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Vol. V.

No. 6.

# NATIONAL

# BEE JOURNAL



A MONTHLY MAGAZINE  
DEVOTED EXCLUSIVELY TO BEE CULTURE.

EDITOR & PROPRIETOR,  
MRS. ELLEN S. TUPPER,  
DES MOINES, IOWA.

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## JUNE, 1874.

DES MOINES, IOWA:

HOMESTEAD AND WESTERN FARM JOURNAL PRINT,  
313 AND 315 COURT AVENUE.



# NATIONAL BEE JOURNAL.

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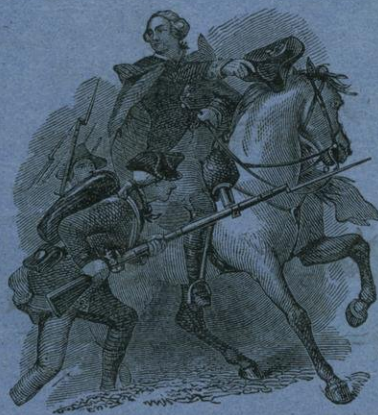
I have on hand, for the spring market, a limited number of Queens bred from select—price Five Dollars—and shall be able to furnish pure Queens throughout the season at reasonable prices. Novice Queens, \$1. **A. SALISBURY,** Camargo, Douglas Co., Ill. 4-1f

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# NATIONAL BEE JOURNAL

DEVOTED EXCLUSIVELY TO BEE CULTURE.

VOL. V.

JUNE, 1874.

No. VI.



Correspondents are especially requested to write on one side of the sheet only. Many of our readers doubtless have valuable practical ideas on bee culture, who feel incompetent to write for the public press. Send them to us in your own way, and we will "fix them up" for publication.

## NOTES FROM LOUISIANA.

We live a long ways apart, and the recent floods have made the mails uncertain and irregular. We, on the Vermillion, had high water, but being out of reach of the great Mississippi, were in no great alarm.

We live in a prairie country, but on this southern border we have fine forests.

I am only a *novice* in the business, but must think this is a good bee range. Incredible quantities of honey are sometimes taken from a common barrel or box hive, and I never, anywhere, heard of so many runaway swarms. Numbers are picked up every year, but by bad management they go to destruction almost as fast as they increase.

They increase finely sometimes, but there comes a bad year, in which they are swept off in vast numbers. This is owing mostly to injudicious robbing, and want of insight into the condition of the hive.

The population here is mostly Creole French, but many others are coming in, and strange to tell, there are few,

very few, who have heard of dividing bees, or of the queen being the female. I gave a neighbor, last month, a caged queen for a swarm of common bees. This created great excitement.

I have only been in this State three years, and owing to scarcity of bees and superstition I could not buy or beg a single swarm. "*Bad luck to give or sell.*" I found a runaway swarm (there are many wild bees in the woods,) just two years ago. Just one year after it increased to six, by natural swarming. I bought two Italian nuclei last year, one of them in August, and I now have ten Italian stocks, and young queens to these common stocks this spring, which would have been lost, as they were queenless from some unknown cause. They are now flourishing. Many a country swarm is lost in this way.

I have observed as closely as possible, free of prejudice, and am fully satisfied of the superiority of the Italian bees. They work now on white clover, and I rarely ever see a common bee so employed. This has surprised me.

I shall strive hard for one of those May queens.

I have now twenty one stocks of bees, and will soon Italianize them all. I removed a hive six miles in April, and in four days removed it six feet, and put a nucleus in its place, and the foraging bees returned and worked finely in this nucleus. The other, which was a large colony, became much disturbed, and hung at once in



knots on the outside of the hive, and the next morning there was a pint of dead bees, and still dissatisfied and carrying out dead bees. I looked through them and found plenty of eggs and brood, but could not find the black queen, which, no doubt was hid. When they were brought home they had filled the hive and had plenty of stores, although they had just swarmed and had been put into this hive about a month, and without comb. I took out about half of their stores, comb and all, and in four days they had consumed all I left, and appeared to have been busy at work all the time. Several large pieces of brood comb were left standing on the bottom board, as I could not well fasten them in the frames. What is the matter?

I will write monthly, but shorter hereafter.

I cannot understand how to keep reserved queens and have them fertilized. I raised queens all through March, and lost some from not knowing how to manage.

J. B. RAMSEY.

Louisiana, May 12.

#### NOTES FROM MICHIGAN.

Some of my neighbors, bee-keepers, commence feeding their bees as soon as they get them out of winter quarters, before the bees become reconciled, and by such management induce thousands of bees to leave their hives in search of honey where the little fellows left off gathering last fall. The weather being too cold for them to fly well, thousands are lost. The result of such management is, their colonies become weak, too few bees are left to generate heat sufficient for brood-rearing, the bees get discouraged, and swarm out, leave their hive, and then that horrible bee disease is the cry of the bee-keepers. Now I am not troubled with my bees deserting their hives in spring. I do not feed on days too cold for them to fly safely and return. I do not feed much until bees commence to carry pollen from

soft maple, then feed nearly as fast as they can store it. Remember the more honey the more bees now, so don't neglect to feed them every day until you are sure there is plenty to be gathered in the fields.

Some of my neighbors say I use magic to prevent bees leaving their hives. I think they will leave one person as soon as another with the same treatment.

A few words about running out the black bees and keeping pure Italians in their stead, which I have never seen from any of the veteran bee-keepers. If the bee-keeper has got one Italian swarms that he knows to be pure, build them up very strong by giving cards of broods from black stock (about first blossom time is generally the best time with me). When they become very strong and drones plenty, remove their queen to another colony and allow them to build queen cells. If you need many queens, remember this is the golden opportunity to start them in other colonies, so as to have them hatch at the same time that those do from whence you took your queens. Don't be afraid of black drones; but let them fly if any should be out at this time. Your Italian drones know what is up. You will then have a chance to test the superiority of Italian drones over black ones. You will also notice that if there are any black queens flying at this time in your neighborhood, there will be a majority of them fertilized by Italian drones.

H. M. R.

Michigan.

#### NOTES FROM ILLINOIS.

In your number of this month I see an article by —, stating that he had bought Italian queens of four different apiarians, and in the progeny of every one there were some black bees. Having been a breeder of Italian queens for several years, I think I can inform him why these queens have failed to raise pure stock. The evident reason is that either the queen, or the

drone with which the queen mated, was not pure—one or both had traces of the black bee about them. I have dozens of colonies in my apiary, and defy him or any one to discover any bee that has less than three yellow bands, or any difference as to size, color, or general appearance. My stock is composed of five crosses, different importations, properly crossed, and they have come from their winter quarters healthy and strong. At this time, they are carrying some pollen, and are breeding rapidly, but not so fast as if it had been a warmer April.

Bees in this section of the State have generally wintered well, though some parties have lost quite heavily.

WM. URIE.

Illinois, April 27, 1874.

#### NOTES FROM ILLINOIS.

Mr. Burche's question of "why will people persist in writing for the papers about things they know nothing of practically?" is very difficult to answer, and perhaps cannot be, as it seems to be one of those peculiarities of human nature so aptly eppigrammatized by "Alexander the little," (Pope) when he wrote "fools rush in where angels fear to travel."

This same question occurred to me on reading, some two months since, an article on bees from (or quoted from) "the *Scientific American*," where the writer avowed that bees could not make their work stick to glass, at the same time Mr. Langstroth, in his book, informs us that they build comb in glass jars and tumblers, thereby making the honey much more attractive and marketable, etc., while I, myself, have found fragments of comb stuck to the observation glass in hives.

Mr. John Hussey, of Lockland, O., I think makes a very good suggestion, but to put it into full operation requires the education of us little bee-keepers as to the different honey plants, their habits, forms, etc., not scientific botanical descriptions, but

plain statements of their habits, color of flower, shape of stalk, and leaf, etc. Can't you give us something of this in the JOURNAL? Now I hear a great deal about "Golden Rod" and have no doubt it is a valuable plant for honey; but I do not know as I ever saw it; at the same time I *presume* it grows in my neighborhood.

I saw my bees at work on tall, weedy looking plants last fall, after frosts had set in; but my knowledge of Botany being extremely limited, I could not say what it was.

My bees get early forage from willows, white-leaved poplar, and soft maple, (very few of the latter and all *young* trees just set out;) main source is white clover. I have not, in three seasons been able to induce my bees to take rye meal at all in the spring; the reason I *suppose* is, the weather has been too cold for them to fly, and when it came warm the willow and poplar supplied pollen.

I am an amateur—have four colonies—two Italians and two black (latter recently purchased, former wintered over), and so far as my limited observation goes the blacks are far the more peaceable of the two.

Italians are in "Kink" hives, with closed taps and "Novice" would probably account in that way for the difference. However I am going to give them a fair trial side by side this season, and if I find the blacks as good as they promise, I am going to pitch into some of those people who laud the Italians to the skies. I notice the peculiarity mentioned by some one recently of the blacks dropping off the combs like shot off a shingle." Now it strikes me this is a positive advantage where the extractor is used, as it saves time in brushing them off.

Well this is "spun out" much longer than I intended; please pardon prolixity, and if too much of it, consign it to the limbo of departed greatness—"the basket."

ROBT. J. COLBURN,

Cook Co., Ill.



## NOTES FROM UTAH.

We, too, have bees, away out here, in the heart of the Rocky Mountains; and this is a choice bee country and climate, although barren, rugged, and desert. When rains or snows fall in winter, the early spring flowers, in varied and gorgeous hues and thousand varieties, paint the hillsides with their bloom. Add then we have large fruit gardens, with terraced grounds and waterfalls, and plats and meadows of lucerne, upon which bees luxuriate; also, several acacias, each in its time furnishing forage.

Seven years ago, I started with one swarm, at \$100, in a box hive, and I knew nothing about bee-keeping. I have sold a score or more colonies, and now have in my apiary, all in frame hives, 125 good working colonies, just beginning to swarm and ready to increase.

The present spring has been near a month later than usual, causing the loss of many bees whose stores were limited. I had the misfortune to lose 60 colonies. We have no disease with our bees—no trouble except moth, robbing, and starvation, and our bees work nine months in the year. Colonies that were strong last fall came through safe and lively.

