time last year. Bees have risen enormously in price. Stocks (colonies) are selling for five and six pounds in wooden hives, and I know of an old skep with a small quantity of bees sold for 55/ (\$13.75)."—John Anderson, Lecturer in Beekeeping, North of Scotland College of Agriculture, Aberdeen, Scotland, May 15.

"A month ago I got three hives of bees of a neighbor six miles away, and now have lost them all by those big red ants. I have killed them and destroyed their nests. The last ants seem to have come from a long distance. They seem to get into the hive one at a time until they get a bunch together in a corner, and then start a fight and kill the

bees in one night."—H. M. Danforth, Brevard County, Fla.

"There is an abundance of white clover in bloom now and bees are crowding the supers. This country is free from foul brood so far as I know. I have never seen a case yet."—Eugene Busler, Washington County, Ark., June 5.

"The bee business is on the bum in this neck of the woods. If we have many more years like the last two, we can ship you fellows a good many carloads of empty hives to lower the prices of the new ones. With only about 10 inches of rain in nearly two years and the coldest winter in 20 years, things are beginning to look a little blue here. Hope you fellows up there are having good luck."—W. C. Edwards, Uvalde County, Texas.

"When I came here from Williamsburg, Pa., the first of last May, I found beekeepers here selling extracted honey from door to door at 10 cents a pound. I told them that I would not sell a pound for less than 20 cents, at which price I marketed at my yard about 500 pounds, and then raised the price to 25 cents in pint, quart and half-gallon fruit jars, which has been very satisfactory to the people."—W. D. Keyes, Huntington County, Ind.

"Sugar is not plentiful these days, nor is it expected to be. Yet people are urged to preserve their fruits, using some of the several substitutes for sugar or part sugar. One of the most important of these is honey. Jellies, marmalade, pickles, (honey vinegar) and all manner of preserves may be made in part or entirely with honey. The use of sugar will probably be restricted in the making of fruit pickles; honey may be substituted in these."—Burton N. Gates, Amherst, Mass.

"I saw queens introduced by the honey method 40 years ago. I introduced virgins this way for a few days and had good success, but E. R. Root rather objected to it as he thought it would injure the young queens. I dipped the queens in thick honey and dropped them among the bees, but did not pour honey over the frames. This would probably make the introducing more certain, but beginners would be very likely to get robbing started, especially if some of the honey should run out at the entrance of the hive."—M. T. Pritchard, Medina.

"The reason we wanted to sell our honey before packing was that we have always had to sell on the Texas market, and the Texas market demands bulk or chunk comb honey with which we are thoroly disgusted, because when it is once packed it must move at once or it will granulate. Our Texas writers have boosted chunk-honey production and created a local demand for same. Yet it is very unsatisfactory to the producer, and also to the consumer. For our part we long ago saw the mistake and this

year we are trying to get out of the rut. We are looking for a big crop of Guajilla next year. It has not bloomed for two years; in fact we have not had a good general Guajilla bloom since 1914, owing to excessive drought. It is making a fine growth now, and with good rains this fall, we feel sure of it next spring."—O. E. Milam, Frio County, Tex.

"The literature on beekeeping has not been of a type which would induce people to take up the work as a commercial industry. The trouble is not that there are too few beekeepers, for the United States boasts about 800,000, but is rather that relatively few have looked on beekeeping as a possible means of livelihood. A better presentation of the subject might serve to overcome this attitude. No effort need be made to induce more people to keep bees; rather an effort might be made to induce half or more of the present bee owners to sell their bees to good beekeepers in order that the bees might be enabled to produce the crop with the proper care."—Dr. E. F. Phillips in *The Scientific Monthly* for May, 1918.

"It is sometimes said that beekeeping is the least understood of any industry of food production, and often things occur to make one think that such is the case. Many city people will inquire as early as April whether any new honey is for sale yet, and often even some country folks ask just as absurd questions in connection with the keeping of bees. As is well known, about all the old crop of honey has been cleared out long ago, and, of course, dealers are anxious to get some of the new crop as soon as possible. Only a few days ago a prominent firm wrote me asking for honey, and I suspect that they thought this season's crop was on the market already. This firm would not think of writing for maple syrup in the month of December, but they seem to think April to be a month of honey production."—J. L. Byer, Markham, Ont.

"Our enemies, trampling under foot all international agreements and every sentiment of humanity, have used in this war the most barbarous inventions. Just now they bombard Paris with a monstrous cannon. What a disgrace for a people calling themselves Christians! and what a violation of the precepts of the Gospel! Then they can, on top of that, boast of their 'Kultur.' There are no abominable crimes which they have not committed. They have even surpassed the Turks. We firmly believe that, with the help of God, we shall break their gigantic offensive. You may well believe that France appreciates thoroly the valor and noble part your Nation is playing in this world-wide struggle for justice and liberty. France and the United States are united in the same ideal and in the same bond of love."—P. Prieur, Poitiers, France, Editor of the *Revue Eclectique d'Apiculture*, in a letter to *Gleanings*, March 27, 1918.

SINCE such a great number of beekeepers will be beginners this year in extracting, we shall endeavor this month to give a detailed description of the entire subject, and show how the work may be done in a practical way and at small cost.

TALKS TO BEGINNERS

By the Editor

When To Extract.

Honey should never be extracted until it is thick and well ripened. As soon as the bees consider it just right they begin capping it over. During hot weather, therefore, combs at least three-fourths capped

until after the honey flow, he will find that this results in less labor and a much thicker and finer-flavored honey. The employment of this plan may

result in a somewhat smaller crop the first year because of the necessity of the bees drawing out so much foundation; but it should be remembered that these same combs may be used year after year, probably for the remainder of one's lifetime. Therefore it would be poor economy to attempt a small saving the first year that would result in a loss during each succeeding year; and unless one lives in a locality where one source begins before another ceases, and there is consequent danger of mixing the two flows, we really see no excuse for extracting before the end of the honey flow.

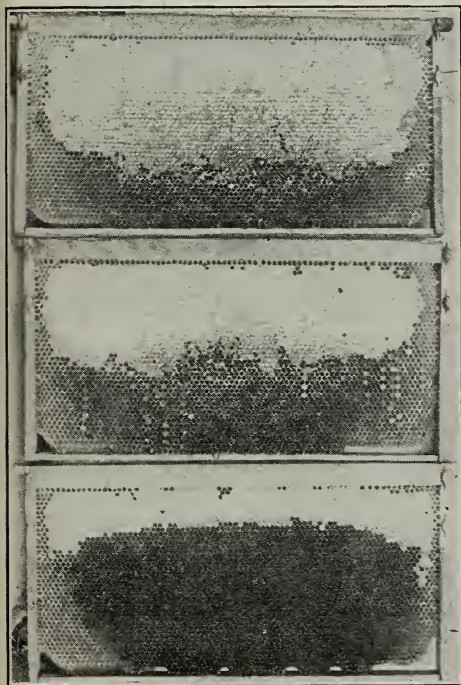
Necessary Extracting Equipment.

For the beekeeper with less than 25 colonies, a simple, practical outfit may be provided at very small cost. A small Novice non-reversible extractor should be securely attached to a solid box firmly bolted to the floor, the box being of the right height for drawing off the honey. The best location for the extractor would be near the wall, where there would be less vibration when in operation, for continued vibration is apt to pull the can or box loose, especially if care is not taken to place combs of equal weight in the two sides of the extractor.

Near this extractor should be the uncapping-can. This may be made of a barrel with both ends knocked out and a coarse screen nailed over the bottom. Across the top, about one-third of the distance from one side, a two-inch strip of lumber should be nailed, at the middle of which a sharp-pointed nail projects upward about an inch to hold the frame while uncapping. The barrel itself may be supported in a tub into which the honey from the cappings falls.

