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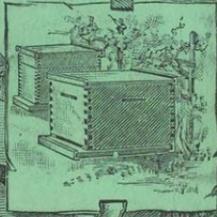
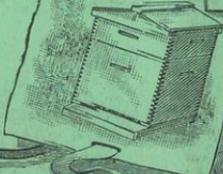
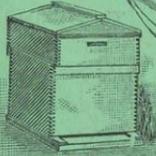
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MAY 1901.



MURRAY-HEIGS CLEV. O.

PROGRESSIVE BEE-KEEPER

A JOURNAL
DEVOTED TO BEES, HONEY AND
KINDRED INDUSTRIES.



PUBLISHED BY

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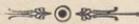
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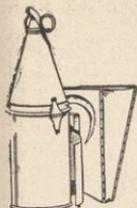
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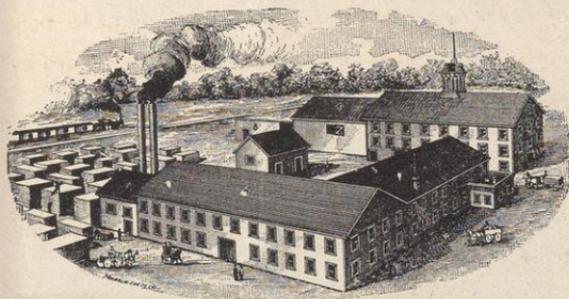
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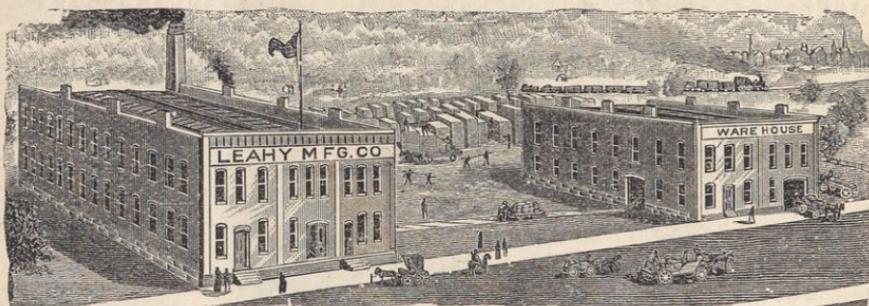
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Vol. XI.

HIGGINSVILLE, MO., MAY, 1901.

NO. 5

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Mostly for Beginners.

F. L. THOMPSON.

"Kindly stop my subscription to the PROGRESSIVE. It contains too many quarrels and hair-splitting business for a beginner. I never saw a single thing advocated that was not disputed by some one."

O. S. STEEBURG.

Though not entirely agreeing, I sympathize with Mr. Steeburg. We all need more or less to amend the fault of taking too much for granted. As a partial defense, we

have different gifts, and should do most what we can do best. The best teachers are those who are successful with the lowest classes; but they are few. The ever-widening conceptions of knowledge are easier, and more inspiring, for most writers, than the patient reiteration of principles already established; and, in addition, to adapt these to the needs of the novice requires peculiar talents. Still, though we may praise and admire those talents, praise is due also to the self-sacrifice which accompanies the exercise of what is tedious and somewhat thankless task at best; not praise, however, in the form of wordy compliments, but more substantial recognition of aid from the rest of us, so far as we can render any help with our inferior talents, in the same lines. As to the disagreement among the writers, it is not only unavoidable, but necessary. Specific circumstances decide whether a particular criticism is justified, but in general criticism must be a continual feature to do the most good, for imperfect apprehension of truth is all continual, and many of the truths imperfectly apprehended are of the utmost importance.

To show my appreciation of Mr.

Steeburg's criticism, I shall make an attempt, necessarily imperfect, to consider what are the most important elements of bee-keeping, as applied to three classes; the beginner, the prospective specialist, and the amateur. The beginner should first find out the essential facts of the business by reading a bee-book. Otherwise he may lose much by adopting crazy plans utterly unfit for the nature of bees, born of his own ignorance or the advice of those old campaigners who know all about bees because their fathers kept beegums when they were boys. A neighbor of mine proposed to divide a colony in November because it was so strong, thinking each part would have enough kings. Another who had just bought fifty colonies was advised by some to put on no supers until July. He followed the advice, and lost a goodly amount of honey.

A bee-paper is of great value. In my first year of bee-keeping I did much utterly valueless work in manipulating, relying on a bee-book considered of some value—I might have continued it, but the varied experience of many, given in the bee-paper, finally opened my eyes to the fact that manipulation has but a relative value, and cannot be profitably pursued except when the conditions are right. As it was, I scattered foul brood all over the yard, with much attendant loss, labor, and vexation.

To start with but few colonies and go slow until he gets his hand in is frequently given as a beginner's rule. It fits the majority. I have known of one who started with a hundred colonies and was successful. To be fairly sure of the fundamental principles, and to be able to keep one's hands off where he does not understand, are requisites to succeed with a number at

first. The chief danger in so doing is not so much with the bees as with the temptations that beset their owner to spend money in profitless directions for their supposed benefit.

In buying, the beginner should either be sure that foul brood does not exist where he buys, or that the seller knows what foul brood is, and can guarantee that it does not exist so far as inspection can determine. Otherwise, he should get some competent person to inspect or study up the matter as well as he can himself. He should also know the marks of the queenless colonies, chiefly a lack of young brood in the summer, (generally accompanied with queen-cells,) or exclusively drone brood; drones or drone brood in the fall; and an absence of brood in the spring, at a time when all colonies with queens have brood. Queenless or weak colonies should not be included in the bargain, unless the whole outfit is bought, when allowance should be made for them. The condition and make of the hives should affect the price, colonies in up-to-date, accurately made standard hives being worth more to sell again. If the combs are not straight enough to be interchangeable, the colony is worth at least a dollar less. The hives should not be light in stores. It is usual in this locality in buying bees to consider that one super goes with every hive. But one dimension and kind of hives, frames and supers should be started with and kept in the apiary, unless odd dimensions and kinds are to be had so cheaply as to offset the labor and expense of supplanting them.

No attempt should be made for the first year or two to prevent first swarms. Non-swarmling schemes are not for raw beginners. But the ordinary methods of pre-

venting after-swarms are to be studied and applied, for they are comparatively simple, and make quite a difference in profits. Colonies light in stores are to be fed, but in general spring manipulation is to be avoided, except inspection for foul brood where necessary, and cleaning of the bottom-boards in early spring. Hives in which the bees have died should be watched for and promptly stored away in bee-tight departments for future disposal. This is absolutely necessary where foul brood exists. The times at which flows of honey begin and cease are to be found out by inquiry of competent bee-keepers, so as to have everything in readiness. Never buy a hive from a neighboring bee-keeper when swarming time has come, that is a greater inconvenience to him than you have any idea of. The supplies should all be bought, and the hives and most of the sections put up, before the flow begins, figuring on three supers of sections to be put up for each colony, spring count. The whole number of sections bought to each colony should somewhat exceed this, say 100 sections to the colony. They will not all be used in an average season, but it is better to have them on hand than to lose honey by not having them. If living where sections are not easily procurable on short notice, 150 per colony would be better, to be absolutely sure. The supers should be put on a few days before the main flow is expected. A frequent mistake of the beginner is that the first super should be entirely filled with honey before another is needed. To carry that out always results in the loss of considerable honey. Unless the flow is expected to close soon, a second super is added as soon as the first one is three-fourths full, if a med-

ium colony, or two-thirds full, if a very strong one.