My apiary was composed of black bees until last year, when I introduced Italians; and now I have, in about equal proportion, Italians, hybrids, and black bees. The first named I like best for either breeders or honey gatherers. I use the Kidder hive. Now, if any of your readers have one really better, I will thank them to convince me of it, and I will pay, too. Our market price for honey ranges from 20 to 35 cents. Bees are in the heyday of industry.

I find white clover, sweet clover, mignonette, American bee-plant, catnip, pleurisy root, mezquit, and the melon vine family our best honey-producers; though, in point of constancy of duration, and being a per-

petual feeder, the lucerne eclipses all, though it is not as productive as others named. We have a number of very good native plants that bees work largely upon, but the sweet clover and lucerne rather eclipse them in some respects. Honey made from sweet clover and mignonette I consider superior in flavor to any I ever tasted.

J. E. JOHNSON.

Utah, April 29.

DEAR MADAM:—We have a very backward spring, and everything is late, but should the weather keep open now, our bees will have a rich harvest, as our settlements look like one vast flower garden, with their thousands of peaches, apples, pears, currents, and other trees in full bloom. Most all of our bees that are alive are brooding up good now, and show well for a good swarming season, as last year there were but very few swarms.

The bee-keepers of the Territory held a meeting at Salt Lake May 9th, 1874. The reports of the several counties made a show of some 1,700 stands of bees, and the death of about one hundred and ninety. The losses mostly by what is called dysentery. Cause, supposed by late gathered honey. One of our bee-keepers lost about thirty hives, about all he had, by foul brood. He was a practical man, but was ignorant as regards foul brood, as at that time there had been no cases brought to notice. Still it has shown itself in some other parts of the Territory.

It was recommended that should any of us find any cases of foul brood to dig a hole in the ground and bury hive, comb, bees and all together, so deep that they would never see light any more.

The cause of our dysentery among the bees was thought to be caused by late gathered honey, as the honey gathered here in the fall seems to separate, and one part of that appears to be sweetened water, which settles through the caps and turns sour and moulds,



and causes the bees to eat more than they require to keep their hives clean—when in cold weather they cannot leave the hives too empty themselves it causes them to have the dysentery, and they keep dying off till there are not bees enough to clean the hives, that become foul, and the offensive smell kills the rest. At least that is my experience; for this spring I took combs of apparently capped honey, and shook them, and the water would shake off like shaking a shrub after a shower of rain. To obviate this it was recommended that we take out the spring gathered honey and preserve it, and return it to the hives in the fall, and take away the late honey and extract it, as early honey has a stronger and thicker caps than fall.

CYRUS H. GOLD,

Utah.

#### NOTES FROM OHIO.

MRS. E. S. TUPPER:—I bought a hive with bees, April, 1866; bought two more the next spring. Had some good luck, some bad, till 1872, when all died. I think they froze to death, as they all had plenty of honey and swarms. I had been trying one hive of my own make, the rest was the old box. My neighbors on one side proved no better, and lost all. Some had box, some Langstroth hives, but others living farther from the river fared better, and saved some. I bought one of them last spring. It was fifteen inches in the clear inside, twenty inches high, with a ten inch box on top, two and one-half inch holes in the center of the top of the hive to the box. The box well glued down by the bees, and some honey in it, but no vent; 1½ inch pine stuff. At the bottom were four notches. No other vent. I describe this hive as a sample of those that lived through the winters of 1872 and 1873.

About the first of June last, seeing no signs of swarming, I got my moveable comb hives ready and approached the box hive, I found the bees all in

the center of the hive, with young brood of both workers and drone, (but no queen cells,) surrounded on all sides by honey and biscuit, no honey brood or bees within about eight inches of the bottom of the comb. The honey in the cap extended down all over about four inches, but not so as to obstruct a free circulation of air through the holes on the top in to the box. The outside comb was thick and deep cells as it approached the brood nest or middle. The cells were short and appeared to be of the worker size. There were many drones capped over among the worker young; from one to four or five in a place. As I intended to get Italian quees I cut them all out, transferred all the comb that I could, divided the bees and comb. I set up the two hives about tree feet apart. I soon saw which hive had the queen. In the course of two or three days I saw the other hive fixing a cell for a queen. I was gone from home when the queen made her appearance, though I saw many of her subjects born themselves from the same comb she was on. As the queen gained bees and comb and honey, as well as young bees—very fast I gave her a couple of combs. The queen managed to send out a few drones, on the 27th day. They were very green at first, but in three or four days become quite lively. But the queen could not raise a drone all summer or fall. She went in for workers very well. I shall watch her the coming summer. If she does not send out some drones or Mr. bees, I shall think she did not get a full dose of royal food or jelly, I shall have to get her one of friend Quimby's laying workers. If you hear of any one that has a surplus of those (what shall I call them) Mrs. or Miss workers, please let me know. I think one of those and my queen will work grand together.

As I once told you, I care very little about honey. Having lost all my bees for the want of knowledge of



their nature and wants, I have studied those hives that have lived through the last cold winter, and I find they had vent in the top of the hive of sufficient size to let their breath or perspiration pass up out of the hive to prevent its freezing in their passage. A close room or box is hot, but a coarse blanket, straw, or shavings on any thing that will receive the moisture without freezing, will do. Small holes at the bottom I think are best, but I know many hives with holes every eight inches, one inch by one-half that wintered well the last two cold winter.

April 30th, snow in the forenoon. Bees carrying out full-grown live worms this afternoon. They are the devil on bees—worse than king birds. I send you the contents of a King bird's craw. He was doing a big business when the bees were swarming, but I gave him shot, and several of his relations afterwards.

Shall I take my hive all to pieces to hunt the worms? I got fooled last summer. I saw a bee with a worm in the hive, another bee soon came to help him, one held at each end. The way they snaked that worm about was lively. I thought I would try my new hive, so I got a friend to help, and we looked them all through and found and killed three worms.

I promised to send a hive, but think I had better test it a little more before I ask others to try it. I can't think of any thing it will not do for, in the bee line, from a pint of bees to a bushel, five feet long or five feet high, all the same. NORTON CASE.

[If friend Case will send us a more extended drawing and description of his hive we shall be pleased to publish it. That accompanying this letter, it was impossible for us to decipher intelligibly.—EDITOR.]

#### NOTES FROM CALIFORNIA.

MRS. E. S. TUPPER:—I arrived here the last of November with my

Italian queens in good condition, but had the misfortune to kill one soon after. Being acquainted with Dr. Montgomery I stopped with him and manipulated his bees during the winter, until I got a location to suit me. I succeeded in rearing, and fertilized one or two queens a month through the winter, which contrasted so favorably with Iowa, that I set out at once to find me a location for an apiary. I soon learned the mountains and foothills were best adapted to bee culture, as the white sage, which is said to be the best honey-producing plant in the world, grows abundantly on the foothills and valley contiguous. I soon found a location to suit high up on the mountain side, overlooking the valley and town of San Bernardind, a more lovely place mortal vision never rested upon.

The foot-hill and valley surrounding the town presents one vast flower-garden of radiant tints, and as the coast breeze is wafted across its broad expanse, it comes laden with such rich perfume that not only the sense of smell as well as sight is so enraptured one feels it is well no other senses are likewise charmed, lest the estatic soul might bound away from its clay tenement. But why need I try a pen picture of that which must be realized to be appreciated, so we will turn our attention again to the subject of bees.

My place requiring improvements, and Dr. S. of the Arrow Head Springs having an opening, he desired to Italianize, I removed my bees to his place, where I shall remain in co-partnership, until fall, when I intend to remove them to my own place, but a short distance away.

From all I can learn, all that is necessary to make the bee business a success in this State is a market for honey. Considering it is without doubt the finest honey-producing country in the world, and the honey being of a better quality, connection should be made with the eastern market for the sale of it. We shall endeavor to es-

establish such agency this season. The sage honey is as clear as crystal, and of the purest sweet. Not even the linn honey can compare with it. So other States will be alike benefited by furnishing us a market. When we consider that it has only been twenty years since bees were introduced here, and the trees and rocks are now filled with them, and honey has reduced in price from one dollar a pound to eight cents, we are led to suppose the resources almost without limit. If we can realize from ten to fifteen cents per lb., it will be a paying business. I had intended when I began this letter to state the production of honey for the different seasons, but as it is already lengthy I will forego other items for a future letter, when I shall be better prepared to judge.

G. B. W.

California, May 4.

#### IOWA JOTTINGS.

We are all delighted with our new magazine. Its appearance is so attractive, and its contents so valuable, we could not well be other than pleased with it. Please be explicit in your directions for each month's work. Although you may have repeated the same thing times without number, let us have it once more. It will be new to the majority of us. We hope soon to see bee culture take its proper position with other branches of industry, and this can only be effected by careful attention on the part of those engaged in the business, and by "agitation."

Many in this vicinity are becoming interested in the subject, and are investing small sums in bees, and will try bee-keeping for themselves. To the many questions of those unacquainted with the business, I give my plan of proceeding in brief, and tell them to take a good bee journal, and study the Bee-Keepers's Text-Book, and they will surely find the secret of success.

I have speculated not a little on the mysterious swarming out of those bees in early spring, spoken of in your last JOURNAL, and have made inquiry to ascertain if others have been alike unkindly used, and find they have. One lady told me that, two or three years ago, they had a swarm come out in early spring, and leave. On examination the hive was found to contain plenty of honey, and a multitude of worms.

A gentleman also told me that last winter he bought three swarms of bees—good ones, as he supposed,—and brought them home the last of February. About a month after, one very pleasant day, they all swarmed out. He returned them to their hives, but they would not stay, and finally left. He examined the hives, and found plenty of honey but no brood.

We are all, however, anticipating a great honey yield this year. We did not lose any swarms last winter, and we hope to be as fortunate this. We begin to be impatient for their society. We have sadly missed their musical hum these long winter months.

MRS. S. G. VAN ANDA.

Delaware Co., Iowa.