Not far from the extractor should also be a straining can in which is suspended a large cheese-cloth bag attached to a barrel-hoop supported by the top of the can. Too much honey should not be drawn from this can. **There should always be enough honey left to cover the strainer, for, if the honey gets low, the cappings and impurities that would otherwise float on the surface of the liquid will collect on the strainer and soon clog it.**

If one cares to take the extra trouble, a cheap yet handier capping-receptacle could be made from a plain box. This box may be of any desired length and about 19 inches wide so that the uncapped combs can be suspended cornerwise in one end of the box until they are extracted. Near one end is a cross piece with an upward projecting nail point for holding the frame



Combs one-fourth, one-half and three-fourths capped —the uppermost one is fit for extracting.

would probably be sealed in a few hours if left on the hive, and may, therefore, be safely extracted. But if honey is extracted before the bees have ripened it, it will be thin and of unpleasant flavor, and, after being kept for a time, fermentation will doubtless result.

Some beekeepers have so few supers that extracting during the honey flow seems necessary in order to give the bees enough room for storing the remainder of the crop. If one is willing, however, to go to the extra expense of keeping supplied with sufficient supers so that no extracting need be done



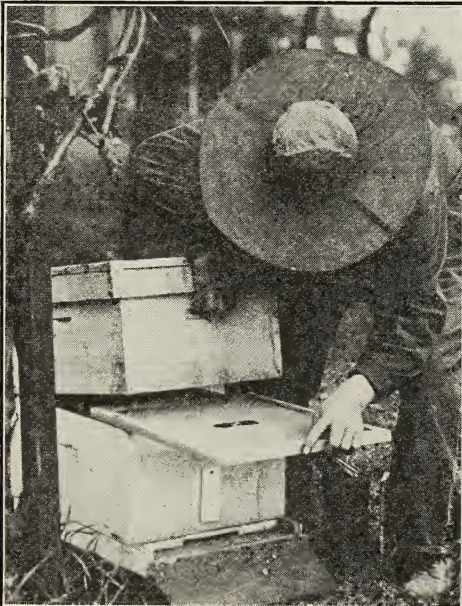
Instead of the straining tank, a barrel may be used as described on the preceding page.

while uncapping. The bottom of the box is covered with heavy screen, and supported from the shallow galvanized-iron tray by

half-inch cleats nailed on lengthwise of the box. The box and tray are placed on a box at the requisite height for easy uncapping, the outlet end of the tray being somewhat lower than the opposite end, and just above the receptacle into which the honey from the cappings is to drain.

Removing the Honey From the Hives.

By far the best way of removing the bees from the supers is to place under the super, during the middle of the day, a bee-escape board, placing it with the rim up. In the hole of the escape board the bee-escape should be so placed that the bees may pass down into the brood-chamber, but cannot return. By the next morning the super will be freed of bees and may be removed without the danger of a single sting. If no crack or crevice large enough for the admission of a bee is left at the corners of the super or between the super and the cover or bee-escape board, there will be absolutely no chance for robbing to get started. In rare instances an escape may become clogged with the body of a dead bee or the queen may have been accidentally left above. In either of these cases bees will still remain in the super. To remove these, give a puff or two of smoke at the entrance and then gently loosen the cover and blow a number of good blasts of smoke down thru the super, driving most of the bees below. Next remove the combs one at a time, holding each by the top bar and giving a sudden



Putting in the bee-escape board.

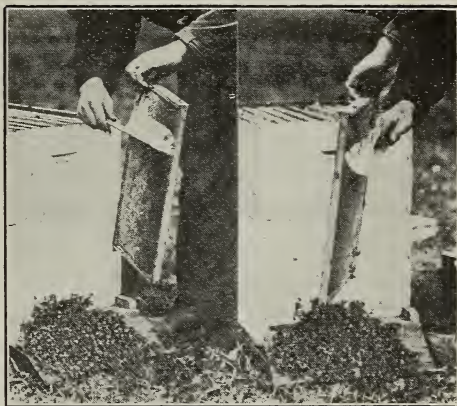
vigorous shake at the front of the hive. But few bees will remain. These may be brushed off with a bee brush or feather as shown in the illustration and placed in an empty hive and covered. Some beekeepers use no bee-escapes but remove all the surplus by smoking, shaking, and brushing. Still we do not recommend this method except in case of emergency, because of danger of starting robbing. For after the honey flow is over, the bees are eagerly searching for more sweets and even the smallest amount of honey left exposed may soon get the apiary into a regular turmoil. Therefore all honey handled outdoors should be kept covered as much as possible and the windows to the honey-house should be screened.

If extracted while still warm, more honey can be removed from the combs. For this reason some beekeepers prefer screened escape boards, since with these the honey keeps much warmer.

Actual Process of Extracting.

The supers of combs to be extracted should be placed within easy reach of the uncapping-receptacle. Then one at a time the combs are removed and held with the top bar away from the manipulator, and the end bar resting on the nail-point of the cross bar. Holding the upper end of the frame with the left hand and tilting the upper end

motion. If the comb contains any depressions, the heel of the knife should be used. Then reverse the comb, still keeping the top bar away from you, and slice a thin layer also from the other side, using the cross piece to scrape off any cappings that may adhere to the knife.



Brushing bees off a comb.

The uncapped combs may next be placed one in each basket of the extractor, the top bar being placed next the hinge. It is quite worth while to use two combs of about the same weight; for if not perfectly balanced the extractor will run unsteadily, and may become loosened from its support. In case of old, dark combs whose cell walls are strengthened by many layers of cocoons, there will be but little danger of the combs breaking. When new combs are extracted—those in which brood has never been raised—greater care will be necessary to prevent the combs from breaking out of the frames. Such combs should be extracted until about half of the honey is out of the cells of the first side, the combs should be reversed and the opposite side entirely extracted, and then the remainder of the honey taken from the first side.

When the honey gets almost to the reel a part of it may be drawn off at the faucet, allowing it to run into a pail, which may then be emptied into the straining tank, from which it may be run into 60-pound cans or other receptacles in which it is to be stored.

As fast as the combs are extracted they may be again placed in the supers and stacked up in the honey-house. Along toward night these may be piled five or six on each hive, over a queen-excluder, leaving the bees to clean out the honey still adhering.

How and Where to Store Honey.

The best place for keeping honey is in a dry room of even temperature, about 70 to 100 degrees Fahr.

Honey should be stored in tin cans, and never in large tanks and left to candy, as it would be exceedingly difficult to remove it for bottling.



Shaking bees from a comb.

slightly to the right so that the cappings may fall freely, begin at the lower end of the comb and with an ordinary extracting knife dipped in hot water cut the cappings from the entire right side of the comb, performing the operation with a kind of sawing

OUR friends, especially those who are interested in the electric windmill, will doubtless recall I told you last fall I was planning to have the apparatus installed at my Florida home during the past winter. Well,

the electric corporation at Wyndmere, N. D., were behind on orders, and wrote me they could not give me an outfit last winter unless they could get some one of their customers to let them fill my order ahead of his own; but after they had offered considerably over a hundred dollars to have a nearby customer wait until spring they wrote me they greatly regretted being obliged to give it up. Well, at that time I had very much set my heart on having the arrangement right away, and had already at considerable expense shipped my electric auto down to Bradentown to have it in readiness, and felt as if I really could not give it up. And tho it might be to some extent a foolish notion I—to quote a line from that well-known hymn—"took it to the Lord in prayer," and I prayed over it, saying, of course, *if* my request were consistent with the Lord's holy will.

Now, you may think it a little strange, but I did not (after so many, and almost lifelong years of experience, in answer to prayer), that a telegram came saying they had made arrangements after all so they could send me an outfit. But with the telegram came a letter from our folks in Medina suggesting that it was too near spring, perhaps, and that I had better give it up. Mrs. Root also urged that I should wait until another winter; and after thinking it over I wrote them a letter to that effect. But after the letter had gone I did not feel satisfied, and I knelt down by my bedside and prayed over it. Now let me digress right here.

I had a praying mother, as I have perhaps many times told you. I often overheard her voice in prayer for one after another of her flock of seven children. As I was the weakest and feeblest one of the whole seven, perhaps she prayed for *me* a little more than for the others; and as the doctors told her she must keep me out of doors and get me interested in making garden, keeping chickens, etc., she and I were much together; and when troubles



O thou of little faith, wherefore didst thou doubt?
—MATT. 14:31.