In hiving swarms, the spirit-level should always be used, and the hive leveled in the direction which is at right angles to the frames. The frames should be accurately spaced before the swarm builds combs, and should be provided with starters of foundation at least an inch wide, and wider would be better. If narrow, the bees are apt to gnaw off that part of the foundation where they are not at work at first, and then build crookedly there afterwards. V-top bars without foundation should never be relied on. The object of all this is to have colonies in shape to be easily and quickly inspected whenever desirable. It is sometimes very necessary to inspect, especially when foul brood is to be discovered and treated. Half-informed bee-keepers often say "I never like to tear my colonies all up." That expression is only applicable to colonies with combs in poor shape. When the combs are as they should be, and the hives accurately made, a colony never needs to be torn up to be inspected.

Swarms, unless very late or very early, should not be hived on combs, either partially or wholly. Full sheets of foundation in the frames, wired, are not necessary. I always use starters for increase, and believe I get more surplus honey by so doing, in connection with full sheets of foundation in the supers, which are put on at once. Sundry articles of Messrs. Doolittle and Hutchinson make this plainer than most of the bee-books. How to proceed in this manner and at the same time keep out an ordinate proportion of drone-comb is to be found out by study of the bee-books or inquiry of the bee-papers; but if one shuns the care necessary, let

him use full sheets of foundation in the brood-chambers, for the loss of honey from an inordinate proportion of drone-comb is certainly greater than the cost of the foundation.

Many do not use separators in the supers. The beginner should do so, and reserve until later whether he shall continue their use or not. By adding additional supers before the first ones are full, ordinary strains of bees will not fasten the combs to the separators. Separated honey has the preference with many buyers. Unseparated honey, with unskilful producers, is likely to be very largely second grade, therefore less profitable, by bulging beyond the edges of the sections.

The honey should be assorted in at least two grades of excellence, and in order to secure a uniform standard, eastern bee-keepers should follow what are known as the Washington rules, published in most of the journals. They are faulty, but until they are replaced, one faulty set of rules is better than several good ones.

The beginner can not know by intuition, and must follow advice; yet, since much of it is misleading, he should be forewarned. The money of novices, more than that of any other class, rewards the inventors of most of the devices brought out. The advanced bee-keeper is successful without them. The beginner, who cannot boast of more wisdom can at least let them alone, with the risks attendant, until the time when his own experience enables him to decide for or against it. Especially if the evidence in favor is nothing more than testimonials, refrain. Anything can rake up testimonials nowadays, from electric belts and Prof. Weltmer to sections which fill themselves around the edges of the

combs 100 per cent better (on paper) than the old kind. The beginner needs to be on his guard from the very start, for those whom he supposes his best friends will not scruple to benefit themselves rather more than they benefit him. He should not give quite so much attention to deciding what is absolutely best, which, with his limited intelligence at the time, he can not possibly do, and if he tries, may choose something which will have to be entirely thrown away; but he should rather consider what to adopt, which can still be utilized if he should change his original intentions. When equally competent authorities give opposite advice, he may be sure it is not on some point which he absolutely needs to decide before he can successfully keep bees. Nor should he on the other hand drop his paper because it gives opposite sides of disputed points. That does not excuse him from studying them. By continually so doing, and by combining that study with experience, he arrives much quicker at the amount of probable truth in each than the experience of one alone, and that one a novice, can help him.

The beginner who follows these directions will soon have a small apiary in which not much will have to be made over to produce honey for profit. He should now take more than one bee-paper. The world moves and competition is always valuable, and often unexpectedly so; time is money, and all possible short cuts cannot be thought out by one alone. As there is a degree of uncertainty in the business, he should have more than one apiary, and the conditions surrounding each should be as different as possible, so that if the crop fails in one, it may not in all. He should have bees of good stock,

and be able to rear his own queens. He should understand the essentials of apiary management, and if possible learn them in the apiary of an experienced bee-keeper; for one year of practice, in this business is worth several years of precept. He should more and more learn to reserve his judgement, and not follow the leaders just because they say a thing is so. There are all kinds of axes being ground, commercial and otherwise, and many who give advice are not competent to prove what they say. He should join with other bee-keepers in selling his honey through organized effort; for experience has proved that it can be successfully done at a greater profit than by selling to small dealers. Home marketing, enough to take the whole crop, demands peculiar qualifications, plenty of room, and much hard labor, and is beyond the reach of the average specialist. He should realize and put to account the fact that bee-keeping, when pursued as a specialty (not otherwise), offers, peculiar advantages to the comparatively poor man who wishes to be a man, not an animal, by cultivating the higher powers of the mind and the higher aspirations of humanity. This is because of the leisure which it affords during a portion of the year, when rightly managed.

The typical apicultural amateur is another being. He is the lover of bee-culture for its own sake. As has been pointed out, a few of his inventions, such as the movable frame and the extractor, have been of incalculable benefit. Yet we need to be somewhat on our guard against him. He is as liable as not, in his ungoverned enthusiasm, to make pushing and booming and electropoise—like testimonials do duty for tests. Our leaders are more or less amateurs, otherwise

they would not be leaders, but co-workers. Enthusiasm is delightful, but the more enthusiasm, the more danger of exaggerating the significance of discoveries. We can welcome and cherish the amateur only in porportion to his enthusiasm for truth. He who wilfully suppresses truth, even though an enthusiast, earns nothing but contempt in the end. As we cannot teach the amateur how to be successful, study being its own reward, our requirements of him are limited to those of justice: he should study the truth most of all, and in doing so, the conditions of practical apiculture, so as not to cause loss to those who put faith in his teachings.

On page 44, I should have said, and I think did say in my manuscript, that one who has handled much honey said recently "The future of EXTRACTED honey is not bright", not of honey in general.

Denver, Colo.

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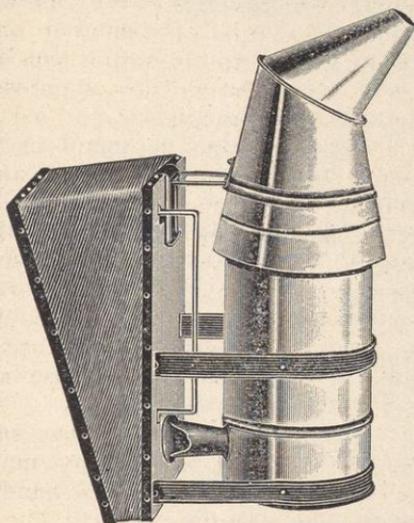
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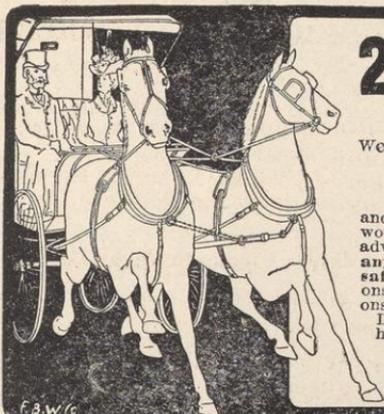
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ly enlarge each hole to resemble the bottom of a natural queen cell. By first passing your forming stick to the mouth and then rapidly twirling it between the thumb and forefinger, in the bottom of each cell, you will secure that smooth surface so important for perfect success.

over and over. Clean out the jelly carefully and graft them again. Such cells may be supplied with eggs and placed in the center of a powerful colony, during the swarming season, and every one will be worked out by the bees, queen present. In this event the division-tins, zinc and sponges must be in place.

To use the cage for keeping surplus laying queens safely for an indefinite length of time, cover the perforated metal with wire net and hang the cage among a few queenless bees and at the end of three days remove the net and allow the bees to enter the compartments—give only capped brood to this colony.

To remove queens from the cage turn the frame upside down, draw one of the sponges and allow queen to run up into a little wire-covered block made for the purpose.