I notice in "Notes and Queries" of the April JOURNAL J. S. Woodburn speaks of introducing a queen that was minus a leg, and that the bees showed a disposition to supercede her, and did so when left to have their own way. He states the brood was placed irregularly in the comb. He seems to think it to be caused by the queen having lost a leg, and refers to the January JOURNAL in support of his opinion. They may both be correct, but it will not agree with my experience. I received a queen from you June 28th, which has not been superceded as yet, and no disposition shown to supercede her, although she was minus her hindmost leg upon the left side. She is a good layer, and her brood is evenly placed in the combs.

ED. WELLINGTON.



## NOTES FROM CONNECTICUT.

On page 33, Vol. V., No. 2, of the NATIONAL, Mrs. M. E. Chandler, of Minnesota, asks with regard to the theory of queens laying two kinds of eggs.

I will copy from the *Scientific American*, dated July 5, 1873, a part of a lecture by Prof. Agassiz, delivered at Cambridge, Mass., in 1873:

\* \* \* "It may be asked how it has been known that certain eggs were fertilized, while others remained unfecundated? The facts have been gradually made out by careful and connected observations. It is known that with bees, as with most birds, the act of copulation takes place outside of the hive, in the air, during flight. It happens sometimes that a queen bee, from injury or malformation,—defective wings, for instance,—is unable to fly and cannot leave the hive. Under these circumstances, she is incapable of fecundation, and yet has been seen to lay eggs, and these eggs invariably produced males or drones. This fact gave the clew, and successive observations proved beyond a doubt that the workers were always born from fecundated, the drones from unfecundated, eggs. It remained a mystery how, in the same ovary, a certain number of eggs could come under the fertilizing influence, while the rest remained untouched. Siebold ascertained, by a skillful anatomical investigation, that the special organ of the queen bee, in which the spermatic particles are received, has a muscular apparatus which enables her to close or open it at will. This organ, known as *receptaculum seminis*, is placed just at a point of the oviduct or canal thro' which the eggs are passed when they are dropped from the ovary, half way between the ovary and the outlet of the oviduct. The queen stands on the edge of the cell in which either fecundated or unfecundated eggs are to be deposited. If the former, she has the power to open this receptacle, the or-

gan in which the spermatic particles have already been received, and to allow one or two such particles to come in contact with the egg; if not, she can close the organ and allow the egg to pass out unfecundated. Siebold has shown that eggs cut out above the opening of the *receptaculum seminis* into the oviduct, at which these organs connect, are always unfecundated."

HUBERT CASE.

Conn., Apr. 21, 1874.

## RANDOM NOTES.

I was successful in bringing all my twenty-seven stocks through the winter. I was surprised to find, when I set them out on their summer stands the 2d of March, that from the last of October till that time, they had not consumed over *four pounds* of syrup to the hive. During the month of March, after they were set out, they used more syrup than through all the *four* preceding months. It should be noted, however, that they did not begin to breed until after they were placed on their summer stands. I am more than ever satisfied with the system of wintering upon sugar syrup. That, and proper housing, I believe to be *sure* preventatives of the dreadful disease of dysentery.

I fed all my stocks in October. I gave them about twelve pounds of syrup to the hive. The syrup was made of a good grade of coffee sugar. I took two pounds of sugar to one pound of water, dissolved and just brought to a boiling heat. My feeder was a tin tea-pot, holding about a quart, and having a long, small spout. When the syrup was barely warm, I would fill my tea-pot, lift out the frames, and, holding them over the hive, turn the syrup into the cells. I could very easily pour one quart into two combs. When these were returned to the hive the bees soon stored the syrup where they desired it. I usually fed late in the evening to avoid robbing.

I found that it is not essential that

the bees should seal up the syrup. Much of mine was given too late for them to seal it, and I saw no bad effects from it. But it should all be fed to them before winter sets in. One of my neighbors, whose bees were in about the same condition in the fall as mine, that is, they had little or no honey, attempted to keep them through the winter, on their summer stands, by feeding them occasionally a little at a time. He fed them in all as much as I did mine, but more than half his stocks perished from starvation. I think the only safe rule is to feed in the fall enough to keep them through the winter, and then, before freezing weather sets in, to house them in a suitable place, where they will be undisturbed till the ensuing spring.

The winter was an unusually mild one. We looked for an early spring, but have been much disappointed. March and April were as cold and inclement as a good part of winter itself. The season is now nearly a month later than it was two years ago. This I know from the fact, that on the 23d of April, 1872, the young growth on my grape vines, which were then six inches long, were nibbled by the frost. It is now the 9th of May, and the young shoots are just starting out. The locust trees were then in full bloom; this season it will be more than a week yet before the bloom will be out. During March and April of this year the bees gathered a little flowers, but scarcely any honey. But since the first day of this month they have been storing honey rapidly. The apple, cherry and plum are now in full bloom, and seem to be unusually rich in honey. The bees are filling up the center combs of their hives so fast that I have to keep inserting empty combs to enable the queens to deposit their eggs. At the rate they have been working the last few days, I will soon have to begin extracting honey.

The imported queen I got from Mrs.

Tupper last fall, is the most prolific queen I have ever had in my apiary. But she does not come up to the standard of purity fixed for Italians. Her workers are not uniform in their workings, many of them having only two bands. Some of her young queens are of a beautiful golden color, others are "ringed, streaked and striped," and some are as black as midnight. I have one queen that was raised from her brood last fall, but she does not compare in prolificness with her mother. She may do better when her colony becomes stronger. I have several queens, many generations from one imported mother, that are increasing their colonies more rapidly than this one. Is there any part of Europe from which "Italians" of undoubted purity can be obtained? It seems to be a general complaint that imported queens are impure."

M. C. HESTER.

Indiana.

#### HOW TO SECURE BEES FROM TREES.

I notice in BEE JOURNAL an enquiry by Mr. A. S. Wilson how to save bees from a tree in the timber. Having saved many a swarm from trees without the loss of one, I would say to Mr. W., leave your bees in the tree until the bees get well at work in the spring. Then take a moveable comb hive, start soon enough to get through before the middle of the afternoon, on a pleasant day, cut the tree. If the bees are in the body of the tree, and it breaks up, save all brood comb; cut them in square pieces to fit in frames close; tie them in with twine wrapped around frames and combs; put the pieces all right side up; save all good worker combs. When the combs are all in the hive with honey enough to feed the bees while they can work for themselves, place the hive over the bees, wherever they cluster, or if they should collect on a tree, proceed same as to hive a natural swarm. The bees will soon all go into the hive. If they



are near home, leave them over night. They will be all in by dark. If they are far from home, they will be mostly in by the time the hive can be got ready to move. There will not be much loss by bees absent from the tree after honey, as they are rarely gone over 30 to 60 minutes.

If Mr. W. follows these directions he will find it very profitable moving bees from the forest into new movable comb hives.

If bees are in the limb of a tree, as it is often the case, the limb can be sawed off, and lowered carefully down to the ground with ropes, and moved without damage to the swarm. In this case it is best to take a time when the bees are all in the hive, either in winter or summer. Place them in same position as they were attached to the tree and transfer at leisure. They will go to work as well as ever.

JOSEPH GOULD.

Colorado, April 30.

#### TO INCREASE QUEEN CELLS ON SINGLE COMB.

To get fine large queen cells in quantity on a single comb; select one that has eggs and very young larvæ along through the middle and cut off the lower half. This brings the bottom edge up into the cluster where it can be kept warm of cool nights. And as the bottom edge is a favorite place, and perhaps the best place in which to build queen cells, there will be more cells finished than would be done upon the sides or bottom of a deeper comb.

WM. C. PELHAM.

Kentucky., May, 1874.

#### NOTES FROM TEXAS.

MRS. E. S. TUPPER:—We have had but few swarms, and some of them have starved out, and in fact a great many of the old hives have not been able to live without feeding, something almost unknown before in Texas. So far, we have had the worst

spring for bees I have ever seen here. The moth is also very bad with us this spring, and right here I want to know if it is a fact, "that the moths does not trouble the Italian bees?" if so, send me the name of some reliable person raising queens, and I will send for some. I have succeeded in awakening this neighborhood, and there are now several persons using the frame hives.

E. T. JOSEY,

Texas, May 12.

#### HOW SOME PEOPLE TAKE BEE JOURNALS AND KEEP BEES.

I have heretofore written about subscribing for all journals. Now, I wish to say a little more. Some subscribe, and pay for a year, and then receive it two years and pay nothing. If the journal does not come regularly they complain. Send in your two dollars and then complain if it don't come. Others let the journal remain in the postoffice after their time expires, and it continues perhaps for a year or two, instead of notifying the publishers that they do not want it. What do you think of them? I can guess.

Now a word upon patent-hive men; and here comes one now. I ask him, what causes this great revolution in bee culture. It is a big thing, and must have cost some one a vast sum of money. He replies, "It was us; it did cost a good deal of money, and we have not got our pay yet, but we are getting it as fast as we can, from, I don't know who, but I will describe them, so you will know them when you see them. They pay us ten dollars for a hive and a farm right, and one dollar for transferring a swarm of bees into the hive. He don't take a bee journal, and knows little about managing bees. His swarm does well the first season, because they were properly put in the hive. When it comes winter he leaves the top open as in summer. If the bees do not all die, many will, and in the spring the colony is weak. He will probably then

close the top to keep the bees out, so they may swarm. After they have swarmed two or three time, he lets them in the top. By this time the honey season is nearly over, and he gets no honey in the top of the hive, and he throws away his hive, and waits until the next patent hive man comes along, or he goes back to the old beegum or box.

Then, too, there is the man who attempts to hive his bees after besmearing hives with everything he can think of, and throws them down by the hive and runs, and if they do go in the hive he leaves them there until night, or perhaps the second night, if perchance they stay so long. If they should not, and start off again he orders out the tin pans, and cow bells.

Then, there is the man who does about the same, and when a member of his family dies, goes at once to tell the bees of it, lest they die too.

These are our best customers. We make money out of them.

Now who is it supports bee journals? It is those who have honey to sell by the thousands of pounds. Old beekeepers know this, but beginners do not, and it is to them I wish to say, read books on the management of bees, subscribe for a good bee journal, read it carefully, and then get patent hives if you wish. Having educated yourself, you will the better judge of the qualities of hives.