Before they call I will answer.—ISA. 65:24.

Come unto me, all ye that labor and are heavy laden.—MATT. 11:28.

came up (and they were troubles, I assure you) when our finances were so low that it was sometimes hard work to provide food and fuel for the flock of seven, she sometimes used to say something like this: "Amos, you

need not worry about this trouble any more. I have been praying over it, and I have had the assurance that it will come out all right." And, dear reader, it rejoices my heart to be able to tell you that the matters mother prayed over *did* come out right in the end.

Well, after I had prayed over the matter of the electric outfit I too had a feeling (and a happy feeling it was) that it would come out all right, and there would be nothing wrong in sending a telegram to overtake the letter I had just written. So I wired the electric company to go ahead and ship my outfit as speedily as possible. When my message got there the temperature was away down below zero; but notwithstanding that, they pulled down a mill recently put up for their own use at the factory and shipped it by freight to Bradentown, Fla. Now, with the congestion on the railroads I knew it was risky business; but the whole outfit arrived in about three weeks—sooner than I had any reason to expect it. The whole outfit was sent by freight, as I told you; but the switchboard, being such a very important part of the apparatus, was sent by express in order to be dead sure it would be on hand. And, by the way, said switchboard has not reached Florida yet, so far as I know. The iron frame that holds it came thru promptly; but the switchboard itself has never been found. Now, in order to enable me to use the apparatus in a crude way, George put up a wooden switchboard with a temporary arrangement to start and stop the current according to the movement of the wind. After waiting for about two weeks, when George was badly wanted at the factory in North Dakota we were obliged to give it up, and he returned home. I assured him again and again that I should get mixed up on that temporary switchboard and get something wrong. My good father used to quote to us the old saying that it is hard work to teach an old dog new tricks; and as I approach 79 years

of age I begin to realize the truth of the saying more and more, almost every day. I told George that about as soon as he got well out of sight something would get wrong, and there would not be another man, woman, or child short of North Dakota who would be able to unravel the difficulty. Sure enough, about the day after he left, the cutoff that was to turn the current on the batteries when the wind blew hard enough would not work. I puzzled over the matter off and on all day, and went to bed feeling blue and discouraged. Yes, I prayed over it; but I had somehow lost faith in myself, and I am afraid I lost faith also in the dear Savior, who said, "Come unto me, all ye that are heavy laden, and I will give you rest." I am ashamed to say that I lay awake brooding over it during the night; but finally toward daylight I went to sleep. When I awoke, Mrs. Root had gone out to prepare breakfast. Let me digress a little once more.

In that splendid book, "The Christian's Secret of a Happy Life," the author tells of a poor man who was trudging along with a big bag of grain on his shoulder. A neighbor came up behind him and told him to get in and ride. Of course he did so, but he insisted on carrying the grain on his shoulder in the same way, and gave as a reason that it was too much to ask of the good neighbor to carry both himself and the bag of grain also. He would relieve the horse a little by carrying the grain himself. The good neighbor could not put it out of his head that it would be no harder on the horse if he would dump his heavy bag into the back end of the wagon and enjoy his ride. As I woke up that bright morning and got out of bed it occurred to me that I was about as bad as the idiotic fellow who insisted on bearing his burden when the neighbor invited him to cast it off. I knelt down again and prayed over the matter of the electric windmill. One of the things that contributed to my worry was that it was near the time set for Mrs. Root and me to go back to our Ohio home. What would be done with the electric windmill during the summer time if I did not ferret out the difficulty and get the machine to work? Another trouble that confronted me was that my good neighbor, Mr. Wheeler, who knew more about the apparatus than any other man, perhaps, in Florida, had recently planned to move his family down to Moore Haven—see his article in the June issue. Well, after I had gone right down on my knees and told the dear Savior all about my troubles I felt that I had the "assurance" as the dear mother used to express it.

After a good breakfast such as Mrs. Root always has ready for me, I went out expecting that I should be able to unravel the trouble. Let me say right here that one of the things that contribute most to my happiness in this world has been to meet with kind and pleasant people. You all know the effect of a kindly smile from a beautiful, intelligent woman—at least the men and boys do. Well, as I grow older I am glad to say that there is less and less difference between the smiles of a handsome woman, or, perhaps I should say, a good-looking woman or a woman who looks good—that is, it does not make much difference whether it is a *woman* who looks good or a man who looks good. On that particular morning when I went out and stood before that switchboard I met a young man with a pleasant smile on his face who seemed to me just then to be one of the best-looking men I ever met in my life. Yes, I had met him before somewhere; but while I was puzzling my brains to decide when and where, he said he had come to see the electric windmill so much talked about. Then I told him how greatly I regretted that it was "out of fix," and I had not sense enough in my old gray head to find out the trouble. At this he smiled even more pleasantly, and then, with a *still* pleasanter smile, said, "Perhaps, Mr. Root, I may be able to help you out of your trouble."

"Well, my good friend, I am ashamed to say that I can not recall just now where I have met you."

"Oh!" he replied, "you saw me at the electric-light plant down town."

Let me explain right here that in years past I had often looked thru the open door to see the massive engines and great dynamos that send electric light and power all over Bradentown and away out into the country. I think there is a sign across the door, reading "No Admittance," and so I had never ventured inside; but when George came around, one of the first points of interest to him was that electric-light plant; and I was agreeably surprised to find the foreman in charge so willing to show us all over and answer all our questions. Well, here was the answer to my prayer—not exactly what I had prayed for, but something far better; and how often it has happened just that way during this busy life of mine! It seemed to me just then that the good Lord had said to this foreman of that great electric-light works something as follows: "My old friend A. I. Root is in trouble with his electric windmill. While you are off from duty this morning, just go down and help him

out." After I had told him all my troubles he went out and looked at the windmill tower and said, "Let's see. Here are three copper wires coming down from the dynamo on top of the tower."

Now, I had asked George several times to explain about the third wire. I could readily understand how two wires should come down from the dynamo; but in spite of his explanations I could never get it thru my old brains why there was any need of a third wire; and, dear reader, I am ashamed to confess that I do not very well understand it yet. But my companion seemed to know all about it.

About this time I inquired his name. With another smile (may I call it a bewitching one?) he said, "Mr. Root, I have not got a very good name; but I try to be a good man all the same. My name is Kaiser."

Then he asked for a screwdriver and a pair of pliers.

"Sure," I replied; and then I showed him where the two tools were hanging up right near the switchboard. Let me remark right here that with the electric auto there came some very fine up-to-date tools; and one of the first things I did was to fix some nails in the wall where the tools could be hung up and at the same time I marked with a good black pencil the outline of each tool so it could be quickly put back in just the place where it belonged. In about five minutes after I had given him the pliers and screwdriver the cutoff was making its click in the orthodox way as the wind came up and went down. Then he looked over the batteries and seemed to be perfectly at home in regard to them as well as the electric part of the machine. He finally suggested that if it would be anything of an accommodation he would look after the batteries occasionally and give them a charge in order to save them

from damage by neglect, while I was gone north during the summer. It was finally arranged that he was to come and take out the auto and use it if he wished. When I asked him if he had ever run an electric automobile he replied something as follows:

"Why, Mr. Root, I can not say that I have ever run an electric automobile; but as I have had quite a little experience up in the North in running *electric locomotives* I think that I can, no doubt, find out how to manage the auto, especially with the aid of the excellent book of instructions sent out by the makers, which I have looked over."

There, friends, you have the whole story up to date. The good Lord did not sharpen my wits as I expected he would; but he sent an expert to help me out of my trouble and also introduced to me a good friend who volunteered to help me in a way that I had not thought of until he suggested it.