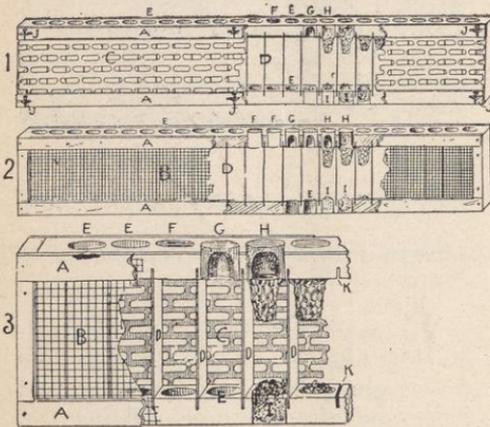
This "cage," as now made, is of a size to fit six to a Hoffman frame; two across and three up and down.

A little more space is given to each compartment than what is shown in the drawing so as to give plenty of room for the bees to work on the cells with division tins in place.

An improvement has been made in the manner of fastening the zinc in place also in the manner of applying the plugs which will be fully explained at a later date—with the editor's kind permission.

In the keeping of surplus queens this cage is very useful in that virgin or fertile queens may be kept on hand in large numbers without the use of a separate nucleus for each queen.

The time is coming when we shall be enabled to mate young queens directly from compartments arranged on the principle of this cage, all in one colony, without the trouble of providing a separate hive for each queen—my experiments the



SWARTHMORE CAGE.

- A—Strips.
 - B—Wire screen.
 - C—Perforated Zinc.
 - D—Division tins.
 - E—Holes.
 - F—Holes with solid wax plugs.
 - G—Wax plugs pressed in cup form.
 - H—Cell built from pressed plug cup.
 - I—Sponges saturated with honey.
 - J—Staples to fasten perforated metal.
 - K—Saw grooves to hold division tins.
- 1—View of zinc side.
 - 2— " " wire side.
 - 3—Enlarged view.

To make a forming stick, whittle a soft pine stick, about the size of an ordinary lead pencil, rounding and smooth and then polish with fine sandpaper—always moisten the forming tool between the lips before pressing it into the cell-plugs.

Select none but just-hatched eggs and with a camel's-hair brush, quill, or pointed tool, lift the "little worm" tenderly and deposit it in the bottom of the plug-cup in the same position it occupied in the comb. Any method of transfer or grafting may be practiced.

After the queens have hatched from a cagefull, do not destroy the cells—save them; they can be used

coming season are to be conducted with this end in view. The readers of the PROGRESSIVE shall certainly be informed of the success of the experiments at earliest possible date, that is providing, of course, that the editor allow us to use his valuable space.

We have brought through the winter, several extra queens, confined in Swarthmore cages, which were placed directly in the midst of full colonies late last autumn, and then later removed to a cellar where they are to remain until settled warm weather—curiosity often spoils some of the best experiments, and I fear, for this reason, I shall not be able to report fully on the wintering of "several queens" to the colony for some time to come.

Swarthmore, Pa.

◆◆◆

M. A. GILL.

Editor PROGRESSIVE BEE-KEEPER:
On page 8 of the January No. (of the PROGRESSIVE) and on page 86 of the Mar. No., F. L. Thompson and Somnambulist each take a turn of thrashing me on the ground like a rooster would an "old meat rine". I see I am up "for trial" I had thought first that I would enter the plea of not guilty; but upon second thought I will let charges stand where friend Thompson makes me say that a bee-keeper means one man and one woman and three children—by making the number of children unlimited, as I have seven.

In the short and hurried conversation held in the corridor of the capitol, just before the session alluded to, in friend Thompson's article, I failed, perhaps, to give the names and date of birth of each one of us, knowing the aversion old bachelors have for such things. But, if friend Thompson and Somnambulist will draw from my utterance,

before the convention, instead of from their imagination for thin facts, I think it will be plain to them that, I did not make an undue use of the capital I, nor did I take unto myself all the glory of producing my magnificent last year's crop of comb honey (an average of 173 spring count.)

If I had given the impression that a bee-keeper means a man and woman, and some children, I will stick to it, and say that a man possessing the above mentioned perquisite, is a BETTER bee-keeper at least than any "old bach" Thompson, Rambler and Eversole et-el, to the contrary notwithstanding.

Why every man nearly, takes a wife just before he accomplishes anything notable, or at least soon after—witness Gen. Fred Funston and Admiral Geo. Dewey. The only reason why I can accomplish more with bees than friend Thompson is just because of "that woman" and those children that he has chosen to hold up before the public gaze. You see, Mr. Editor, while friend Thompson is scalding out his milk bottle and fixing up SOMETHING agreeable to the average "old bach" stomach for dinner and arranging his toilet for the days work, I can order the son to hitch up the team while I fill the wagon with what is needed for the day; daughter can put up a good dinner of good wholesome home-made rolls, Jersey butter and take from the oven, a big, hot, rice pudding that will be nice and healthful for dinner, while mother is picking up and giving orders to the other daughter as to the household duties for the day. All aboard! and off we go for the day's work, all with a common interest, none of us drawing wages but all working for a common fund out of which the next years larder must be kept full. Arthur must have

his expenses paid as a senior in the University; Ethel must attend the High School; Helen must have some music lessons, another payment on the piano and M. A. Jr. must have clothes and books along with the lickings he is liable to get before another crop comes in.

The "old back" hasn't these incentives and if he has hired help, he hasn't these incentives, either, the most they care for as "a rule" is plenty to eat and time to meditate. I wonder if it would be news to either the gentlemen named in this article, that "incentive" cuts quite a figure in the size of the honey crop as well as along other lines of success in life.

In order to remove those "misleading assumptions" that friend Thompson so strongly objected to I will say that I have 600 colonies to care for (I say "I Sommy" because wife says I am Supt., and all she and the children do is to do the work.)

I have the hives for the new swarms already. Wife has 1000 8-frame supers filled and we will have 2000 ready before the honey flow begins.

I want to say to my bachelor friends that seem to think that a woman isn't worth keeping, that wife filled 60, 8-frame supers with full sheets of foundation one day last week with a Raufuss press in six hours and a half.

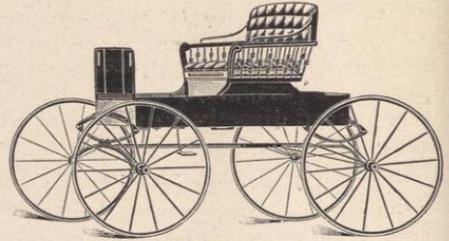
I am—excuse me, we are so busy and will be for some time that I cannot tell all, nor deny anymore. But if friends Thompson and Somnambulist will visit us this season we would be very glad and will show them how we do things.

The beautiful sentiment that oozed from the tender heart of Somnambulist has touched me and I would like to meet him.

Longmont, Colo.

After 28 Years.

We are not much in sympathy with advertisers who make use of extravagant claims as being "biggest," the "best on earth," "none so good," etc. When, however, these or similar claims are borne out by the actual facts we believe that the advertiser has not only a perfect right, but that he should make the facts public. This is brought to mind by the advertisement of the Elkhart Carriage and Harness



(NO. 232 OPEN DRIVING WAGON.)

Manufacturing Co., of Elkhart, Ind., who regularly use this paper in season. These people for the past several years have been laying claim to being "the largest manufacturers of vehicles and harness in the world selling to the consumer exclusively." To one who will take the pains to investigate, or what is better still, if it is possible, go to Elkhart and look over this institution and examine their methods of doing business this statement will appear as modest and entirely within the bounds of truth. Of course this result is not one of sudden attainment; it has taken more than 28 years of hard and persistent effort to bring this institution up to its present high plane. Having decided long ago that the public would much prefer to deal direct with the manufacturer, the man who made the goods, if the people but could be convinced that they were getting the best goods at the lowest procurable price, the Elkhart people inaugurated their present system of doing business. That their methods have been approved and appreciated is evidenced by the growth magnitude and prestige of their present business. In their two factories at Elkhart they manufacture 178 styles of vehicles and 65 styles of harness. In vehicles they are prepared to supply the public with every conceivable article from the open buggy through phaetons, stanhopes, a line of top buggies, surreys, two and three seated carriages, traps, spring wagons, etc., to wagonettes, busses and all classes of delivery wagons. In harness they have anything from single strap buggy harness all down the line to best double team harness for farm work.