A. J. HOOVER.

Pennsylvania.

#### A SUCCESSFUL BEGINNER.

During March and April we have had a succession of heavy rains and cold winds, and at this date (May 1) all bee pasturage is entirely destroyed, and, until the tallow-tree bloom, about the first week in June, our bees must be fed or starve. Both Italians and blacks have destroyed their drones, and, where preparing to swarm, their queen cells. In several instances when I had transferred a colony, a few days

after swarming, I have found them queenless, the queens being dead in the cells. To two such colonies I gave brood. They built new cells, and on examining them May 2, I found some cells torn to pieces, in others the queens were dead—I suppose because they had no food from which to prepare food for the young larvæ. To save these colonies, I had to introduce queens.

I have had two colonies desert their hives and brood. One I returned and gave them a queen cell; but on examining them, three days after, I found the queen dead in the cell. The other I placed in a new hive, supposing them to be a swarm from some other apiary. On the third day they left again, the queen going into a queenless colony, and the bees distributing themselves among other stocks in the yard. Some hives killed the intruders, but the most were kindly received.

March 27th I hived a swarm which had left the box twice before I returned. After a few hours they left, and again returned to the box. They came out and returned every day until the 31st, when, clustering in the same tree as on the 27th, I again placed them in the hive. I have fed them almost every day since, and they now have five or six frames built.

Such has been my experience as a beginner during the worst spring I have ever known in this latitude, 30°.

Y.

Louisiana.

#### EARLY DRONES.

In the April JOURNAL you ask how early drones may be reared? The following has given me the most satisfaction:

As we want nothing but the choicest drones, select the queens that produces them. Place a drone comb in the center of the brood nest in the hive containing desired queen. After a day or two, when the bees become accustomed to the comb, place a wire



cloth on each side of the comb. Be sure that the queen is on the drone comb within the wire cloth partitions, also that the queen can pass neither wire cloth at the edges. If the bees have a surplus of pollen and honey, the queen will lay in the drone comb, there being no worker comb to which she has access. After you have the eggs laid you can place the comb containing them in a queenless nuclei. There should be another comb containing just a few workers' eggs, from which queen cells may be started.

A. N. DRAPER.

Illinois.

### HOW THE NATURE IS CHANGED.

At the Louisville Convention I see in discussing the subject of the change in the nature of the honey bee of the different sexes you differ a little in opinions, and I think that you ought to do so. But perhaps I might say that I may differ a little from either of you.

The egg laid for the worker bee, we will say female eggs, and when they hatch they are females, and have got all the organs, if fully developed, to lay eggs as a mother queen.

But the worker egg, when laid in the cell, lays there till it is hatched, and then there is a small amount of watery substance put around it for food, and when it is ready to cover up at eight days old, there is no larvæ in the cell, or very little, and we will say it is covered up dry, and has got no reservoir for a feeder, while maturing, and therefore the organs are not developed that she can become a mother queen, and she still has a mother's maturity, but not fully developed.

But here is the greatest mystery—to tak the worker grub and make a mother-laying queen. Now, she has all the organs, but they want to be developed.

When the eggs is first laid the grub is the same as a worker, but extending the cell out long for more

room, and down for a feeder, and the large amount of larvæ put in for a substance, to change the nature or develop the organs, is a process of a double refinement. Now then, the queen lays in the cell with her abdomen up in the cell, and the larvæ in the upper end of the cell being warm the abdomen of the queen is a feeder to her, and that is the way the organs are developed, to arouse them to action to lay eggs. By her abdomen laying in this moist substance as a feeder, that it matures the queen in a shorter time than the worker bee. Some one will ask, what is that substance made from, or what is it, or what is it composed of?

Let me tell you what my experiment teaches me. They take other young grubs and break them, and put the larvæ, (the young grub) in the upper end of the cell a substance of mother nature.

Now then, for the drone. All queen raisers know that if you put in drone eggs and no worker larvæ or eggs, the bees will try to rear a queen from them, and why can't they do it? Every drone that is sealed up with his head down, dies before he is matured. It is unnatural for the drone to stand on his head while maturing, and he dont require the larvæ as a feeder. Drones, while maturing, have their heads a little elevated. Last summer, a year ago, I was starting queen cells, and I found a large cell just at the edge of the workers comb, on the drone comb, and I thought perhaps it might have been started from the worker eggs. I put it in another nucleus, and put in several other cells off on the worker comb, and they all hatched except the one from the drone comb, and I supposed it would not hatch. I had other cells at that time, and I put it in another cell, and when it hatched out I took out the large cells that I took from the drone comb and pulled it apart, and there was a perfect drone in it with the head of the drone in the upper end of the

cell. I put him on top of the frames of the nucleus hive and he crawled in among the bees, just as any other drone would.

Now why can't you change a drone grub to a queen? Because the male organs are there and you can't change male organs to female. Everything in nature follows the laws of nature. That is why you have to take mother nature to develop the organs of the queen bee.

ALFRED CHAPMAN,

West Virginia, Jan. 4th, 1874.

### DO THEY, OR DO THEY NOT?

Bees have wintered very unevenly in this section. I have lost nearly or quite two thirds of mine, and so far as my information goes, not a single bee-keeper in the country but has met with more or less loss, although not as heavy as mine. I think my trouble is with my cellar. I could not ventilate it sufficient to carry off the moisture without making it too cold.

In your answer last month to John S. Single, on page 98, you say, "you never knew a swarm to leave before settling *when it came out of the parent hive.*" You was not so positive as A. Wilson was, who says on page 96, "They always alight first." I have several times suspected they did so, but *positively know*, in two instances, of their going directly to the woods from the parent hive. In one case, I was standing within six feet of the hive when they commenced to issue, and before the entire swarm could get into the air they took a bee-line for the timber. I followed them until I was sure they were not going to stop near home.

I am learning that bees are guided by very few positive rules in their actions.

O. O. POPPLETON.

Iowa, May 4.

### EXPLANATION.

Owing to untoward circumstances I was unable to forward you a report of our Kalamazoo Convention in time

for May number. The meeting was well attended, and the papers and discussions were very interesting. Our Association was disappointed on account of your failing to be with them.

Respectfully, H. A. BURCH.

South Haven, Mich., May 11, 1874.

### NOTICE TO SUBSCRIBERS.

The time of a number of our subscribers expires with the June number. We hope for prompt renewals. We expect to get, by another year, on to a "payment in advance basis" in all cases; but at present the majority of our subscribers, not having been accustomed to it might object, and we therefore, continue to send to some names on the old list who have not renewed.

We do wish, however, to crowd the JOURNAL on any who do not longer wish for it, and hope all such will notify us either through their postmaster or by postal card. All who wish to continue will please renew soon.

### OUR QUEEN PREMIUM.

We continue until the end of the season our offer of a choice tested Italian queen to any one sending us four subscribers and \$8.00. The queen to be sent immediately on receipt of the names and money. All who prefer, can have the queen from our own apiary, but we have others rearing queens for us whose queens are just as good in all respects, and to some places queens can be sent from them at less expense for charges. The wishes of agents in this matter will be regarded.

WE HAVE received from Chas. Wilkins Ott, Coos county, Oregon, a brush for taking bees from frames when moving, dividing or transferring them, which we think is the best thing for the purpose we have used. He writes us that he can furnish them by mail prepaid for 50 cents, and it will pay bee-keepers to procure them at that price.



# Editorial Department



Mrs. ELLEN S. TUPPER, Editor.

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APRIL.

DES MOINES, IOWA.

1874.

### WORK FOR THE MONTH.

This month is full of interest to the bee keeper. Now, if the bees have been cared for properly through the spring, the colonies will be strong and so full of bees that extra room must be given them. Let the owner decide now whether he desires most an increase of stocks or a good yield of surplus honey. If he wishes to increase as fast as possible he should now divide judiciously, keeping as many prolific queens depositing eggs as possible, and whenever honey is not abundant in the fields feed all newly-made hives, or those not well provisioned. It is a fact that the queen's laying is usually graduated by the amount of honey being gathered or provided by the workers. Directions for dividing colonies have been so often given that they need not be repeated. There is no difficulty in doing it successfully if one is careful to keep all divisions supplied with queens or the brood from which queens can be reared.

If the aim is to secure the largest yield possible, of surplus, from the hives, the extractor should now be used often, to prevent swarming and to give empty comb for the use of the queen. For it should be remembered that there must be a constant rearing of brood, that bees may be on hand to store the honey. Large yields of surplus cannot be obtained without bees any more than new colonies can be made without them. Given a large colony of bees in a convenient hive, plenty of empty comb at hand, and a

good extractor, and in any season almost incredible amounts of honey can be taken through the season of white clover and linn.

We receive frequent letters from those who do not care to use the extractor, but want to secure as much honey in the comb as possible and desire to have it in good shape. We think it pays far better to use the extractor, regarding box honey as an expensive luxury; but for the benefit of those who desire it, we give directions how to secure it.

Boxes need not be placed in the hives until it is very warm; previous to that, the warmer they are kept the better, but when June comes ample room must be given them. Many colonies of bees are cramped for room in which to store honey, and hang idly about the hive, when, if they had room sufficient, they would be busily filling it. If you use any form of movable comb hives, put on the whole complement of boxes when white clover begins to bloom, and watch the boxes carefully, removing every one as soon as it is full, replacing it by an empty one. If your honey is for market, your boxes should be of the capacity of six or eight pounds, with glass in one or two sides. Honey stored thus sells more readily than any other. If, however, you wish it for your own use, larger boxes, entirely of wood, are just as good, and we think more honey will be stored in them, other things being equal.

Bees instinctively store their honey *above* the place where their brood is.

All who have ever cut a "bee tree" have noticed that in the top of the cavity the choicest honey is always found. There are two reasons, we think, why they should do this. It is an instinct with them to place it as far from the entrance as possible, to have it secure from their enemies, the wasps, yellow-jackets, etc., and when it is stored *above* the cluster of bees, the heat from the colony ascends among it and keeps the combs warmer and free from frost in cold weather. We often have had strong colonies occupying and busily filling sixteen six-pound boxes at one time on the top of hives in the height of the honey-storing season.