Now, dear friends, let us look at this first text at the head of this Home paper once more—"O thou of little faith, wherefore didst thou doubt"; and then that other one containing the promise that the forces of this great universe should be started and set going, even before we get down on our knees before the Lord and remind him of his great and precious promises scattered all thru his precious word to the children whom he loves. And then that final text—"Come unto me, all ye that are heavy laden, and I will give you rest." When you are worrying about something so that you can not sleep during the night, remember that promise. But first of all, dear friends, get rid of all bitterness and all unkindness from your heart. Remember the text I have quoted so often—"If I regard iniquity in my heart, the Lord will not hear me." And then follow out closely that other text.



HIGH - PRESSURE GARDENING

CORN AND POTATOES WITH NO MISSING HILLS, ETC.

I have year after year had more or less to say about selecting the ears out in the field in growing corn. As soon as you can find here and there an ear that is sufficiently mature, the kernels glazed and hard, gather your seed corn. If you take the first ears that mature, you will eventually get a strain of seed corn that will ripen

early before frost. We have not had any corn injured by frost for many years. Our plan is to put the ears of seed corn in a basket about the size of a common barrel, made of galvanized wire cloth. It is the same size of mesh and the same wire cloth that we use for our honey-extractors. This wire cloth is for the purpose of giving the corn fresh air to dry out thoroly, and at the same time exclude rats and mice. As

soon as cold weather comes, or before, this receptacle with those ears of corn is placed in a warm basement near the heating apparatus of the dwelling, and set about a foot or more above the floor. The bottom of the basket is also of wire cloth, to permit a free circulation of air. There it remains until it is planted at planting time. Each ear is then tested in the well-known way—that is, taking three or more kernels from each ear, and testing for germination.

Now, all the plans I have ever noticed in the agricultural papers require that a tag or label be placed on each ear of corn, and also a tag or label or number on the corn from each ear. Of course there may be many modifications of the plan to do this, but they have all seemed to me more or less fuss or bother. Fig. 1, I think, will make it clear to you with very little explanation how I manage it. We happened

basin beside the basket there was only one good plant out of three. For some reason the germination was poorer this year than for any winter I recall. You probably know all about this. As a rule we use for planting only the ears that give a high germination. A year ago when I asked the boys if there was not some replanting to be done, they replied they did not think there was a missing hill. In the whole cornfield there was scarcely a missing stalk. How much do you think it is worth to a farmer to have such a stand as that in the first planting?

At the time we selected the field of corn, I put on top some ears of sweet corn. Now let me tell you something. We plant three or four kinds of sweet corn so as to have them ripen one after another. As a consequence my sweet-corn seed would become more or less crossed. So I thought I would send to one of our great seedsmen

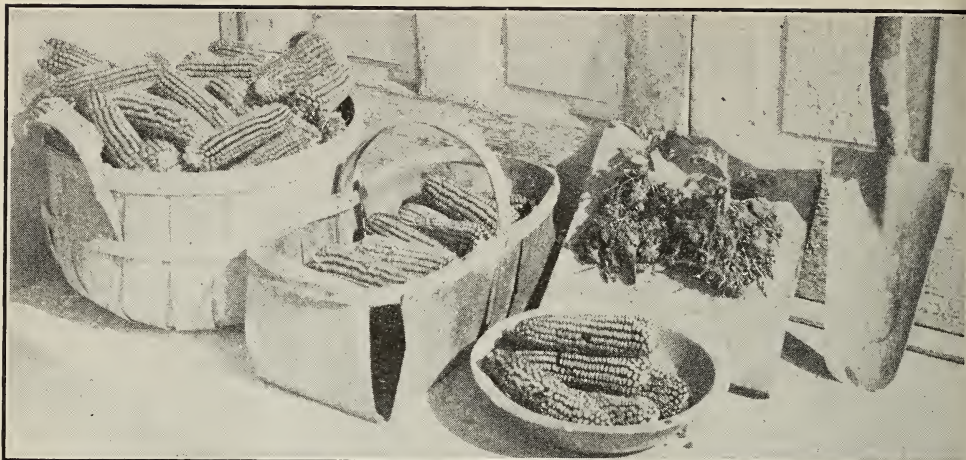


1. My plan of testing ears of seed corn before planting.

to have an unused shutter about 6 by 3 feet. This was raised up from the floor on four potato-boxes. Then some strips about an inch square were loosely tacked to the shutter as shown in the picture. To keep from soiling the shutter, oiled papers, such as they have at the groceries, were placed down between the strips; and on this some potting soil such as they use in the greenhouse. Then the corn was laid on in rows as shown in the picture. Right opposite each ear of corn were placed three or four grains to germinate. The oiled paper under the soil was simply to keep the shutter from being made muddy by the soil. You will notice in the ears where I have picked out the grains. Picture, No. 2, shows the outcome. Every kernel taken from the ears in the bushel basket made a good strong corn plant. In that half-bushel basket every kernel gave a strong plant but one; and in the

and get some Golden Bantam that was absolutely pure. What do you think it cost? Only 60 cents a pound. Don't you think it will pay to grow your own garden seed? Let me give you another illustration.

When we were gathering our lima beans last summer there would be here and there a pod that was too ripe for cooking. Mrs. Root put all of these pods in a paper bag, and they were put into a cupboard and forgotten until she cleaned house this spring. I shelled them and planted quite a good row about May 25. Before I thought it was possible for the beans to be up I had the best stand of lima beans I ever saw—great thrifty stalks and big sturdy leaves. It was the result of "home-grown" seeds. Later I found I wanted a few more lima beans, and what do you suppose *they* cost? Forty cents a pound, when I bought them by the bulk! Now, if you want only a few, say a 5-cent paper, it may not pay to



2. The result of testing corn as shown in Fig. 1; also some potato plants ready to be placed in the field, with a picture of the spade used for loosening up the sod of growing plants.

gather it from your own garden; but when it comes to paying out forty to fifty cents a pound for sweet corn and bush lima beans, you had better take some way of finding a short cut "from the grower to the consumer." Look over every seed catalog (You probably have a pile of them at your elbow), and see how much you could save by growing your own corn, beans, and other seeds instead of paying a seedsman's prices.* Why, just plain navy beans are quoted in the seed catalogs at 50 cents a pound! If you go to the groceries to get some navy beans to eat, you will find they

*Of course, the price of 40 to 60 cents per pound includes postage, but *nobody* has any postage to pay on seeds you grow yourself.

are 20 to 25 cents a pound, and they are not perishable at all—that is, you do not have to use them as soon as they are ripe. You can just put them in a tight paper bag and keep them for *two years* or more.

You will notice, besides the basket of seed corn, there are some other things in the picture; and notwithstanding all I have said about my "new invention" of transplanting potatoes I have something more to say about it. When I first got back from Florida, the only early potatoes I could get at the seedstore were Burpee's Extra Early, and the price was not at all extravagant—50 cents a peck. Well, I cut the peck so as to make about 300 eyes, and planted them in a little bed about four by



3. A bed of potato plants started from one eye, and ready to be taken out and moved to the field.

five feet. Picture 3 shows the potatoes after they had been planted about four weeks. I left them longer than I wished to, because the ground was too wet to plant them out. If it had been down in Florida on our light, sandy, mucky soil, it would not have done much harm; but here in our Medina yellow clay it was a task, I tell you, to get those little potato plants separated. The roots had intertwined themselves so as to make a perfect mat. In picture 2 I laid two of the potato plants on a board right beside the spade; and, by the way, this spade is the implement I used to pry up a sod of potato plants. If your soil is as loose as it should be made with manure and sand and muck, you will find the roots down quite a piece. After the plants are torn apart, saving all the roots possible, and also letting a lot of that rich soil go with them, we load them in half-bushel baskets like the one in the figure. Then they are carried to the field and dropped the right distance in a furrow. Well, down in Florida, and up here in Ohio, potatoes transplant so easily that not a plant in the whole 300 gave any evidence of having been moved. They kept right on growing and a week later they were hoed and cultivated. A week or ten days after they were planted out I went over the patch to see if I could find a missing hill. There were not only no missing hills, but there was not a feeble-looking plant in the whole plot.