Do Bees Prepair Different Kinds of Food?

L. STACHELHAUSEN.

In the March No. of the PROGRESSIVE, Mr. S. E. Miller writes about some problems concerning the nurishment of the queen and larvae. All these questions are settled since many years, and the American bee-keepers could know all about them,

if they would not generally dislike too much scientific explanations. Once in a while I have said something in the bee-papers about the nurishment of the bees, and had done more in this line, if the readers, as well as the editors, would be more favorable to these questions. So even our prominent bee-keepers show their lack of knowledge in this respect.

Now, I will try to answer Mr. Miller's questions:

"Do the worker bees withhold from the queen egg-producing food, when they contemplate swarming?"

We know, since more than 45 years, that the queens and drones never eat pollen, but the worker bees feed them a food, which they prepare in their chyle-stomach. Later, it was proven, that this food is fully digested pollen, is called chyle and is identical with the blood of the bee. Besides this, queens and drones help themselves to honey, which is fully digested nectar. So we see, in the body of the queen, no digestion at all takes place, and she is fully dependent on the workers for nurishment. This chyle is rich and albumen, and very nurishing. A good queen in a strong colony is able to lay 3000 eggs or more a day; as these 3000 eggs weigh 0.60 grains and the queen herself 0.20 grains only, she is able to lay eggs, of 3 times her own weight per day. This enormous ability of production is possible only, because the worker bees prepare the blood for the queen and feed it to her in large quantities.

We see that the quantity of eggs laid by the queen is dependent of the quantity of this albuminous food she receives from the worker bees. So we see it can be no doubt, that Mr. Miller is correct, when he supposed that the worker bees did not supply the queen with the nec-

essary egg-producing food during the swarming mania.

But, Mr. Miller asks some more questions:

"Does this food differ in any way from the food supplied the larvæ intended to produce workers?"

The larvæ receive quite the same food, that is chyle regurgitated from the stomach of the worker bee. Nevertheless we find the necessary difference in nurishing of the different kinds of larvæ. Queen larvæ are supplied with pure chyle till the cell is capped in large quantities; we call this food royal jelly. Worker and drone larvæ receive the same chyle during the first 3 days only, afterwards the food is less digested by and by, and we call this food chyme. From the 5th day, till the cell is capped, honey and pollen is fed to worker, as well as drone larvæ.

Mr. Miller thinks that bees may prepare various kinds of food for different purposes. If we see the analysis (of V. Planta) of the different larval foods, it may seem so. At present we are of the opinion, that the chemical composition of the chyle (and consequently of the blood too) is different to a certain degree according to circumstances, and we think this of much influence on the impulses of the bees, (see my article in "Southland Queen," Aug., 1900.) But at one and the same time the chyle of the bees of a certain colony is the same, no difference whether it is fed to larvæ or to queens or drones. Other writers are of the opinion, that the young nurse-bees prepare a different chyle according to their age. As long as we have no more chemical analysis, we are dependent on suppositions, and it would take too much space for this article to explain the different theories.

Converse, Tex.

At What Temperature can Comb be Built.

R. B. LEAHY, Higginsville, Mo.

Dear Friend—It is generally conceded that a high temperature is required to enable bees to build comb. I should like for you (if not too much trouble) to propound the following question to some of the wise men of the East, say Miller, Doolittle and others, and if in time, have their answer appear in the April issue.

Question—What is the lowest temperature at which bees can build comb? If you don't know, make a guess.

Between March the 1st and 22nd 1901, a colony of bees that I had moved, built two more combs about six inches wide, two smaller on each side about 3x6 inches and one or two still smaller outside of this

These combs were built fast to the cover of a simplicity hive in the upper story above the chaff cushion that covered the frames.

You probably remember that we had very little mild weather during that time.

I should like to see the replies to the question first, and will then give a complete account of the occurrence for the May PROGRESSIVE.

Weather here is not favorable to the bees. We have had scarcely any sunshine for the past week or ten days.

Yours truly,

S. E. MILLER.

G. M. DOOLITTLE'S Answer—From 90 to 98 degrees is required for successful comb building INSIDE THE CLUSTER OF THE BEES. The outside temperature has much to do with the matter, but bees can raise the temperature to the brood rearing and comb building point even in zero weather so that some comb can be built and brood reared, as has been proven many times. And that "point" is always from 90 to 98 degrees according to tests made with a self-registering thermometer.

J. W. ROUSE'S answer—In regard to the question you are propounding or rather expect me to propound,—I will say I do not know, but offer the following: I have seen bees fly, I now think, with the temperature as low as 40 degrees, but not much, they fly some better at 45 degrees, and work at 50 degrees so I conclude that they couldn't do much, if anything below 50 degrees, but as to what the temperature would be inside the hive I do not know, but suspect not lower than 90 degrees. I have heard that chicken eggs have been hatched over the brood nest of a colony of bees which takes 103 to 105 degrees, but I do not believe this unless it would be in July or August, when it is very warm weather and I would then doubt the statement. Never having suitable thermometer, for the purpose, I have never experimented along this line. I feel interested in the matter, and will look for the replies from the "big guns."
Mexico, Mo.

C. C. MILLER'S answer—If you mean at what temperature of the brood-nest bees can build comb, it may be replied that it is somewhere in the nineties probably. From your accompanying remarks however, it seems that you mean the temperature of the atmosphere surrounding the hive. That's another thing and the temperature depends somewhat upon the strength of the colony.

If a single bee is exposed to a freezing temperature, it will be a dead bee in a short time. Possibly it ought not to be called a dead bee, for it can be revived if brought into a warm place if it has not been left frozen too long. If there be a cluster of bees, the bee in the center of the cluster will not succumb to the cold as soon as the single bee, but it will succumb. If there be 50,000 bees in the cluster, with plenty stores within easy reach, a freezing temperature will not affect them unfavorably at all. And a much smaller cluster than 50,000 will withstand without injury, the same temperature.

Somewhere between the single bee and the cluster of 50,000, there must be found, the smallest cluster, that will withstand a temperature of 32 degrees, and a cluster of any less size will succumb. What the size of that cluster is, I do not know. I wish I did.

It is also true that a cluster of 50,000 bees will stand a temperature much lower than 32 degrees. For bees, to a certain extent, make their own temperature. Somewhere in the neighborhood of 50 degrees, is as low as bees seem to like in winter, for the temperature of the outer part of the cluster. When it gets below that, there will be a stirring of the cluster to increase the heat, each bee being a little furnace with honey as fuel.

Suppose that the air surrounding the cluster is at 40 degrees. Suppose also that the temperature of the cluster is 50 degrees, and that the bees are entirely dormant. In that case it is quite clear that the cluster will gradually cool down till it is of the same temperature as the surrounding air. But the bees are not dormant, and they will at once proceed to bring up the temperature. Just so long as the cluster is warmer than the surrounding air, heat will be given off from the cluster, and a continual production of heat will be necessary to replace that which is lost by radiation. That radiation is always of necessity from the outer surface of the cluster, so the outer surface will always be cooler than the center, or in other words the center will be somewhere above 50 degrees.