Besides the attention to the honey-boxes which is required now, vigilance is necessary to guard against the depredations of the moth-miller with its progeny of worms. Weak or queenless colonies, if you allow such to remain, are very certain to be infested, and breed hosts to trouble other hives. It is possible to be entirely rid of this pest by the use of hives that you can open and examine if you have the Italian bees. Where only common hives are used, it is necessary to be on the watch.

The miller is a small, hunchbacked gray fly, the male much larger than the female. You will find it hiding about the hives in the day-time, and at night hovering about the entrances, seeking to get in and deposit the eggs which produce the worm in empty comb left uncovered by the bees. Strong colonies so cover the combs that they are little exposed; but the miller will often deposit her eggs on the loose scraps of comb on the bottom board, while hives that have few bees are exposed on all sides. Saucers or shallow dishes, filled with sweetened water or vinegar and water, left about the hives, often trap many millers. We have, in former times, fastened a candle to a shingle and spread tar on the latter. In a still night, many millers, attracted by the light, are

caught in the tar. The only sure way, however, to be rid of this pest of bee-keepers, is to have your hives made with each comb under your control, so that you can examine them at will.

These hives should always be made so that there is no corner or crevice in them where a worm can hide and a bee cannot follow. We have seen them with the frames touching the sides, so that there were countless plades where worms might hatch, undisturbed by the bees. Such hives are perfect nurseries for the bee moth. Many hives are advertised and patented as "moth-proof." This is nonsense, as all practical bee-keepers know. Wherever a bee can enter, a moth can, if allowed to do so; and it has been demonstrated past doubt that bees often carry the eggs of the miller on their feet even to the surplus boxes. All who have the Italian bees bear testimony that they show more energy and power to eradicate the worms than the black bees manifest. Give them well-made hives, and keep the colony strong, and you need have no fear of worms. We doubt if worms ever destroyed a colony which was not first weakened by loss of the queen, or too much swarming, or untimely division.

Give *hives* ample ventilation now, and you will greatly aid the bees in their labor. The *boxes* for surplus honey cannot be too close, since heat is necessary to the secretion and working of wax; but the main hive or brood department should have air throughout the warm weather.

#### NO QUEENS BY MAIL.

We can send no queens by mail until there is a change in the law regarding them. It is not lawful now. We believe queens can be sent by mail safely, and without any detriment to any mail matter, and hope that a law will be passed not only to allow their cheap passage by mail, but also to provide some system of registering them.



## BEE REGULATOR.

We have received from Cyrus H. Gale, Salt Lake City, the mold of a bee regulator, which is very simple and perfectly adapted to the purpose. Any person can make and attach it to a hive, with a pair of shears and scrap of tin. Cut a strip of tin about two inches longer than the entrance to the hive, and about one inch wide. Cut a notch in one edge large enough for a bee to pass through. Holding the notched edge toward you, bend over the upper left hand corner so as to form an ear or lip to lift it by. Cut another strip a little shorter than the first, about one inch and a half wide at one end, and one-half inch at the other. Turn over one corner as in the first. Then place the two strips on the hive over the entrance, the right ends even with each other, the strip with the notch in it next the hive, with the lower edge of the strips resting on the bottom of the hive entrance, then insert a screw, through both at the right end. You will then see, that by raising the front piece you have a single opening. If you wish more, cut another notch in the tin at the right of the other, so that when you do not want it open, by lowering the front tin it will be closed, leaving the left hand notch open. The front tin should be cut sufficiently tapering to do this. In the time of flower bloom, raise both pieces of tin and you have the whole entrance. If any of our readers do not fully understand this, they can get a model by writing Mr Craig. It is not patented.

## CORRECTION.

ON page 67, March number of the JOURNAL in answer to a question from Moberly, Missouri, we are made to say "if combs are built at night, as they always will be, etc," it should have been "if combs are built straight." This correction was due in preceding number, but "better late than never."



Will you tell me how to start a nucleus; how to make the bees stay in it? I cannot do it.

Please enter into particulars, so I can understand it.

JAMES COX.

There are as many ways to do this (almost) as there are persons to do it. We will tell you one of the ways *we* do it:

Bear in mind that bees without a queen will rear one *every time* if they have the means to do it. They must have some young bees, something to eat, and eggs and larvæ not too old. We make our nucleus hives so as to contain full-sized frames. Into one of these hives we put a comb containing honey and bee bread, and then take from a hive containing a choice-queen a comb with larvæ in all stages, and put it in with the other, leaving all the bees adhering. Set it where you please, confining the bees to the hive for 36 hours; after which all will remain and work there and start queen cells at once. Instead of shutting the nucleus hive up for 36 hours, we sometimes move a strong colony away from its place a yard or more, and set the newly formed nucleus in its place. In this way enough adhering bees will be caught up to "run" the nucleus. Once established, it may be continued all summer, only taking care not to let it get too strong.

Please tell me how to build up one of the nucleus hives you send out. I do not understand it. If I buy one, what shall I do with it? ELLA.

There are several ways of making these nucleus hives valuable if you have bees already. You should have it sent, if possible, with frames just like those in your present hives. When they are received, you can put these frames with brood, stores and queen into a full-sized hive, adding another comb full of sealed brood from some other hive.

As this hatches, add another comb,



and in a very short time you can have a strong colony, which will be Italian, as the progeny of the queen sent in the nucleus hatches.

Another way to make them profitable is to leave them as they are for a few days, when the combs will be well filled with eggs. Then take the queen away and give her to a strong colony from which you have removed the queen, with the proper precautions. The bees in the nucleus will rear a number of cells which may at the right time be cut out and given to other colonies. One may be left to hatch in the nucleus, or all may be taken and a comb given it from your choice queen again, when they will rear more queens.

The nucleus hives are generally sent so strong that they may be safely made into two if it is desired.

If the nucleus is received at swarming time, a colony may be divided, half the bees and brood being given to the nucleus while the other half retaining its old queen will soon build up again.

I would ask, how far apart, from center to center, do you hang your frames in brood chambers of the plain hive?

Would ask for a description of your bee quilt.

One and one-half inches from center to center for open top frames.

Our quilts are two thicknesses of muslin with one or two thicknesses of cotton batten between them; edges turned in and stitched on sewing machine.

I am only a beginner and have eighteen swarms in box hives. I would like to make the most out of them that I can with as little expense as possible. Would the extractor be necessary? I can buy good colonies of bees here. With the improved management of bee-keeping, could I depend upon a hundred per cent.?

Virginia, May 6.

AUGUSTUS M. STEED.

We have no hesitation in warranting you one hundred per cent. with even moderate care.

Of late I have become greatly interested in the art of bee-keeping; more es-

pecially since I have read a letter on bee-keeping that was taken from the *Hearth and Home*, said to have been written by you. If so, will you please answer a question in regard to moving hives after the bees have begun to work. I have understood by experienced bee-keepers that they could be moved at any time. The few farmers that keep bees here claim that if they are moved after they have begun to work they will all come out of the hive and go back to where they have been taken from. If such is not the case I would be glad to know, as I wish to purchase a few hives this season.

Please answer this and oblige

Your humble servant, T. C. BARR.

Montcalm Co., Mich., May 18, 1874.

Bees cannot be moved safely a short distance after they begin to work. To move them across a yard or to another part of the farm would cause many bees to be lost; but if they are moved even half a mile to strange surroundings every bee marks its location over again. Buy bees then and move them where you like. This is the best season for moving.

The NATIONAL BEE JOURNAL came duly to hand. I find, by the mistake of your compositor, or my careless scribbling, my communication last addressed you is given over the signature of "Hay" instead of "Hazen."

My plan, to which you refer as having been fruitlessly tried by yourself several years, possibly is not fully understood. There are several circumstances, occasionally existing, which may lead to the issue of a swarm:

1st. The want of room, from the crowded state of the hive.

2d. From excessive heat, either from the sun shining down upon it, or from some other source of heat.

3d. From the presence of enemies that the colony may be unable to expel.

4th. From the failure of honey in the hive. To prevent starvation I have known bees to come out of their hive and enter into a hive with another colony.

5th. In cases where the room for surplus was not supplied until preparations were commenced by the queen preparatory to the issue of a swarm; they will not be likely to be diverted from their purpose by any supply of additional room.

With these conditions duly observed, I have not know a swarm to issue; and I think they will not.

All we want is the exact truth in this matter; and in all things else relating to a business which is yet susceptible of so much improvement and extension.

Two of the four swarms noticed in my last communication gave me two swarms each, but they



were so imperfectly shaded that I was fully satisfied that their issue was thus satisfactorily accounted for, within the principles laid down.

Having removed from the vicinity of Albany, N. Y., where I formerly had my postoffice address, to Woodstock, Vermont, I wish my friends to address accordingly. JASPER HAZEN.

1. Which do you prefer: *nucleus swarming* or making up swarms by taking frames from other hives till the other hive is full?

2. Will bees swarm without leaving queen cells?

3. Do you believe a queen can be fertilized in confinement? If so, how?

4. How soon after a queen begins to lay can I use her eggs to rear queens? At what age will they be too far advanced?

5. Are the drones of a pure queen impurely fertilized as good as those from a purely fertilized queen? Give your opinion.

6. Do bees sleep?

7. How long should old bees be shut up to keep them from returning to their old stand?

8. I find from one to six eggs in a cell. The queen deposited them. They are weak. What does it mean?

9. In transferring last year I used a great many combs edgewise. The bees reared brood and stored honey in them without cutting down.

10. In answer to a former question, I say my bees do store bee-bread in *drone comb*.

Indiana, April 28.

JOHN S. LINGL.

1. We do not know just what you mean by *nucleus swarming*, but for beginners we would not advise taking frames from several other hives to make a new colony. To do this right requires some experience, and we have in previous numbers given more simple ways of increasing colonies.

2. Italian bees do often swarm without leaving queen cells. We have seen them come out of a hive without leaving even the beginning of a cell. We have never known black bees to do this, but will not say they never do.

3. We have often succeeded in having queens fertilized in confinement, and believe that under favorable conditions of weather, age of queens and drones, it can any time be accomplished. Whether it pays for the trouble attending it depends on the locality and the difficulty of keeping black drones away.