It might occur to you that this is the wrong time of year to talk about planting potatoes in GLEANINGS for July. Not so, friends. Down in Florida we estimate we got ahead a month by transplanting potatoes, and by having great thrifty plants because of the very rich composted soil inside of the plant bed. Well, my good friends, our President and a host of officials under him are urging us to make the most of our gardens. When this reaches you, or a little later, there will be quite a little stuff in your garden matured and gathered—early peas, radishes, lettuce, perhaps early potatoes, etc. Now I will tell you what to do. If you can get some potatoes in good condition to plant (and I think you can), make a little plant bed at once as I have described; and as fast as your early crops are removed, put in, not cabbage plants, but potato plants. We have for years got good crops of early potatoes by planting them just about July 4; and these potatoes grown late make the very best of seed for planting the following spring. If you have good plants ready like the ones shown in the picture, and get them into good ground as late as Aug. 1, most of you can grow good potatoes.

IF I REGARD INIQUITY IN MY HEART THE
LORD WILL NOT HEAR ME.

I clip the following paragraph from *The American Issue* of Feb. 2:

Many devout people believe God is withholding ultimate triumph from the allied cause until booze is banished in all lands interested in justice and liberty. Some of the age-long prophecies are being literally fulfilled before our eyes. The entrenched wrongs of centuries are being undermined and uprooted. This is the most solemn hour in the history of humanity. The liberties of humanity are trembling in the balance and God is calling to his people to banish booze and win the war and usher in the millennium.

Ever since the war started, or even before the war, I have, in my humble way, tried to make it clear that the reason why God does not hear the prayers of the good people of our U. S. or perhaps why God cannot hear and answer, is because of our tolerance of the liquor traffic. And just of late, when the heads of our nation were not only closing industries, but even our *schools* and *churches*, not a word was said about the breweries, and the tons and tons of coal they are using day and night, year in and year out. Garfield, Hoover, and our beloved President, for some reason, while racking their brains for a remedy, seem to have overlooked the breweries. In this same copy of *The American Issue*, testimonies are given from the presidents of a large number of our American coal companies to the effect that *drink* cuts off the output of coal to an enormous extent, especially after every pay day. *Banish booze and the war will end.* Are there no Calebs and Joshuas, nowadays, who are not afraid to come out and stand *alone*, if need be?

ANOTHER "EMANCIPATION PROCLAMATION"
NEEDED.

We clip the below from the *Elyria Telegram*:

President Wilson will never rise to the majesty of his high office and his plain duty in these trying times until he prohibits the sale of intoxicating liquors. His proclamation doing so will take its place in history along side that of the immortal Lincoln emancipating the slaves, and Wilson will stand a heroic character measuring up to Lincoln's height in moral courage and purpose and accomplishment.

ALL NATIONS DRY.

According to *American Issue* Captain Richmond P. Hobson recently said:

"Out of this war all nations will emerge dry. For the first time we shall have a sober world, and then we shall start all over again upon the building of a new civilization. In that civilization there will be no place for degradation, for wars and strikes.

"Just as soon as we solve this problem of prohibition, we will solve the problems of man-power, of financial power, of productive power—and we will solve the war problem.

"Under prohibition the United States can maintain 10,000,000 men in France without effort. We can finance America and all her allies on the new wealth created. And that day is drawing near."

Classified Advertisements

Notices will be inserted in these classified columns for 25 cts. per line. Advertisements intended for this department cannot be less than two lines, and you must say you want your advertisement in the classified column or we will not be responsible for errors.

HONEY AND WAX FOR SALE

Beeswax bought and sold. Strohmeier & Arpe Co., 139 Franklin St., New York.

FOR SALE.—New crop clover extracted honey, 20c per pound; 2 60-lb. cans to case.
H. G. Quirin, Bellevue, Ohio.

FOR SALE.—To the highest bidder, my crop of white clover extracted honey, from 300 colonies bees. Purchaser to furnish containers.
L. S. Griggs, 711 Avon St., Flint, Mich.

HONEY AND WAX WANTED

Small lots of off-grade honey for baking purposes.
C. W. Finch, 1451 Ogden Ave., Chicago, Ill.

WANTED.—Comb and extracted honey.
J. E. Harris, Morristown, Tenn.

WANTED.—Extracted honey.
J. Damit, 3718 Diversey Ave., Chicago, Ills.

Cash at your bank for carlots and less of comb and extracted honey.
Wesley Foster, Boulder, Colo.

BEESWAX WANTED.—For manufacture into Weed Process Foundation on shares.
Superior Honey Co., Ogden, Utah.

WANTED.—Well ripened amber and clover honey; state price, how packed, and send sample. L. P. Zimmerman, 436 E. Market St., Louisville, Ky.

WANTED.—Extracted honey in both light and amber grades. Kindly send sample, tell how honey is put up and quote lowest cash price delivered in Preston.
M. V. Facey, Preston, Minn.

WANTED.—Extracted honey, carload or less quantity. We can supply 5-gallon cans for your crop if needed.
Hoffman & Hauck, Richmond Hill, N. Y.

WANTED.—Extracted honey, all kinds and grades for export purposes. Any quantity. Please send samples and quotations.
Betancourt & Leganoa, 59 Pearl St., New York City.

BEESWAX WANTED.—We are paying higher prices than usual for beeswax. Drop us a line and get our prices, either delivered at our station or your station as you choose. State how much you have and quality. Dadant & Sons, Hamilton, Illinois.

WANTED.—Beeswax. We will pay for average quality beeswax delivered at Medina, 36c cash, 38c trade. We will pay 1 to 2c extra for choice yellow. Be sure your shipment bears your name and address as shipper so we can identify it on arrival.
The A. I. Root Co., Medina, Ohio.

HONEY WANTED.—We are in the market at all times for unlimited quantities of honey, both comb and extracted. Before selling your crop let us hear from you, quoting your lowest price, either f. o. b. your station or delivered Cincinnati. If extracted, mail sample, state how it is put up; if comb honey, state grade and how packed.
C. H. W. Weber & Co., Cincinnati, Ohio.

FOR SALE

BASSWOOD AND EVERGREEN TREES.—Send for list. Hansen Nursery Co., Niles, Mich.

HONEY LABELS.—Most attractive designs. Catalog free. Eastern Label Co., Clintonville, Conn.

FOR SALE.—A full line of Root's goods at Root's prices.
A. L. Healy, Mayaguez, Porto Rico.

FOR SALE.—150 ten-frame extracting supers, 100 excluders. R. G. McAllister, Corvallis, Ore.

FOR SALE.—Barnes saw, foot and hand power.
W. F. D'Allaird, Ballston Lake, N. Y. Box 8.

SEND TODAY for samples of latest honey labels. Liberty Pub. Co., Sta. D, Box 4E, Cleveland, Ohio.

FOR SALE.—300 boxes extra good second-hand cases at 65c per box of two cases.
Manley Bros. Sandusky, Mich.

FOR SALE.—About 200 empty combs, Hoffman frames. Address
D. J. Miller, Millersburg, Ohio, Rt. 4.

Beekeepers, let us send you our catalog of hives, smokers, foundations, veils, etc. They are nice and cheap.
White Mfg. Co., Paris, Tex.

FOR SALE.—A lot of second-hand honey kegs and 60-lb. cans, two in a case, 500 4¼ x 4¼ sections. Write for prices. J. H. Taylor, Parksville, N. Y.

Pennsylvania Distributors for Root Bee Supplies, save time and transportation expense on all standard hives, sections, etc., at catalog prices.
Prothero, Bailey & Goodwin, Dubois, Pa.

\$5.00 A DAY GATHERING EVERGREENS, ROOTS and Herbs. Ginseng, \$14 a lb., Belladonna Seed, \$64 a lb. or grow it yourself. Book and war prices free. Botanical 18, New Haven, Conn.

THE ROOT CANADIAN HOUSE.—73 Jarvis St., Toronto, Ont. (Note new address.) Full line of Root's famous goods; also made-in-Canada goods. Extractors and engines; GLEANINGS and all kinds of bee literature. Get the best. Catalog free.