Now suppose the outer temperature keeps getting lower and lower. The lower it gets, the more rapid the radiation from the surface of the cluster, and the heat in the center of the cluster that was sufficient when the surrounding air was at 40 degrees will no longer suffice. So the heat must be increased in the center of the cluster, and when the outer air becomes cold enough, the heat in the center of the cluster will

rise to that of summer, and we have the paradox that the colder the weather, the warmer the cluster.

It must not be understood that the heat in the center of the cluster must depend entirely on the surrounding temperature. Anything that excites the bees to greater activity will increase the heat of the cluster, so that temperature MAY be brought up at anytime; but as the outside temperature lowers the inside MUST be brought up if the colony is not to perish.

With these principles fairly understood, we are ready for the question, "What is the lowest temperature of the air surrounding the cluster that will allow the bees to build comb?" The answer is that the colder the surrounding air the more nearly will the heat of the cluster be to the point of comb-building, so there is no degree of cold so severe that comb-building may not take place, unless so severe as to stop all vital action, a degree that is never reached under natural conditions when a strong colony has plenty of stores within easy reach.

It may occur to someone to inquire: "Why is it we are so constantly told that about 45 degrees is the proper temperature for a cellar, if 50 degrees is the temperature to which the cluster must be raised? Why not have the cellar at 50 degrees and save the bees the trouble of raising that additional 5 degrees?" The answer is easy. Practical experiment has shown that bees are quieter at 45 degrees than at 50 degrees. That answer may silence, but with some it will not fully satisfy. Well, then, the answer may be something like this: The bees are never entirely dormant, so they are always producing a little heat, and if the surrounding air be at 50 degrees then the additional heat produced by the bees will run it above 50 degrees. Moreover it is not possible to keep the air of the cellar constant, and if it is a little too cold the bees can bring it up, but if it

is too warm they cannot cool it down.
Marengo, Ills.

My question under date of April 5 was sent to Doolittle, Miller and Rouse and as I presume the Editor intends giving their replies in connection with this, it will not be necessary for me to give them here, I will therefore proceed to relate the circumstances:

On March 1st, I moved four or five colonies a distance of about three miles on a common farm wagon. As I had some others which I wished to take to the home yard on my return trip I did not take time to examine them after placing them on their stands, but simply opened the entrances and departed. The frames in these hives are mostly the loose hanging frames having metal corners.

On March 22, I visited this yard and examined the bees, and notwithstanding the metal covered frames, bad roads, and a wagon without springs, found most of the moved colonies in good shape and the frames very little shaken out of place. However, I found one exception, as the cover was nailed down I had to pry pretty hard to remove it, and after the nails had pulled out the cover still seemed too heavy.

Imagine my surprise, when looking on the under side, to find a cluster of bees larger than the crown of my hat, hanging to it. Soon I saw beautiful white comb in the midst of the cluster and further examination showed eggs, larva, and sealed brood and also quite a bit of nice honey in the combs.

The frames had become jostled out of place while on the wagon; some crowded together and some far apart. Evidently this did not suit the bees, so they concluded to move up stairs.

This was a ten frame simplicity hive, with an empty body on top and about a four inch chaff cushion in this over the frames. Over the cushion there was only the ordinary simplicity cover and to this the bees had attached their combs. The cover was not sealed down

as they had not had a chance to seal it, but as there is usually an accumulation of propolis around the rim and I had driven two nails diagonally through the rim of the cover and top of body, this may have made it a fairly tight compartment.

And now as to the temperature (outside to which I of course had reference.) I have taken the twenty days between Mar. 1st. and 22nd. Fortunately my father happened to be keeping a record during the time. To give the temperature for each day would require too much space, so I will give only the highest, lowest and means in degrees and hundredths.

Highest temperature,	72	degrees.	
Lowest	18	"	
Mean	44	"	.55
Mean maximum	52	"	.70
Mean minimum	36	"	.40

The mean temperature outside we see, was 44 degrees and 55 hundredths. Rather a low temperature for comb building, is it not? I admit that I had not given this matter much thought, but had I been asked about it I should likely have said that bees would not build comb at that temperature, at least not combs of considerable size. But when we strike some of these old heads we find they know all about it.

Friend Rouse, your modesty and honesty admit that you do not know much about it and get some of that chicken business mixed in with it. Anyone would know from that, that you are a chicken fancier.

Doolittle, you give us the facts in a few words and to the point. I can see by your letter that you were in a hurry. My father is one of those very polite writers who never has time to write, and occasionally his epistles come back to him for identification and then he has a hard time of it. But never mind I had no trouble in reading it, I am used to such things.

Miller, you have used a type-writer so I have nothing to say even if you

did make a lot of saw-bucks. Really you have given us an excellent article on the subject and if what I have said does not amount to much, I am glad to have induced you to write it, for I feel that it will greatly interest many of the PROGRESSIVE readers. Strange I had not thought about this. When the bees find it is getting colder outside they raise more steam, that is, take on more cool (honey) just as we put more wood or coal in the stoves in our houses when we hear the wind raging outside.

Now, Mr. Doolittle, one more question If bees CAN build comb when the mean temperature outside is 44 degrees and 55 hundreths, and those on top of their cushion, up against the bare roof, why do they not need to be stuffed up and padded around to induce them to build comb when the temperature outside is 80 to 90 degrees? I believe they do, or have believed it, but I should like for some one to tell me why, I believe it. To prevent draughts and retain the heat do you say? Well then how did that colony manage it, and how about bees that build their combs to the limb of a tree as I have seen them do?

Bluffton, Mo.

Good Things in the
Bee-Keeping Press.
Somnambulist . . .



Queen clipping time the most interesting, yes fascinating feature of bee-keeping. Oh! the many happy hours spent in the warm, health-inspiring life, giving sunshine and bracing, balmy air. Happy bee-keepers! How many of them, stop to think that the dollar and cent stimulus is not all the benefit derived from the pursuit.

Doolittle in American Bee-Keeper, gives two good reasons for clipping queens:

In the first place I will give an item rarely spoken of regarding this matter, and one which I consider of first importance, which is, that a queen having her wings clipped short is much more readily found when looked for than one which has her wings; and as in our manipulations with the bees it is often necessary to see the queen, so as to keep her where we desire, this finding of a queen is quite an important item.

Second. In the swarming season we have complete control of the bees, so that we can compel them to do as we like.

In treating on contraction F. Greiner begins with a quotation from Dr. Dzierzon:

"The art of securing a crop of honey in an off-year is understood only by those who have fully grasped what the nature of the bee is, in particular as it relates to their increasing tendency."

According to his ideas nothing is more detrimental to the storing of honey than excessive brood-rearing at a time when the harvest is on; but he says in good years the bees will crowd the brood-nest with the honey sufficiently, and thus reduce the amount of brood in the hive to a safe allowance. In years when the flow is light, the bee-master must see to it that too much brood is not reared; he must contract the brood-chamber. Dzierzon advances here another and singular idea; he claims in a poor honey-season the bee-master will reap greater profits from his bees than in a good season, on the basis that in a poor season he alone has honey to sell, and that at a good price, while in a good season every bee-keeper has honey to sell, the markets are overstocked and the prices are too low to leave a profit.

He concludes his comment by warning against a too severe restriction, saying:

Five L-frames are the minimum and six are better.

With two or more selections from Mr. Greiner's article we must pass on.

It is stated in the Leipziger Bienen-Zeitung that bees stupefied with puff-ball will, when they regain consciousness, have no recollection of any previous occurrence. This peculiarity, if true, may be made use of in case of bees robbing, the robber colony to be treated; also in case of moving bees a short distance.