4. You can use the eggs at once by

giving them to queenless bees to rear queens, but the bees will do as *they* please about using them until they are several days old. They are used until they are six and eight days old, but whether the queens reared from larvæ as old as this are as good as those reared from younger larvæ is one of the questions upon which "doctors disagree."

5. If the queen is pure beyond doubt her drones are pure also. The difference in opinion on this point arises from the fact that so many queens *called* pure are not really so.

6. Can't say if bees sleep. We are sure they don't all sleep at once, by the humming kept up at night in well regulated families.

7. If old bees are thoroughly alarmed before being moved they need not be shut up at all, as they will mark their location again, and few, if any, return to their old spot.

8. We have often noticed this laying of several eggs in a cell by the queen of weak colonies, and cannot account for it unless it be that the queen instinctively knows that the bees are too few to cherish all her eggs if spread over the comb. Her powers of laying are evidently greater than the ability of the bees to take care of them. Will some one give a letter of explanation?

We are all the time learning and this putting in comb any other way than right side up is new to us. We will try it this year and satisfy ourselves.

We find with friend Lingl that bees do store bee bread in *drone comb*.

Not much interest here in the little busy bee. I am trying to get up an interest on the subject among my friends who have bees.

I see in the *JOURNAL* but little as to the best way of holding the frames in place.

Bees are doing well here now. I have had one swarm, and made one. N. C. STEELE.

Alcorn Co., Miss., May 19, 1874.

The frames hold themselves in place in all properly constructed hives, unless they are to be moved to a dis-

tance; then a thin strip of wood nailed across all of them is sufficient.

Give me the country name of linn or basswood. How far south does it grow?

Is Pride of India, or China tree, good for bees, or rather, do they get pollen or honey from it? It is covered with bees all day, and the hum they make amid its myriads of blossoms is delightfully business like; and there, too, in the same tree, may be seen the bee martins, ever and anon darting hither and thither at the bees. Is it drones or workers they are catching? and does not this settle the matter about the martin catching drones?

R. H. M.

We do not know of any other name than linden or linn and basswood. Can any southern subscriber tell us how far south it grows?

We are told that the China tree yields both pollen and honey.

The following is the report of the Vevay Apiaries from May 1st, 1873, to May 1st, 1874:

Number colonies bees, 102; number of attempts to swarm, 2; number of colonies formed in July and August, 20; number colonies to winter, 122; number of surplus queens to winter, 19; number of colonies lost during winter, none; number of queens lost during winter, 4; number of queens superseded during the year, 8; number of surplus queens lost, 8.

The two attempts to swarm happened after the honey season was over. Never extract honey or remove brood during the honey season. Box honey is preferable.

The reason so few queens were superseded, I removed ten or twelve last May and replaced with young queens.

Set up five colonies in February, five in March and three in April; 110 colonies to store here this season of 1874.

WM. FAULKNER.

Indiana.

It seems that Sampson's bee hive excites much sly ridicule among the bee keepers. In the next I will endeavor to explain to the satisfaction of all how such an anomaly did really occur.

You live almost in the extreme north, and I due south of you and on the Vermillion river near the sea marsh.

Our bees are working freely on willow, maple, peach, etc. Bees have found pollen almost all winter, and had few days they could not work. Unusually warm weather. If I succeed in bee-keeping, queens, books and papers will sell.

J. B. RAMSEY, M. D.

Louisiana, Feb'y 21, 1874.

By scraping the bee sting out of the flesh with a knife, then pressing the hole in an ordinary key over the wound twenty seconds, then wiping the

poisoned serum off; then repeat two or three times. The greatest comfort will be experienced.

My bees are in Langstroth hives. The winter of 1872-3 my bees were on summer stands, fronts open to the west, on the point of a bluff. They came out fine. I guess cold does not kill bees, though I doubt not cold is injurious to them under certain contingencies. Last winter I put them in a case, let them have a fly in February; returned them to case and returned to summer stands about the middle of March. Only about a tablespoonful of dead bees to a colony. Like any other novice, I took a warm day for it. They flew like possessed, and attempted to return promiscuously, resulting in a general war, destroying about one-half of the colonies.

There are but few bees in this part of the country. Some died last winter, and some remaining this spring left the old boxes in a body.

I would like to know how southwestern Kansas, New Mexico, Texas and Arkansas are suited for Agriculture.

GREENHORN.

Illinois.

All the localities named are good bee countries, but we really think that parts of Colorado are the best locations in the world for bee keeping.

I want my queen sent to me by mail, if you are afraid to send it in any other way. Pack the cage in a collar box, with holes in it, and fill round it with strawberry leaves and mark it "plants." It will go perfectly safe in that way, for two cents, and save express charges.

B. C.

Texas.

We would be glad to send queens by mail and hope the time may come when they are legal mail matter. At present it is forbidden to send them and an evasion of this kind it seems to us is not honest, and if discovered might render one liable for damages.

We shall send no more by mail until a different law exists, though we are aware that it is a great and unnecessary expense to send by express.

Let us try to change the law rather than evade it.

I am keeping bees in Gratiot county, Michigan. I have wintered eighteen stocks, mostly in movable comb hives, in a cellar. They wintered well; lost none, but one left the hive this spring and went in with another stock; they were queenless. My cellar was quite wet; three weeks of the time there was water in it. The comb got some mouldy and injured the bees some, but the most of them are strong and in good condition. The spring is cold and dry. The bees did nothing till May.

I use hives holding eight or ten frames, 10½ by



14¼ inches, inside measure. I have some I bought holding twelve frames, 10½ by 10½ inside measure. I think I like the large ones best. I use the extractor. I have bought so I have twenty-nine stocks, all blacks but two Italians. I want one of your premium queens. I shall try and get up a club for one of your \$8 queens. It is a hard place to get subscribers here. I have a good location for bees, flowers of many sorts and in great abundance; willows, white maple, and elm are first; red raspberry and other kinds of wild fruit. In the fall, golden rod, aster and bonaset.

I am much pleased with the JOURNAL.

More anon.

J. J. ANDREWS.

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### IN MEMORIAM.

We have received intelligence of the death of Dr. L. B. Hamlin, 1st Vice President of the National Bee Association, which occurred near Edgefield Junction, Tennessee, May 24. Mr. Hamlin was one of the most zealous apiarians in this country, as he was one of the most active members of the National Association. We have met him for many years at its annual meetings and by his extensive learning, and large practical experience he has added very much to the interest, and profit at those gatherings. At the last meeting he was its presiding officer, and by his gentlemanly bearing, and courteous demeanor, he won the hearty admiration of all present.

Dr. Hamlin was born on June 24, 1810, in Windom, New York. He was left an orphan at an early age, without means, and almost without friends or kindred. At eighteen years of age he was foreman in the largest watchmaker's establishment in Albany, and perhaps in the United States, where his attention was first directed to dentistry. He removed to Wytheville, Va., about 1834 or 1835. At this time we find him taking an active part in the organization of dental societies. He assisted in the organization of the Virginia Dental Society, the first of its kind in America, or in the world, so far as is known to the profession. He removed to Tuscumbia, Ala., about the year 1845, and thence to Nashville in 1847, where he did a large business in connection with Dr. Mor-

gan, until the close of 1858, at which time his health failed, and he went into the nursery business in connection with bee culture. In the latter business he was authority, having published a practical and highly-prized work on bee culture a few years since.

Dr. Hamlin was a member of the Presbyterian church and an ornament to the Masonic fraternity.

In the death of Dr. Hamlin the friends of bee culture have lost a wise counselor and co-worker,—one who possessed the means, the taste, ability and skill to add vastly to the storehouse of apiarian knowledge.

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Agents working for the queen premium will notice that we have made a still more favorable offer. It will pay any one to take some pains to secure subscribers. The queens will be sent immediately on receipt of the money.

Any subscriber ordering a queen at the time of subscribing or renewing for the JOURNAL will receive the queen and JOURNAL one year for \$6.

We return our hearty thanks to those who have sent us clubs. We will make the JOURNAL better with each issue, so that those working for it can consistently recommend it.

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MR. QUINBY'S New Smoker is very handy and a great convenience. We use it every day with increasing pleasure. Not the least of its recommendations is the fact that there is no danger from fire when using it, and no sparks or ashes can by any possibility be blown among the bees.

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The knives sent with Winder's Extractor are perfection. We are using one of them with the end curved that makes it easy and pleasant to uncap combs. They are sent by mail and any one using other extractors will find it will pay to order the pair.



## Miscellaneous.

FROM THE ANNUAL REPORT  
OF THE STUDENTS' SCIENTIFIC  
ASSOCIATION, MANCHESTER,  
ENGLAND.

SATURDAY, August 2.—*Frodsham*; Leader, Mr. William Carr. Twenty-one members and friends joined this excursion. On arriving at *Frodsham* the party at once proceeded to visit the Park gardens and grounds, where, by the kind permission of the owner, Mr. Abbot Wright, the gardener taking charge of the party, led it first through the beautiful flower gardens and conservatories, then through the American garden, a large amphitheatre with high banks all around, and a small lake at the bottom; thousands of rhododendrons and azaleas of nearly every shade known, rising one above another on the sloping banks. The party then proceeded up the fern dell (where there are many rare ferns, and a clear stream of water running down the center) to the fountain, and returned by the wood walk. After leaving these beautiful grounds it proceeded on the *Netherton* road and mounted up to the top of the *Overton* hills. The day being clear, a splendid view of the shipping in the *Mersey* and of *Halton Castle* was obtained.

After tea at Mr. *Rigby's*, *Bellmont*, the Rev. W. C. *Cotton*, vicar of *Frodsham*, gave an interesting address on the wonderful economy of the honey-bee. He commenced by saying that although he had closely studied and experimented with the honey-bee for fifty-six years, still he found he had a great deal to learn about them yet, and this year he, perhaps, had learnt more than any year before, and to give an account of even what he knew of the wonderful economy of the honey bee would take him a week, so the subject must be very much condensed to give even a faint idea of the

wonders of the hive in the short time he had now to speak about it.