FOR SALE CHEAP.—Used one season A1 shape, 500 complete Root 10-frame supers for plain sections; 200 10-frame Root body boxes and Hoffman frames; 100 swarms of bees. Buckeye Shade Tree Co., 2255 Waterworks Drive, Toledo, O.

FOR SALE.—Tame rabbits, any color or number. Breeding stock, 4 to 5 months old, \$2.00 per pair. Prompt shipment. Order now.
George Tebbe, Dow City, Iowa.

WANTS AND EXCHANGE

To exchange, cream separator for bee hives, frames and supers. Irvin Fuller, Proctorville, O.

WANTED.—Audubon Johnson, formerly of Simi, Cal., to write me. F. A. Alexander, Ontario, Cal.

WANTED.—A Buffalo robe. State size, condition, and price in first letter.
Ceel Shepard, Rochester, N. H.

WANTED.—A good honey location to start a line of apiaries. Will give suitable reward for the best reliable information. D. E. Lhommedieu, Colo, Iowa.

WANTED.—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5 cts. a pound for wax rendered. The Fred W. Muth Co., 204 Walnut St., Cincinnati, O.

WANTED.—In eastern or central New York a good clover and buckwheat location suitable for a few yards of bees. Would consider buying all or part of small bee business.
John Vandenberg, Fort Plain, N. Y., Rt. 3.

OLD COMBS WANTED.—Our steam wax-presses will get every ounce of beeswax out of old combs, cappings, or slumgum. Send for our terms and our new 1918 catalog. We will buy your share of the wax for cash or will work it into foundation for you.
Dadant & Sons, Hamilton, Illinois.

REAL ESTATE

\$2,000 cash takes a fine Florida farm of 10 acres, all improved, including stock and crops; also 60 colonies of bees in modern hives.

C. Mack, Mannville, R. D. No. 1, Fla.

BEAUTIFUL HOME FARM, improved rich soil, well located, good buildings, 100 colonies of bees, up to date; best honey-producing location in the State; not crowded; average for past 7 years, 105 lbs., 5 acres of ginseng and goldenseal, all ages, in fine shape; half artificial shade, half natural. Will sell a part or all of seng-seal. A wonderful opportunity—a bargain. Reason for selling, poor health.

W. M. Penrod, Ronneby, Minn.

A small California farm earns more money with less work. Raise the crops you know about—alfalfa, wheat, barley, etc.—also oranges, grapes, olives, and figs. Ideal for dairying, pigs, and chickens. No cold weather; rich soil; low prices; easy terms; good roads, schools and churches. Enjoy life here. New comers welcome. Write for our San Joaquin Valley, also Dairying and Poultry Raising illustrated folders free. C. L. Seagraves, Ind. Com. A. T. & S. F. Ry., 1927 Railway Exchange, Chicago.

BEES AND QUEENS

Finest Italian queens. Send for booklet and price list. Jay Smith, R. D. No. 3, Vincennes, Ind.

Try Phelps' Golden queens and be convinced, \$1.00 each. C. W. Phelps, Binghamton, N. Y.

BEES.—200 colonies to lease or sell in case I am drafted. C. S. Watts, Monticello, Ill.

Italian Bees and Queens; write for circular. Ira C. Smith, Dundee, Ore.

FOR SALE.—Untested Golden Italian queens, 75c each. J. F. Michael, Winchester, Ind.

Well-bred bees and queens. Hives and supplies. J. H. M. Cook, 84 Courtland St., New York.

FOR SALE.—1918 Golden Italian queens; price list free. Write E. E. Lawrence, Doniphan, Mo.

When it's **GOLDEN** it's **PHELPS**. Queens, \$1.00. C. W. Phelps & Son, Binghamton, N. Y.

"**SHE SUIT ME**" Italian queens; \$1.00 from May 15th to Oct. 15th. Allan Latham, Norwichtown, Conn.

Italian queens, The **HONEY GATHERERS**: Price one dollar each, nine dollars a dozen. Edith M. Phelps, 259 Robinson St., Binghamton, N. Y.

Hardy Italian queens. The busy kind, no culls. Must please. \$1.00 each. W. G. Lauver, Middletown, R. D. 3, Pa.

FOR SALE.—Three-band Italian queens. Untested, \$1.00; 6, \$5.00; 12, \$9.00. Tested queens, \$1.50 each. Robt. B. Spicer, Wharton, N. J.

Try **ALEXANDER'S** Italian queens for results. Untested, each, \$1.00; 6 for \$5.00; \$9.00 per doz. C. F. Alexander, Campbell, Calif.

Finest Italian queens. \$1.00 each; 6 for \$5.00. My methods free. J. W. Romberger, 3113 Locust St., St. Joseph, Mo.

THREE-BAND ITALIANS ONLY. Untested queens, \$1.00; 6, \$5.00; 12, \$9.00; 50, \$35.00; 100, \$67.50. H. G. Dunn, The Willows, San Jose, Calif.

FOR SALE.—Fine Italian queens, 75c each, \$8.00 per dozen. Safe arrival guaranteed. T. J. Talley, Greenville, Ala., Rt. No. 3.

Tested leather-colored queens, \$2.00; after June 1, \$1.50; untested, \$1.00; \$10.00 per dozen, return mail. A. W. Yates, 3 Chapman St., Hartford, Conn.

PHELPS queens will please you, \$1.00.

C. W. Phelps & Son, Binghamton, N. Y.

FOR SALE.—Three-banded Italian queens, safe arrival guaranteed. Write for prices. J. A. Jones & Son, Hope Hull, Montgomery Co., Ala.

FOR SALE.—Pure-bred Italian queens; also a few hundred pounds of bees. Queens ready April 15. Orders filled promptly or money returned. O. P. Hendrix, West Point, Miss.

FOR SALE.—Golden Italian queens that produce golden bees; for gentleness and honey-gathering they are equal to any. Every queen guaranteed. Price \$1; 6 for \$5. Wm. S. Barnett, Barnetts, Va.

Wisconsin-bred three-banded Italian queens, untested, \$1.00; tested, \$1.50; six or more 10 per cent less. Choice one-year-old breeders, \$3.00 each. Lewis Francisco, Dancy, Wis.

FOR SALE.—50 colonies of Italian bees (no disease), 1,000 extracting combs, wired Hoffman frames on foundation, extractor, steam knife, tanks, etc. J. R. Simmons, Harvey, Ills.

FOR SALE.—Golden Italian queens of an improved strain; the bee for honey, hardiness, gentleness, and beauty. Untested, \$1.00; tested, \$2.00. Wallace R. Beaver, Lincoln, Ill.

Three-banded Italian queens at Shenandoah Apiary, ready May 15. Tested, \$1.25; untested, \$1.00; dozen, \$8.00.

S. Click, Box 16, Rt. 2, Mt. Jackson, Va.

Bright Italian queens, ready April 15th, \$1.00 each. Safe arrival guaranteed. Write for prices of larger quantities.

W. W. Talley, Greenville, Ala., Rt. 4.

GOLDENS THAT ARE TRUE TO NAME. Untested queens, each, \$1.00; 6, \$5.00; 12, \$9.00; 50, \$35.00; 100, \$67.50.

Garden City Apiaries, San Jose, Calif.

Italian queens. Golden and 3-banded bred from best selected stock. Untested, each, 75c; 6, \$4.25; 12, \$8.25. Select untested, \$1.00 each. Satisfaction guaranteed. G. H. Merrill, Liberty, S. C.

FOR SALE.—Golden Italian queens which produce gentle yellow bees, the hardest workers we have known. Untested, \$1.00, tested \$1.50. Wildflower Apiaries, So. Trust Bldg., Little Rock, Ark.

Golden Italian queens that produce golden bees; the highest kind, gentle, and as good honey gatherers as can be found; each \$1.00; 6, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.

J. B. Brockwell, Barnetts, Va.

QUEENS.—We are breeding from the best Italian stock. Untested, \$1.00; select untested, \$1.50; tested, \$2.00. We have been breeding queens for more than 20 years. We guarantee safe arrival.