Poisoning bees is upheld by law in Bavaria. The bees of a bee-keeper in Grossengull were being robbed by those of another bee-keeper near by. The first named shut his

bees in and placed poisoned honey near his hives. The result was that colonies of the neighbor were very seriously injured. Complaint was made and the offender sentenced to twenty days' jail and to pay a fine of \$75. Exception was taken and when the matter came before the higher court the former decision was annulled. All bee-keepers of Germany should enter their protest; and it would seem to me there would be some work for an organization. I wonder if the Central Verein and the Wander-Verein of German bee-keepers cannot take care of such a case. Cases of this kind speak very plainly for organization. The American bee-keepers are well situated, if they will only avail themselves of the opportunity offered them. To join the National Bee-keepers' Association is a cheap way of insuring against these possible dangers.

One letter on the Amateur table begins in this way:

Wake up to the new conditions and take THE AMERICAN BEE-KEEPER! Bees do not give surplus these years to bee-keepers who care for their bees in the same matter that their fathers did. The men who are reading and contributing to the bee-papers are finding out new kinks that are of value to the bee-keeper who doesn't live in a shell. If we only could get every man who owns, even one colony of bees to take and read a bee-paper, what quantities of luscious nectar would be saved!

This advice is equally applicable to the PROGRESSIVE or any of the many live bee papers. The bee-keeper who permits himself to go hungry for bee literature, is robbing himself immeasurably.

As to "changed conditions," about which much has been said of late, in many instances, are there not room and even active demand for the same?

Dr. Miller's straw pile in Gleanings, next attracts our attention:

I would say to beginner, page 240, don't trust entrance guards or clipped wings to prevent swarms going to the woods. Either one will prevent the queen going away, but she will surely be killed a few days latter. [You are correct according to my experience.] —Ed.

Some will like Poole's entrance-contractor, p. 238, and some will prefer the simpler plan of Langstroth—two triangular blocks, with three unequal sides. By placing these in

different positions, and by taking them away together, the entrance can be made of eight different dimensions.

Gravenhorst's Bienenzeitung gives a picture of Alberti's wander-wagon for migratory bee-keeping. It is really a house-apiary on wheels; contains 50 colonies, and costs \$150. When the harvest is better elsewhere than where you are, close the entrances at night, hitch on two stout horses, move to the better place, open the entrances, and the bees are ready for work in the morning. Extractor, etc., are inside the wagon, and the bees remain the year round. [Dr. Miller sent us a print which we have had engraved. It is reproduced on page 289.—Ed.]

"Some who are very fond of candied extracted honey care very little about comb honey. Personally, I much prefer it in this form to comb honey."—C. Davenport in American Bee Journal. "Now, how can a man talk that way?" will probably be the mental comment of many a one who reads that. But facts are stubborn things. I have a niece who will not eat comb honey, but is very fond of candied extracted, and it is possible there may be so many cases of this kind not suspected, that it would make quite a market for candied honey.

Yes facts are stubborn things, and you have only to offer first class extracted honey a very few years until you will find smooth sailing, the current of public opinion not only flowing with you but every now and then some particular one will lend a helping oar just as in the above case. And what can excell pure white candied honey? Its cream-like consistency, its inviting aroma, its delicate flavor, who can describe its desserts. It has come to pass that comb honey has every reason to wish "tother dear charmer away."

The jolly Dr. thinks he has one on me, as evidenced by the following:

One who places such high estimate upon the value of wives, and shows such discriminating judgement regarding them, would surely be expected to have a wife of the best type; and yet, if I am rightly informed, Somnambulist, who is no longer a "spring chicken," has never had a wife.

Make light of ones misfortunes and herald them before the public too, how could you Dr.? There is

still a crumb of comfort left me, however true this may be, it does not prohibit my appreciating other peoples' wives as well as all other good women who happen to be nobody's wife. The possession of an object sometimes lends us a sort of a "matter of course" feeling, while at the deprivation of the same leads us to a knowledge of its true value.

Over seven pages of *Gleanings* are occupied by a symposium on the melting of old combs. The various squeezing devices are described and illustrated leaving little if anything to be squeezed out of this subject. Exhausting a subject on squeezing it dry, is a leading feature of *Gleanings*. The editor winds up all this display of ingeniousness by the exceedingly practical and simple observations:

That it pays; and pays well, to put all the slumgum from old combs in a press of some kind before throwing it away. A good press ought to pay for itself in one day's time; yes, and I should not be surprised if it would do so in one hour's time. I do not know of any better way for a bee-keeper to make good wages than for him to make a wax-press or buy one.

and later adds the following:

In every well-regulated apiary, in the course of a few years there will be a very large percentage of old combs that for some reason ought to be rendered up. To put these in a solar wax extractor is a long job, and necessarily wasteful in its results, for sun heat will get only a part of the wax out of such combs, as I know by experience. We could put them through the solar machines and afterward put the refuse into steam wax-presses or we could put them in boiling water, pressing out afterward. *a la* Gemmill. But better, far better, not use the solar wax-extractor for old combs at all. Such machines are used only in the handling of new wax like burr-combs and new combs. While we still sell solar wax-extractors, and are glad to see the sale increase, yet it is only fair to say that their use is limited. For the handling of OLD BLACK combs, steam or hot water, AND A GOOD PRESS, should be used—otherwise there will be an enormous waste.

As waste may and often does create want, this is no moonshine matter

and for the benefit of those who may have neither time nor inclination to contrive a press nor have money with which to buy one, I will say that lard presses have been pressed into service on such occasions with very satisfactory results. There is also a new fangled mop-wringer now on the market which with the aid of a piece of gunny sack or strong loose meshed cloth makes a very acceptable little press.

Nothing like being able to adapt one's self to circumstances and using up odds and ends that lie all around us. A winter storm tore away ornamental sheet iron work from an awning. For months it lay neglected in a rubbish pile, until a woman unearthed it, had it straightened out, and arranged as a curb around her flower bed, which it now graces and is at once the wonder and pleasure of each observant eye. Changed conditions did it all, and just so may "changed conditions" raise us from unattractiveness and neglect to attractiveness and prominence. Not that prominence is so desirable but of the two extremes most people would prefer the latter. Think of it "changed conditions" has more than one meaning, it is almost an unlimited subject, and don't think "changed conditions" depend on others but look at it in the light of depending mostly on ourselves.

Beside an illustration of Alberti's wander wagon referred to in Dr.'s straws *Gleanings*, gives one of a portable honey house or a honey house on wheels. It has much the appearance of any other little house wagon such as threshermen use for a cook shanty, or the itinerant sleight-of-hand performers or photographer's car. As threshing is mostly done between the spring and fall flows, it would seem as if the

same rig or outfit might be made to serve both purposes.

Naptown, Dreamland.

The Cliff-Dwellers:

by

J. M. Davis, Spring Hill, Tenn.

(This story began in the December issue.)

"That's all, Tom; most of our troubles are merely imaginary ones. That straw in your wagon is just the thing to prevent jarring the the bees and breaking the combs. Thanks, Tom, but don't stand off so far; you didn't do that bad during the four years you fought for your country—besides you were in danger then; now you are not. I will sit on the hive to hold it steady."

"All right, Kunnel; Git up, Bob. Say, Kunnel, wat you go four-hundred miles fur them bees for? I've got ten gums up in my orchard thet I'll sell you fur ten dollars, cause they do me no good."

"I have plenty bees, Tom; but these are a new kind that Billings and I imported from Bologna, Italy. They are larger than your bees, more prolific, stronger, have a longer proboscis and can gather honey from flowers not visited by the native bee—besides they are perfectly gentle, and rarely ever sting."

"Wal, Kunnel, thets a heap o' squirrels up one tree. Did you jist hear thet, or do you know it? I've heard of the high-heel'd bees, but I didn't believe thar wuz any sich a bee."

"Yes, Tom;" I knew it, I have several hundred colonies of them, and I have tested them sufficiently to prove their superiority, Mr. Willis, who has traveled extensively abroad, reported finding the finest bees in Italy, where these came from; and as I wanted to improve my already good stock I imported these, and have just been

after them, to see them safely home. I have ten fine queens in my grip here.