The wonderful economy displayed by the bees in the construction of the honey-comb has been a marvel in all ages. The most profound philosopher, equally with the most incurious of mortals, is struck with astonishment on inspecting the interior of a beehive. He beholds a city in miniature divided into regular streets and side streets to connect one with another; houses constructed on the most perfect geometrical principles, and the most symmetrical plan, some serving as store houses for food, others for the cradles of the citizens, while a few, much more extensive than the rest, were destined to be the cradles of the sovereigns.

He perceives that the substance of which the whole city is built is one which proud man, with all his boasted skill and wisdom, is unable to fabricate; and that the edifices in which it is employed are such as the most expert artist would find himself incompetent to erect. An architect, in making the plans of a building, should have three objects in view: First, to use the least quantity of materials while securing the greatest strength; secondly, to give the edifice the greatest internal capacity in a determinate space; and, thirdly, to employ the spot in such a manner that none of it may be lost.

On examination it will be found the bees have obtained these advantages in the hexagonal form of their cells; for, first, there is economy of wax, as the circumference of one cell makes part of the circumference of those contiguous to it; secondly, the economy of the spot, as these cells, which join to one another, leave no void between them, as they would do if they were round; and, thirdly, the greatest capacity or space, as of all the figures which can be contiguous that with six sides gives the largest area. This economy prompts the bees to make the partitions of their cells thinner than a



sheet of writing paper; yet they are constructed so that the solidity may compensate for the scantiness of materials, as you see every cell has six pillars. The parts most liable to injury are the entrances of the cells, with the bees going in and out, so they take care to strengthen the aperture by adding a rim of wax and propolis (called by the ancients *pissoceros*, a Greek word meaning pitch and wax) all the way round, making it three or four times thicker than the sides. The next weak part in the cell would be the bottom, if the bees placed the cells on the other side of the comb, parallel with the sides of the other cells; but, you see, the bee is much too wise to leave any weak place, and by holding a piece of comb up to the light you will see that the angles formed by the bottom of three other cells meet in the center of the cell, and so make it the strongest instead of the weakest part of the cell. Again, the bees show their wonderful economy in the saving of that scarce and valuable substance, wax, by making only one division for two rows of cells, and the bees have, in the formation of their cells, solved a problem which would puzzle many geometers—namely, a quantity of wax being given to form of it similar and equal cells of a determinate capacity, but of the largest size in proportion to the quantity of matter employed, and disposed in such a manner as to occupy in the hive the least possible space.

The wise bees do all this and more, for the base of each cell is not an exact plane, as in a wasp nest; but it is composed of three rhomboidal or lozenge-shaped pieces, placed so as to form a pyramidal concavity. From this remarkable form it follows that the base of a cell on one side or stratum of the comb, is composed of portions of the bases of three cells on the other.

Maraldi, a mathematician of Nice, in 1712, invented a glass hive, so that what may be called the indoor proceeding of bees could be observed. He

was struck with the fact that the lozenge-shaped plates always had the same angles, so he took the trouble to minutely measure them, and found that in each lozenge the large angles measured  $109^{\circ} 28'$ , and the smaller  $70^{\circ} 32'$ , the two making  $180^{\circ}$ , the equivalent of two right angles. He also noted the fact that the apex of the three-sided cup was formed by the union of three of the greater angles. Some time afterwards Mr. Reaumur, thinking that this remarkable uniformity of angle might have some connection with the wonderful economy of space, which is observable in the bee comb, hit upon a very ingenious plan.

Without mentioning his reason for the question, or telling him of Maraldi's researches, he asked Koenig, the celebrated mathematician, to make the following calculation: "Given an hexagonal vessel terminated by three lozenge-shaped plates; what are the angles which would give the greatest amount of space with the least amount of material?" Koenig made the calculation, and, by employing what geometers denominate the infinitesimal calculus, he found the large angles should be  $109^{\circ} 26'$ , and the smaller  $70^{\circ} 34'$ , or about two-sixtieths of a degree less or more than the actual angles made use of by the bees, and measured by Maraldi. Mathematicians were naturally delighted with the result of the investigation, for it showed how beautifully practical science could be aided by theoretical knowledge, and the construction of the bee cell became a famous problem in the economy of nature. In comparison with the honey which the cell is intended to contain, the wax is a rare and costly substance, (as the bees consume about a pound of honey to make one ounce of wax) secreted in very small quantities, and requiring much time for its production; it is therefore essential that the quantity of wax employed in making the combs should be as little,



and that of the honey contained in it as great as possible.

For a long time these statements remained uncontroverted; any one with the proper instruments could measure the angles for himself, and the calculations of a mathematician like Koenig would hardly be questioned. However, Maclaurin, the well known Scotch mathematician, was not satisfied. The two results very nearly tallied with each other, but not quite; and he felt that in a mathematical question precision was a necessity, so he tried the whole question himself and found Maraldi's measurement correct—namely,  $109^{\circ} 28'$ , and  $70^{\circ} 32'$ . He then set to work at the problem which was worked out by Koenig, viz: "What ought to be the angles of a six-sided cell with a concave pyramidal base, formed of three similar and equal rhomboid plates, so that the least possible matter should enter into its construction?" Maclaurin found that the true theoretical angles were  $109^{\circ} 28'$  and  $70^{\circ} 32'$ , precisely corresponding with the actual measurement of the bee cell.

Another question now arose. How did the discrepancy occur? How could so excellent a mathematician as Koenig make so grave a mistake? On investigation it was found that no blame attached to Koenig, but that the error lay in the book of logarithms which he used. Thus a mistake in a mathematical work was accidentally discovered in measuring the angles of a bee cell—a mistake sufficiently great to have caused the loss of a noble ship and the lives of all its gallant seamen, whose captain happened to use a copy of the same logarithmic tables for calculating his longitude.

Mr. Cotton, after urging various objections to the Darwinian hypothesis, the truth of which he denied, further said: Darwin's statements about bees are not correct, as he says, "Because bees have been taught from generation to generation to lay the foundation of

their combs at the top of the hive, therefore, the formation of the cells as the bees make them is only natural." Now, the Vicar has made his bees this summer, in one of his hives, build their combs upwards instead of downwards, which conclusively proved the incorrectness of Darwin's statements, as these bees had probably not done such a thing for one hundred generations, so where is the theory of natural selection imparted from one generation to another? The Rev. lecturer further said in the next edition of "My Bee Book" he intended to have a chapter on the Darwinian theory, and should let Mr. Darwin have a copy of the article before printed, so that he can prove the incorrectness of his statements, if he can.

The party then adjourned to the vicarage and inspected a number of the improved bar-frame hives. One stock with its supers was said to weigh one hundred and fifty pounds in weight. The vicar then took the cover off one of his hives and lifted out several of the combs covered with the bees, and the cells filled with eggs and brood in all stages of development, the top part of the combs being filled with honey. Some of these combs he gave to the visitors to hold, covered with bees, whilst he lifted out of the hive another comb, and they all saw how harmless and tame bees are when quietly and lovingly handled, as neither the vicar nor any of the party had the least protection, either on their hands or faces. In fact, the bees ran off the combs on to their hands whilst being held, and not one of the party received a single sting.

WE frequently receive letters from correspondents who ask to know particulars concerning Iowa, and though we are proud of our State, and gladly answer when possible, it is in a brief way. All who wish for information regarding our soil, climate and institutions are referred to the *Iowa State Gazette*, whose advertisement has



often appeared in our columns. All information in that paper is valuable to those contemplating a change, and may be depended on as reliable.

Would it be right and proper for me to receive and forward bees in the mails? There is a patron of this office who is a bee-raiser and prepares his packages well for mailing. It is his impression that there is a late ruling to the effect that when packages of bees are done up so as not to injure the mails they can be mailed. I don't remember of any such ruling.

G. I. BARKER,

Postmaster, Murfreesboro, Tenn.

To \_\_\_\_\_ Postoffice Department.

Answer.—No.

The Postmaster General probably never having investigated sufficiently this matter, would it not be well for a dozen or more queen raisers to request the Department the privilege of mailing the Department a package of bees? I am satisfied this is a hasty ruling and should be reconsidered, and with proper efforts on the part of bee-raisers I believe it can be.

W. P. HENDERSON.

We have received a very interesting letter from Ch. Dadant, giving incidents of a visit through France and Italy and the apiaries there, and of the purchase of Italians for us, which is unavoidably deferred to another number of the JOURNAL.

EARTHEN bee-hives are a novelty successfully introduced in California.

### BUSINESS NOTICES.

We have received from the west so many orders for small colonies that we have prepared a number on purpose for this trade. They are sent in small hives containing four frames for \$12, or containing ten frames for \$20. They are packed most securely and in such a way as to make express charges light and to be easily handled.

We have secured reduced rates by express as far as Omaha, and will prepay charges to that point, where it is desired, at seventy-five cents per colony.

ITALIAN BEE Co.

### BOOK NOTICES.

#### Two American Magazines.

The excellence of American magazines has become so well recognized abroad, that one of the leading English papers, the *London Weekly Register*, in a recent issue, thus speaks of *Scribner's Monthly*:

"We are constrained to own that *Scribner's Monthly* carries off the prize against all our shilling monthly serials for brilliancy of illustrations and variety of contents. It is simply a wonderful shilling's worth. Nothing can be more charming than the cuts,—full of force and vigor; the light and shade are managed with truly artistic power. Out of its one and twenty original articles, we really do not know which to choose as best, for each and all are excellent."

Not only is it true that *Scribner's Monthly* excels the English magazines, but it is "The Best of the American Monthlies."

In the extent, variety and artistic excellence of its illustration of American themes, it has never been even approached, much less excelled. It has a larger page and gives a greater variety in its contents than any other of the standard American Monthlies.

In literary character, and in the brilliancy and ability of its editorial departments, it enjoys an equal pre-eminence.

Its conductors started with the definite aim of making it "the best magazine in the world," of which they have never for a moment lost sight and they point with pride and pleasure to the May and June numbers, recently issued, and ask for them a candid examination and a careful comparison of their merits with those of other magazines; and they renew their pledge to the public, to strive for still higher excellence in the future.

A considerable demand has recently arisen in England for *St. Nicholas*, Scribner's "New Magazine for Boys and Girls," one publisher desiring to secure an edition of three thousand of the first bound volume (when completed) with his imprint.