E. A. Simmons, Greenville, Ala.

Phelps' Golden Italian Queens combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; 6, \$5.00; tested, \$3.00; breeders, \$5.00 and \$10.00. C. W. Phelps & Sons, Wilcox St., Binghamton, N. Y.

FOR SALE.—Three-band Italian queens from best honey-gathering strain obtainable. Untested queens, \$1.00 each; 6, \$5.00; 12, \$9.00. Safe arrival and satisfaction guaranteed.

W. T. Perdue, Ft. Deposit, Ala.

Golden Italian queens that produce gentle and good honey-gathering bees. No foul brood. Select tested, \$1.25; tested, \$1.00; untested, 75c; 6, \$4.25; 12, \$8.00. No nuclei or bees for sale.

D. T. Gaster, Randleman, N. C., R. D. No. 2.

ITALIAN QUEENS.—The best I have ever had; untested each \$1; five, \$4.50; ten, \$8; twenty, \$15; fifty, \$35; 100 for \$60. Delivery beginning in June. Orders filled on time and safe arrival guaranteed. J. B. Hollopeter, Queen Breeder, Rockton, Pa.

Three band Italian queens, untested, \$1.00; select tested, \$1.25; tested, \$1.50; select tested, \$2.25. H. W. Fulmer, Box G, Point Pleasant, Pa.

Golden and 3-banded Italian queens will be our specialty. We can also furnish Carniolans. Tested, \$1.00 each; untested 75 cts. each. Bees per lb., \$1.50; nuclei, per frame, \$1.50. Send your order for bees early.

C. B. Bankston & Co., Buffalo, Leon Co., Tex.

North Carolina bred Italian queens of Dr. C. C. Miller's famous strain of three-band Italian bees, gentle and good honey-gatherers. July 1 until Oct. 1, untested, 85c each, 12, \$9.00; tested, \$1.25 each, 12, \$14.00; select tested, \$1.75 each. Safe arrival and satisfaction guaranteed.

L. Parker, Benson, N. C., R. F. D. No. 2.

PURE ITALIAN QUEENS. Golden that are GOLDEN and Doolittle's choice stock. Select untested (laying queens), one, \$1.00; 6, \$5.00; tested, \$1.50; best breeders, \$5.00. For large lots write for prices. Pure mating, safe arrival and satisfaction I guarantee.

J. E. Wing, 155 Schiele Ave., San Jose, Calif.

ITALIAN QUEENS.—Northern-bred three-banded, highest grade, select untested, guaranteed, queen and drone mothers are chosen from colonies noted for honey production, hardiness, prolificness, gentleness and perfect markings. Price, 1, \$1.00; 12, \$10.00; 50, \$35.00. Send for circular.

J. H. Haughey, Berrien Springs, Mich.

FOR SALE.—Achord's Pure Italian Queens, hardy and prolific. No disease. Satisfaction guaranteed. Before June 16, untested, 1 for 90c; 12 for \$10.00; tested, 1 for \$1.50; 12 for \$16.50. After June 16, untested, 1 for 75c; 6 for \$4.25; 12 for \$8.00; 50 or more, 65c each; tested, 1 for \$1.25; 6 for \$7.00. Best breeder, \$3.00.

W. D. Achord, Fitzpatrick, Ala.

Warranted queens from one of Dr. Miller's breeders, \$1.00 each, \$10.00 per doz. Tested queens, \$1.50 each. One-frame nuclei, \$1.50; two-frame, \$3.00; three-frame, \$4.50; without queens. Add price of queen if wanted. Our apiaries have been inspected and are free of disease. Ten-frame colonies, \$10.00; eight-frame, \$9.00; Danz. colonies, \$8.00 each, with tested queens. We are sold out of pound packages.

Geo. A. Hummer & Sons, Prairie Point, Miss.

Fine queens of Dr. Miller and Walker's stock, \$1.00 each, 6 for \$5.00, 12 for \$9.00, 100 for \$75.00.

Testimony of Mr. J. M. Meadow, Dorton, Tenn. "I have in my yard queens from four different breeders. Walker's beats them all."

Testimony of Mr. A. K. Whidden, San Jacinto, Cal., Bee Inspector of Riverside Co., "I have just inspected an apiary for Roy Bateman. They were requeened with your queens. The superiority of those queens was so marked that I want 100 or more." Curd Walker, Queen-breeder, Jellico, Tenn.

HELP WANTED

WANTED AT ONCE.—One or more men to work with bees. State age, experience, wages and give reference. Permanent place to right man.

The Rocky Mountain Bee Co., Billings, Mont.

WANTED.—Young men of energy and character, of clean habits, not eligible for military duty, as helpers in our extensive bee-business. Fine chance to learn. Write immediately, giving wages, age, height, weight, experience, and references all in first letter, or expect no answer.

E. F. Atwater, Meridian, Idaho.

WANTED.—Industrious young man, fast worker, as a student helper in our large bee business for 1918 season. Truck used for outyards and hauling. Apiaries located near summer resorts. Will give results of long experience and board and small wages. Give age, weight, experience, and wages in first letter.

W. A. Latshaw Co., Clarion, Mich.

Complete Line of

Beekeepers' Supplies

Catalog on Request

F. Coombs & Sons, Brattleboro, Vt.

Leininger's Strain ITALIANS

have a record of 30 years. Queens ready in June. Untested, each, \$1.25; 6, \$6; tested, each, \$1.75; 6, \$9.50. July and later: Untested, \$1; 6, \$5.50; tested, \$1.50; 6, \$9.00. Every queen guaranteed.

Fred Leininger & Son . . Delphos, Ohio

New England Beekeepers

will find a complete line of supplies here. Order early and avoid delays. Write for catalog.

H. H. JEPSON

182 Friend Street

Boston, Mass.

Queens Rhode Island Queens

Italian Northern Bred Queens. Very gentle and hardy. Great workers. Untested, \$1; 6 for \$5. Circular on application. Queens delivered after June 1.

O. E. TULIP, ARLINGTON, RHODE ISLAND,
56 Lawrence Street.

When Ordering Supplies

remember we carry a full stock and sell at the lowest catalog price. Two lines of railroad—Maine Central and Grand Trunk. Prompt service and no trucking bills.

THE A. I. ROOT CO., Mechanic Falls, Maine.
J. B. MASON, Manager.

Order Your Bee Supplies Early

We want you to have our catalog . . Send for one.

August Lotz Company, Boyd, Wis

Queens of MOORE'S STRAIN of Italians

PRODUCE WORKERS

That fill the super quick
With honey nice and thick

They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc. Untested queens, \$1.00; six, \$5.50; 12, \$10.00. Select untested, \$1.25; six, \$6.50; 12, \$12.00. Safe arrival and satisfaction guaranteed.

Circular free.

Queen-breeder

J. P. MOORE,
Route 1, Morgan, Ky.

FLOUR IS HIGH

Why not live better and save money, too? Grind your wheat into Best Whole Wheat or Graham Flour. Your doctor knows how healthy these are. Make the BEST Corn Meal, the old-fashioned sort you can't buy at any price nowadays.

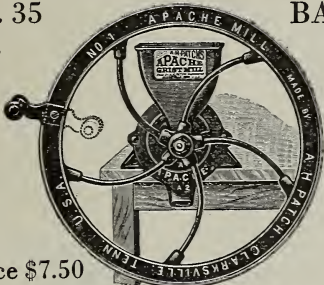
Do all sorts of fine and coarse grinding with an

APACHE MILL

Wt. 35 lbs.

BALL

B
E
A
R
I
N
G



Price \$7.50

This Mill Makes Best Corn Meal, Graham Flour, Rye Flour, Chops, Hominy, Cracks Peas, Grinds Coffee, Spices, etc. Perfect adjustment for coarse or fine work. Will send Mill prepaid by Express \$7.50

APACHE CRIST MILL—Largest capacity, fastest grinding, easiest turning handmill. Does more, lasts longer.
A. H. Patch, Inc., Clarksville, Tenn.
The Blackhawk Corn Sheller Inventor
Invented 1885

Our Food Page—Continued from page 413.