"Queens? why I thot they hed kings; thet's what my dad said, an he was a pert bee man. Oh! I see, you hev got widders."

"Why yes, Tom, though I presume you are the first man in the world to use that application, though it fits them—because their spones are all dead, guess I will have to report that to the Editor of THE PROGRESSIVE BEE-KEEPER."

"Wats the 'gressive, Kunnel?"

"Its a paper or Journal published at Higginville Mo., and a good one, too. Here is a copy, read it at your leisure, and you will learn something about bees."

"A Bee-Journal, why I never thot they culd print nuffin bout bees, to make a big buke like this, I declar, thets noose to me. Sara Jane an I will hev a picnic an no mistake."

"Tom, stop just a minute, until I turn this hive. You see I have it sitting crop-wise of the wagon, so that as the wheels pass over rocks, or drop down in these ruts, the comb will receive the jar endwise, and not be broken. They are much harder to break that way; but going up this very steep hill it would cause the hive to lean sideways, and the comb is much easier to break out that way, besides its getting quite hot now, which makes the comb break easily. All right now, and when we get to the top of the hill I will change it back as it was at first.

Now that was a hard pull, alright again, Tom, but drive slow this is a very rough road, I would not destroy this colony of bees for fifty dollars."

"Gee wiz, Kunnel, why I'd sell you half dozen yearlings for fifty dollars. I never thot they wuz worth morn two dollars."

"Yes, Tom, they have a full supply of eggs and young larvae and a great many drones, so I can commence rearing queens at once—but here we are. You tie Bob to that post while I open

the gate, and I will trouble you to help me place the hive under that apple tree. Never mind, the bees won't sting him, they have to rise above that row of trees to get out of the bee yard, and they will not come down to sting anything. Oh! you need not be afraid, the bees will not bother you, even if they light on your whiskers, they will just rest awhile, and be off about their business. "That's right, except your side is a little low. The hive must set level sideways but pitch a little forward to keep the raise from running in on the bottom board. I will just remove this wire cloth from the entrance, and place this quietly over the screen on top, and let them have a fly, while I show you around the yard. Now, Tom, I like to tell my friends the little I know, if it will benefit them. I know that you are my friend for you risked your life at Missionary Ridge to take me off the battle field, while bullets were flying as thick as bees in this apiary, and more than that, I know I can benefit you if you will just drop that imaginary danger you fear, and learn bee-keeping. Note the gradual south-eastern slope of this yard, and that my hives all face south-east **DOWN THE HILL**. That grove of thick timber, and the barns on the north side, make good wind breaks.

The apiary is laid out as the fruit men say, **IN DIAMOND**, which allows placing more hives on a given size plat of land, allowing them to be the greatest possible distance apart; this plan gives you streets and alleys running in all directions.

When I want to use my light Jersey-wagon moving colonies of bees, with one assistant, I can run the wagon zig zag around through the yard, and pick up hives anywhere, and never strike a hive. We draw it out at the gate and "CHANGE HORSES."

This is my extracting room, made of tongued and grooved flooring—entirely; even the sheathing end is put together

ant tight, though just along the edges of the floor next the wall, I keep a small ridge of quick lime, as a safe guard against ants. This incline is to run my wheelbarrow upon the extracting floor, which is three feet above the main floor, and covers two thirds of the room, leaving the one third at the back end of the room, where you see those large honey tanks, they are placed on a strong platform just high enough from the lower floor to draw honey through the fancets into the bung hole of the barrels, or into bottles or tin cans. The tanks hold sixty gallons each. The honey runs from the extractor you see fastened to this frame, which makes it just the right height for convenience also, to allow the honey to run from the extractor through that tin gutter on the strainer cloth you see stretched over the tank; this saves handling buckets of honey. The tanks you see with the cloth stretched tight over them, are full of honey; the thin cloth keeps out trash, and at the same time allows any moisture that is in the honey to evaporate, or as we say **CURE**. After it has cured, which takes ten days or two weeks, if I need the tanks for more fresh honey, the first extracted is drawn off into barrels, or sixty pound cans—I use cans altogether now, and shove them back under the extracting floor, where they stay until sold.

These wire cloth windows revolve on pivots so as to turn around, and throw out any bees that come in with the honey. There is also a bee escape at the top; many bees get out there. The combs overhead are surplus comb that I am keeping until needed. In building this room I made the roof steep so that it would last, and at the same time give me room to store empty combs; the rafters are two by four inches, and placed exactly seventeen inches apart. I made comb racks by nailing one by six strips across the room, beginning at the foot of the rafters, nailing all strips on the front side of the rafters; this just gives three-eighths of an inch between the ends of the frames and the strips. The upper strips are nailed so the top edges are just ten inches apart, this gives me six tiers of combs holding about three thousand, spaced so as to allow a free circulation of air

[To be continued.]

The Progressive Bee-Keeper.

A journal devoted to Bees, Honey and Kindred Industries.

TERMS: Fifty cents per year, in advance.

G. M. DOOLITTLE & R. B. LEAHY
.....Editors.....

Prospects are fine here for a good honey crop.

Bee-keepers of Southwest Texas, have obtained already a fair crop of honey, but the flow which has been almost phenomenal has been cut off by lack of rain.

A putty knife is a very useful tool about the apiary; not to putty up the knot holes or crevices, but to scrape propolis of the hives, pry frames apart with, and for scraping off burr combs. Good ones can be had from 20 to 25 cents. Try one.

Under date of May 2nd, Mr. O. P. Hyde, of Hutto, Texas, writes: "Prospects here for a large honey crop are better than for many years. So many honey producing plants are developing that we will likely have honey enough to drown an elephant in within the next two weeks."

The National Bee-keepers' Ass't will hold it's next meeting at Cleveland, Ohio. Secretary Mason has sent us minutes of the progress of the Directors of the above Ass't, and we hope to print it in full in our June number. We understand that the date of the meeting is not yet set, but will meet at the same time as the American Pomological Society meets, who have not yet set their date.

A subscriber asks: "How soon after a swarm has issued, would it be advis-

able to take the old queen away, with the object to let the colony raise a young queen themselves?" To the above my answer would be not to disturb the old queen until at least four frames are filled with eggs. Of course in this case there may be eggs very much advanced toward the perfect bee; then again, if the queen is very prolific, and a good honey flow is on, she may fill this many in four or five day. In either case, the bees will have eggs to their liking from which to rear their queens, and they will choose eggs as far advanced as nature has taught them to do, with a view of developing a queen as soon as possible. Some writers think that eggs in such an advanced stage as the bees would choose, are not the best; that queens bred from such eggs are short lived, and un-prolific. I have never seen any difference.

Early Pollen:—In this locality, the first pollen in spring comes from skunk's cabbage. This is followed by pussy willow, soft maple, elm, hard maple and fruit bloom. This pollen stimulates the bees to brood rearing and great activity, upon which much of the profits of the season depends. In selecting a location, a person should know that some one of these pollen producers, or others equally good, are present, if they would expect success. Artificial pollen, such as rye or oat-meal, can be substituted, but none of them can ever take the place of natural pollen as a stimulant to bees.

Packing Pollen:—An amateur bee-keeper once told how this was done in these words: "When a bee brings pollen into the hive, she advances to the cell into which it is to be deposited, and kicks it off; another bee, one of the indoor hands, comes along and rams it down with her head and packs it into the cell as the dairy maid packs butter into a firkin. The paper publishing, said, "We prefer not to have any dairy

maid pack our butter that way." Another paper seeing both of the above remarked, "If our butter must be packed in that way, let it be done by a bald-headed dairy maid." Still another paper, after reading all the above, ventured, "We will add that in either case it would be DAND-RUFF on the butter."