The success of *St. Nicholas* in this country has been even more remarkable than that of *Scribner's Monthly*. It is pronounced to be "an ideally perfect Magazine for children," and, as is the case with all the best literature for children, it has been found to possess surpassing interest for grown-up readers, as well.

The influence of the periodicals of the day can scarcely be estimated, especially upon the rising generation. Parents and teachers cannot afford to be indifferent to this influence, or careless in relation to the character of the literature furnished to the children outside of their school lessons. In *St. Nicholas* not only are History, Natural Philosophy, Literature, Fine Arts, and Manufacture presented in an attractive way to young readers, but the children are stimulated to seek information for themselves.

The publishers will send to and address a specimen number of *St. Nicholas*, postage pre-paid, on receipt of ten cents, the bare cost of paper and printing. The magazines are sold by all first-class booksellers and newsdealers, everywhere.

*Scribner's Monthly*, \$4 a year; 35c. a number.  
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# NATIONAL BEE JOURNAL

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We adhere strictly to our printed rates.

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ELLEN S. TUPPER,  
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### IMPORTANT NOTICE!

We have received so many inquiries about the hive we use, and so many requests for pattern hives that we have taken pains to arrange for the manufacture of a quantity. We, therefore, announce that we can supply hives, single ones for sample, and by the quantity, finished up, or in pieces ready to nail together. We shall put them as near actual cost as possible, but are not prepared until next issue to state exact price. The hives will be so simple that any one can make them,—after having one for a pattern,—but we can get out the material cheaper than it can be done by hand. For particulars, address this office, until next number.

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Thirteen years' experience raising Italian Queen Bees. Average sale each season, 700. All Queens warranted pure and safe. Arrival guaranteed. Prices very low and price list sent free.

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### ITALIAN BEES!

Full colonies, with extra nice queens. Also tested, warranted, and *not* warranted queens, bred from imported stock for sale throughout the season. Queens sent by mail. From 20 to 25 full stocks in Jersey county, in fine condition, will be sold extra low, if taken before April 15th. Eggs from pure Brahma fowls at \$2 per doz.; after July 1st, \$1.50 per doz. Address T. G. MCGAW, Lock Box 64. Monmouth, Warren Co., Ill. 3-4t.

### EGGS! EGGS! EGGS



From choice fowls. Houdans, Partridge Cochins White Leghorn, Dark Brahma, and Red Game Bantam. Safe arrival warranted. We also guarantee that a large proportion of eggs will hatch if properly cared for on arrival. We took Premiums on all our fowls at State Poultry Exhibition. Address M. A. & M. F. TUPPER, Des Moines, Iowa

### Bees for Sale.

I will sell full stocks this winter, or queens in the spring. Single colonies, \$15 each; queens of this year's growth, \$8—to be shipped when called for; to be reared next season, \$5.

I have pure stock, and there cannot be found any other bees of any kind nearer than 25 miles; consequently, I have no trouble in fertilization.

W. McK. DOUGAN, M. D., Physician for Osages, U. S. Indian Agency, I. T.

Communications to reach me should be sent via Coffeyville, Kansas. 4tf.

### TO SOUTHERN BEE KEEPERS.

### PURE ITALIAN BEES!

I will sell a few colonies of Bees, in good movable comb hives, and warrant them *Pure, Strong, and Healthy*. Price, \$25 per colony, with transportation charges paid, if sold near me.

Address, "Virginia," care of Italian Bee Company, Des Moines, Iowa.

**WANTED.** We will give energetic men and women

### Business that will Pay

from \$4 to \$8 per day, can be pursued in your own neighborhood, and is strictly honorable. Particulars free, or samples worth several dollars that will enable you to go to work at once, will be sent on receipt of fifty cents.

Address **J. LATHAM & CO.,**  
4-tf 292 Washington St., Boston, Mass.

### WAX FLOWERS.

Any one desirous of learning the above art will be carefully instructed by letter how to make and arrange them in Crosses, Wreaths, Bouquets, Vases, and Harps, both white and colored flowers, by sending Fifty Cents. I can furnish sheeted colors, if desired. Address, **Mrs. Sarah J. W. Axtell,** Roseville, Warren County, Illinois.



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We can furnish everything needed about the Apiary, such as pure Italian Queens; six styles of Hives; Honey Extractors; Bee Feeders; Wax Extractors, \$4.00; Honey-Knives; Bee-Veils; the American Bee-Keeper's Guide, 244 pages, paper cover, 50c.; bound, 75c. Send for our illustrated 24-page pamphlet, containing general information, FREE to all.  
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Light Brahma, \$2 per doz. Dark Brahma, Buff, White and Partridge Cochins, Houdan, Black Ham-burg, Black Spanish, Gray Dorking, Silkey White Guineas, B. R. and Ducking Game Bantams, Ayles-bury Duck, \$3.00 per dozen. Black Cochins, Brown Leghorn, Rouen Duck and White Holland Turkey, \$5.00 per dozen.

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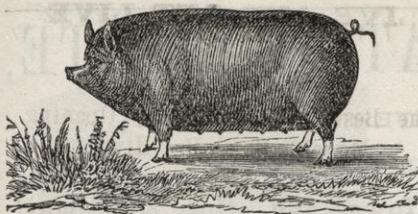
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They are fat and ready for market at any age.

Their flesh is of superior quality and their hams bring an extra penny when known. They bear freighting well. They feed well and grow fast. They have small offal. They are kind mothers and excellent sucklers. They improve all breeds upon which they are crossed.

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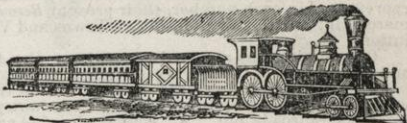
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**KEOKUK & DES MOINES RAILWAY.**

No. 131.		TIME TABLE.		1874	
WESTWARD.	Leave.	TAKING EFFECT	EASTWARD.	Arrive.	
		MAY 17TH.			
No. 3.	No. 1.	No. 2.	No. 4.		
6:15 p. m.	7:15 a. m.	Keokuk.....	4:15 p. m.	4:15 a. m.	
8:15 "	8:57 "	Farming't'n, 232	" 2:25 "	" 1:28 "	
9:15 "	9:52 "	Summit .....	1:35 "	" 1:28 "	
10:10 "	10:52 "	Eldon.....	12:40 "	" 12:30 "	
11:50 "	11:45 "	Ottumwa ...	12:00 p. m.	11:45 "	
11:47 "	12:35 p. m.	Eddyville....	10:53 p. m.	9:53 "	
11:50 "	12:40 "	Transfer.....	10:48 "	9:48 "	
12:10 a. m.	1:00 "	Oskaloosa....	10:25 "	9:23 "	
12:55 "	1:45 "	Pella.....	9:38 "	8:35 "	
2:38 "	3:30 "	Altoona.....	7:47 "	6:47 "	
3:10 "	4:30 "	ar D's M's lv.	7:15 "	6:15 "	
12:00 m.	7:45 "	Gr'd Junct...	4:00 a. m.	1:00 "	
	10:15 "	Ft. D., P've,...	" 10:30 a. m.		
	Arrive.		Leave.		

**CONNECTIONS.**—At KEOKUK with the Toledo, Wabash and Western Railroad, Toledo, Peoria & Warsaw Railroad, Chicago, Burlington and Quincy & Mississippi Valley & Western Railways, and the Packets on the Mississippi River.

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# THE IOWA STATE GAZETTE,

AND NORTHWESTERN REVIEW,

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**The General Interests of Iowa and the Northwest,**  
Its History, Business, Agriculture, Manufacturing, Real Estate, Immigration.

The Immigration Paper of Iowa and the Northwest.

**FACTS & REFERENCES FOR THOSE SEEKING NEW HOMES & BUSINESS LOCATIONS.**

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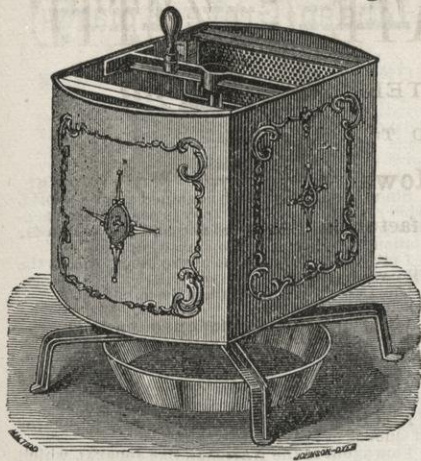
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**Choice Colonies Only \$25**

**Strong Nucleus Colonies, \$15.**

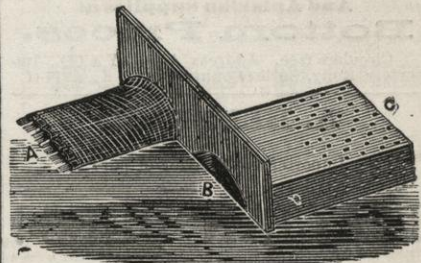


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1874.

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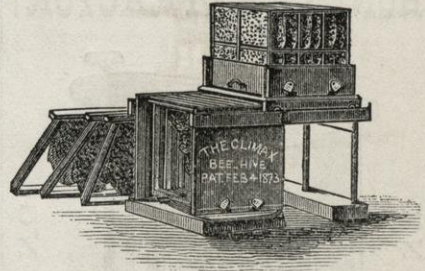
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It is certain, so that all have confidence in it.  
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State Rights for sale on favorable terms.  
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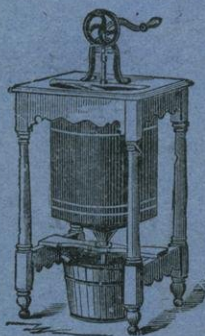
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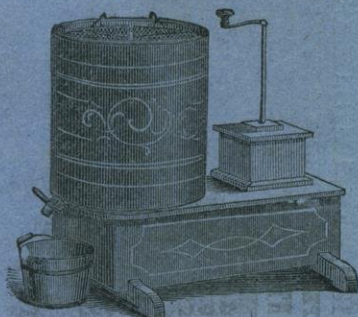
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