At night make a sponge of half the liquid, the yeast which has been softened in one cup of it, the potatoes, salt, honey, and enough flour to make a thin batter. Cover closely and let rise over night. In the morning add the rest of the liquid warmed, the Cream of Maize and rolled oats and enough flour to make a stiff dough. Sift the soda in with the flour. Knead until smooth and elastic, cover and let rise until doubled in bulk. When light, divide into four loaves and let rise again. When light, bake in a moderate oven about one hour. For liquid you may use potato water or half milk and half water, adding the milk in the morning. In order to make good bread with the substitutes and flour as milled at present you should use a much larger proportion of flour to liquid.

CORNMEAL MUSH, BY DR. MILLER'S REQUEST.

One part cornmeal Salt to taste; about 1
3 to 4 parts boiling wa- scant teaspoon to each
ter cup of cornmeal.

Put the cornmeal and salt in the upper part of a double boiler, slowly pour over it the boiling water, stirring all the time to keep it smooth. Let it cook over the fire until it has thickened and begun to bubble, then put it over the lower part of the double boiler, making sure that the water does not boil away before it is done. Let it cook three or four hours or longer. As some meal has more absorbing power than others, it may be necessary to add a little more boiling water after it has thickened. We sometimes let it cook over night with the simmering burner turned low.

HONEY RASPBERRY PRESERVES.

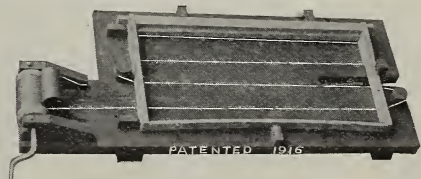
1 pint red raspberries 1 pint rhubarb cut small
3 cups honey

Pour the honey over the raspberries and rhubarb and leave several hours or over night. Put over the fire and simmer slowly until thick or until the juice drips from the side of a spoon in two or more rows of drops. Put in jelly glasses and cover with melted paraffin when cold, or seal while hot in jars.

CONSERVATION SHORTCAKE.

1 1/4 cups barley flour 3 tablespoons shortening
3/4 cup rice flour 1 teaspoon salt
5 teaspoons baking pow- milk
der

Sift the flour, baking powder, and salt to-



WRIGHT'S FRAME-WIRING DEVICE

Most rapid in use. Saves cost of machine in one day. Tighter wires; no kinks; no sore hands. Price, \$2.50, postpaid in U. S. A.

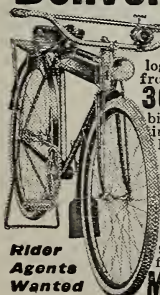
G. W. Wright Company, - Azusa California

SKINNER ENGINE For SALE

At a bargain, nearly new 19x20 Skinner Simple right hand, center crank engine. This engine has been run only four years and it is in first class condition. At 130 pounds steam pressure develops 325 H. P., speed 200 revolutions per minute. The shaft is long enough to hold an alternator. Engine can be seen running at our plant any time up to July, 1918, when it will be replaced by a larger unit. Reason for selling, need more power. Not a worn-out outfit in any sense of the word, but a modern, efficient engine and a real bargain for the right party.

The A. I. Root Co. . . MEDINA, OHIO

Delivered TO YOU FREE



Your choice of 44 styles, color and sizes in the famous line of "RANGER" bicycles, shown in full color in the big new Free Catalog. We pay all the freight charges from Chicago to your town.

30 Days Free Trial allowed on the bicycle you select, actual riding test in your own town for a full month. Do not buy until you get our great new trial offer and low Factory-Direct-To-Rider terms and prices.

TIRES LAMPS, HORNS, pedals, single wheels and repair parts for all makes of bicycles at half usual prices. No one else can offer such values and such terms, **SEND NO MONEY** but write today for the big new Catalog. It's free.

MEAD CYCLE COMPANY
Dept. 6153, Chicago

Rider Agents Wanted

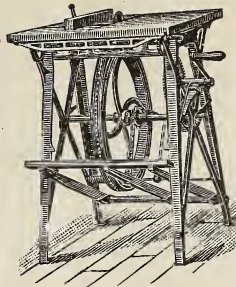
BARNES'
Hand and Foot Power
Machinery

This cut represents our combined circular saw, which is made for beekeepers' use in the construction of their hives, sections, etc.

Machines on Trial

Send for illustrated catalog and prices

W. F. & JOHN BARNES CO
545 Ruby St
ROCKFORD, ILLINOIS



Our Food Page—Continued from page 443.

gether, cut in the shortening with two knives and add milk enough to make a soft dough. Pat rather than roll into individual biscuits. Make them rather thick as the substitute flours do not rise as high as wheat flour. Bake in a moderate oven, split, butter, and pour over any sweetened fruit in season. All barley flour may be used or corn flour may be substituted for the rice flour.

STEAMED BROWN BREAD.

- | | |
|----------------------|-----------------------------------|
| 1 cup barley flour | 2/3 cup honey |
| 1 cup cornmeal | 1 cup water |
| 1 cup rolled oats | 3/4 cup sour milk |
| 1 teaspoon salt | 1 cup raisins or nuts if desired. |
| 1 1/2 teaspoons soda | |

Measure the barley flour before sifting, add the soda and salt and sift and then mix with rolled oats and cornmeal. Combine the honey, water, and sour milk, stir in the dry ingredients, add the raisins which have been steamed until tender, pour into a mold and steam three hours. It may be steamed in three one-pound baking-powder cans.

ROLLED OATS PIECRUST.

- | | |
|------------------------|---------------------|
| 2 cups rolled oats | 1 teaspoon salt |
| 2 teaspoons shortening | 1 cup boiling water |

Pour the boiling water over the salt, the rolled oats, and the shortening, stirring just enough to make sure all the oats have been scalded. When cool roll out as ordinary piecrust. It is easier to make it into individual pies. A little cream brushed over the top crust is a great improvement. If the oats are first put through an ordinary food chopper, the crust is easier to handle.

BARLEY FLOUR CAKE.

- | | |
|---------------------|---------------------------|
| 1/4 cup shortening | 2 1/4 cups barley flour |
| 1/2 cup brown sugar | 2 teaspoons baking powder |
| 2 eggs | |
| 1/2 cup honey | 1 teaspoon soda |
| 3/4 cup sour milk | 1/2 teaspoon salt |
- Spice or flavor to taste

Cream the shortening and brown sugar together, beat in the eggs and then the honey, add the flour, in which the dry ingredients have been sifted, a little at a time alternating with the sour milk. Use spice or flavor to taste. Raisins or nuts may be added. Bake in a shallow pan about 45 minutes. As barley flour varies in absorbing power a little more or less may be needed.

All measurements level.

BANKING BY MAIL
AT 4%

BUILD UP A
SURPLUS
FUND

Present day conditions emphasize very strongly the importance—indeed the necessity—of everyone building up a surplus fund of ready cash.

A Savings Account BY MAIL in this strong bank is an ideal method of building up a surplus fund.

Deposits may be safely sent in the form of check, draft, money order or the currency by registered mail.

Write for detailed information concerning this safe and convenient plan of BANKING BY MAIL AT 4 PER CENT.

THE SAVINGS
DEPOSIT BANK CO.
MEDINA, OHIO

A.T. SPITZER, Pres.
E.R. ROOT, Vice-Pres.
E.B. SPITZER, Cashier

ASSETS OVER ONE MILLION DOLLARS

"Best" Hand Lantern

A powerful portable lamp, giving a 300 candle power pure white light. Just what the farmer, dairyman, stockman, etc. needs. Safe—Reliable—Economical—Absolutely Rain, Storm and Bug proof. Burns either gasoline or kerosene. Light in weight. Agents wanted. Big Profits. Write for Catalog. **THE BEST LIGHT CO.**
306 E. 5th St., Canton, O.

PATENTS Practice in Patent Office and Courts
Patent Counsel of The A. I. Root Co.
Chas. J. Williamson, McLachlan Building,
WASHINGTON, D. C.