Honey Vinegar—In a twelve year old newspaper I ran across the following: "Those who work their bees for extracted honey should not lack for the best of vinegar. Honey should not be extracted until thoroughly ripened by the bees, which ripening is shown by the bees capping the cells. These cappings are easily removed preparatory to extracting, with a honey knife. After being removed they are allowed to drain twenty-four hours, when they are rinsed in a tub containing spring water. After remaining in the water a few hours the cappings are squeezed into balls, like snow-balls, and laid away. The rinsing is continued till the water will float an egg, when it is set in a cool place for vinegar. In about one year it becomes the best flavored and colored vinegar to be found, and in all respects and for all purposes, is better than any cider vinegar ever made. It becomes vinegar more speedily in stone crocks, covered with mosquito netting, and set in a cool place; makes fine vinegar in 90 days, but much better in 365."

Decoy For Swarms:—In the same old paper containing the above about vinegar, I find this: "A good way to catch swarms is as follows: After each melting of wax preserve the residue of dirt, pollen, cocoons, etc, which is left after the wax has been pressed out, until enough for the purpose has been obtained, when you will add to it one-half pound of rosin and melt it all in an old vessel. Then having secured some old mullen tops, take an old spoon and spread some of the mixture onto one side of two or three, then keep

adding more tops and of the mixture, until the whole cemented together is a fairly good representation of as warm of bees when you have an excellent bee-bob. When the swarming season comes on, hang your bob on the limb of a tree, or a pole in the apiary, within the reach of your hand and of the bees also, and nearly every swarm will settle on it. For something to hang it up by, put in a good stout wire while making, cementing it in at the center." Here is, I think, a good thing for those who allow of natural swarming, for, years ago I tried mullen tops without the cement part, and would have three out of every four swarms which issues alright on the bunch of mullen tops. Mullen tops, which have stayed out in fields during winter, more nearly represent clustered bees than anything with which I am acquainted.

Keep One Colony For The Purpose:—For various reasons there are often those, especially beginners, who wish to be looking into the bee hives during the spring of the year, to watch the combs and brood as the bees are developing in them. The older beekeepers generally conclude that this is not necessary, and I agree, after one has once learned the inside workings of the hive. But I find, even after I have been in the bee business for 32 years, that I am like most beginners and so every spring finds me as eager as ever to look inside the hives to see how things are getting on; in fact, such looking is so enchanting to me that there is more fun in it than there is in almost anything else. And so I keep at it very much the same as I did thirty years ago. But I have learned that such overhauling of a colony does it no good, so of late years I set apart a certain colony to have fun with, and thus the others are not promiscuously overhauled and disturbed when not necessary, and often to their hurt, especially during the month of May, when, in this locality, the ceiling at the

top of the hive should be broken as little as possible.

About Entrances:—After the first flight of the bees in the spring the entrances to the hives should be regulated to suit the size of the colonies. Later on these entrances should be enlarged from time to time as the growing strength of colonies require. I allow to the strongest colonies an entrance of two inches by three-eighths, after their first flight, and from there down to only one-half inch by the three-eighths for the weakest, and they are kept thus during early spring. With the opening of the willows, or the first bloom upon which the bees work to an extent, it will be found that these entrances are too small. They should now be enlarged sufficiently, but not more, so as to allow the bees free access in and out of their hives while working. An entrance as small as is consistent with the requirements of the bees, has very much to do with the rapid building up of the colony in the spring, as a large entrance carries off much of the heat generated for brood-rearing, on cool days or cold nights.

Encouraging Brood-rearing:—The object that should be sought to be accomplished during the spring

months is, through natural means to encourage our colonies to their utmost capacity in brooding. To this end the winter packing is to be left on as long as possible, if removed to soon, and while the colonies are weak, the brood may become chilled during some extreme cold snap. And even if this is not done, brood rearing may be seriously checked by fixing the bees for summer, or warm days in early spring, as many are prone to do. When the bees begin to be crowded in their winter quarters is soon enough to remove the packing, or expand the hive, and it should not be done before. During apple bloom is generally early enough to begin expanding the hives with the strongest colonies, and then only half story extracting supers should be added, if you have such; as full depth hives, filled with combs, give too much room above for the most advantageous brood-rearing at this time. But hives should not be kept contracted till the bees contract the swarming fever, for it is better to run the risk of giving a little to much room, than to have the swarming fever contracted. The point to be observed is to give room when needed; neither too early or too late, and just enough at all times, as near as may be.

G. M. DOOLITTLE, Borodino, N. Y.

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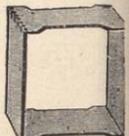
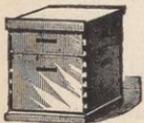


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Dear Friends:—It gives me great pleasure to forward you this unsolicited testimonial regarding the merits of Atchley queens. The (3) three dozen queens purchased of you have made an excellent record for themselves. Not an Atchley queen among the twenty colonies lost during the severe drouth in July. I have bought queens from many breeders, and although the present crop is exceedingly short, the tiers of supers show where the Atchley queens are and speak volumes for your method of queen-rearing. I find the progeny to be very gentle, strong-winged, uniformly-marked, long-lived, of large size, and last but not least the best honey-gatherers I ever had. I shall want 100 more next season.

Yours Fraternally,

J. C. WALLENMEYER.
Evansville, Ind., Sept. 27th 1900.

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We also have one second-hand six-inch mill for making extra thin foundation, and one second-hand ten-inch mill for making medium or light brood. These are for sale cheap. Write for prices.

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SOME GOOD THINGS

That have appeared in the Bee-Keepers' Review for the present year are as follows:

A Visit to the Coggshalls

The editor visited the Coggshalls last winter, and in the January Review he gives the gist of the methods that have enabled these men to build beautiful homes (of which pictures are given) and put thousands of dollars in the bank. W. L. Coggshall says it is the best "write-up" that has ever been given of their business.

The Frontispiece.

A special feature of the Review is the beautiful frontispiece that it gives each month. This month it gives a characteristic California scene—snow capped mountain peaks in the distance, valleys and orange-groves in the middle distance, and a great irrigation-reservoir in the foreground.

Fertilization of Queens in Confinement.

The special feature of the February Review is an illustrated article by J. S. Davitte, telling how he secured the the mating of 100 queens in confinement. Full particulars are given.

Working According to Locality, and Killing the Queens Each Summer.

The March Review has an article on this subject, and I think it one of the best, if not *the* best article, that has ever appeared in the Review. The methods described are probably not adapted to all localities, but the thoroughness with which the writer, S. D. Chapman, of Mancelona, Mich., has studied out the conditions of his locality, and devised a system of management adapted to the conditions, is a most interesting and encouraging object-lesson.

Wake up, Bee-keepers, to the Changed Conditions.

In the March issue is commenced a series of articles from men who have made money by "Keeping More Bees." You can do the same. I consider these articles the most timely and helpful of any the Review has published. They will be continued into the April, and possibly into the May, Review.

Three Editors.

The frontispiece of this issue is from an 8x10 photograph, taken last February, at Madison, Wis., and shows the editors of Gleanings, American Bee Journal, and Review.

Special Offers.

The Review is \$1.00 a year; but to each one sending \$1.00 for 1901 I am sending 12 back numbers (of my own choosing) free. For \$2.00 I will send the 12 back numbers, the Review for 1901, and a queen of the Superior, Long-tongue Stock. Queen alone, \$1.50.

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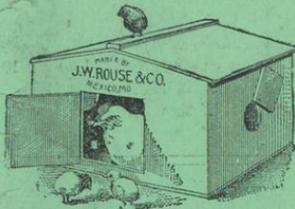
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