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CLEANINGS

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.

BEE CULTURE

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STRAY STRAWS

FROM DR. C. C. MILLER.

"THE GREAT CLOVER year" will be the way 1893 will be referred to in the future.

"ANSWERS TO QUESTIONS," p. 525, is a fine article, notwithstanding the frequent change of subject.

IT'S LIKE OLD TIMES to be able to have honey standing around almost anywhere without starting robbing.

HOW MANY BEES are in a pound? Root, I think, puts it at 5000, and Simmins says 3500. How many are there?

TRY MELLLOT, at least a little bit of it, for hay. My horse will not eat the green stuff this time of year, but will the dry.

IN INTRODUCING queens by means of hatching brood, you can keep them closed for five days. If I am not mistaken the young bees will not fly out sooner.

CLIPPED QUEENS for me, if there were no other reason than to have them marked. Then I'll not think a queen is three or more years old when she was superseded last summer.

TEACHERS AND PREACHERS seem largely represented in the ranks of bee-keepers in Germany. Does this speak well for the vocation, or for the teachers and preachers? Perhaps both.

EGGS DON'T HATCH from heat alone, according to Simmins. He says, "No eggs will hatch until the workers first surround them with the preparatory food upon which the tiny grub is to feed."

CLIP ONE WING on one side is frequently advised for queens. I've been so many times fooled into thinking that such queens were not clipped at all, that I always want both wings on one side clipped.

"THERE'S NOTHING NEW under the sun." The Wells system, two colonies working together in one super, which has made a stir in England, Herr Reepen says is old in Germany, and for many reasons cast aside.

FRIEND WILKIN says he's often seen laying queens fight to a finish. Perhaps the way of it is, that laying queens don't always fight, but virgin queens always do. Do the tempers of the gentler sex always improve with age?

WHY IS IT that queens are so often found dead in their cells? They may be found in all stages, from the shapeless grub to the fully colored insect. Workers don't die that way in cells; why should queens?

ASBESTOS keeps a smoker from getting so hot, but I questioned whether the advantage in that respect would not be overbalanced by the greater weight. After a full trial, I find it so much comfort that I vote for asbestos.

ARE DRONES of unfecundated queens virile? Herr Reepen cites a case reported by Lehrer Strack, in which a young queen was fecundated by drones from a drone-laying queen before other drones were present in the neighborhood.

WHO WAS THAT, friend Dayton, that pulled on a hive-cover with both hands so hard that it flew away? (See p. 519.) Tell him to wiggle a screwdriver under one corner, and, if necessary, under the other, and there'll be no snap about it.

CLIPPING QUEENS' WINGS is better done, as friend Dayton says, before the brood-nest gets beyond two or three combs; and where queens are raised in nuclei, or where it is otherwise convenient, it is a good plan not to wait till spring, but to clip them just as soon as they begin to lay.

THE STING-TROWEL THEORY, according to Thos. Johnson, in *A. B. J.*, was evolved by Mr. Clarke after seeing a lot of beavers at their work "putting on the last finishing touches with their tails." Knowing that bees had tails, it was easy to reason that they were used in the same way.

A STANDARD SIZE of section may be adopted, and it would be a good thing; but you can't have a standard weight of section, for the simple reason that bees will not always build them of the same weight, nor any thing like it; at least, the bees in Northern Illinois have passed a resolution to that effect.

DO BEES sometimes hold over eggs, without allowing them to hatch, three days after being laid? I have had some cases that looked very much like it, unsealed queen-cells being found in a full colony at a longer period after the removal of the queen than ordinary rules would allow. But some mistake may have been made.

A SMALL SWARM was hanging on a tree by the roadside as I went to an out-apiary June 24. I hived it in my hat and took it along, but left a cluster about the size of an egg. I found no queen in the little cluster, but it was still there as I passed July 3, but was gone in the evening, having hung there queenless nine days.

WORKING PEOPLE, according to the World's Fair authorities, were just pining for a chance to get into the fair on Sunday. Now that the Sunday gate-money has dropped to half of the average week day, wonder what excuse they will have for a continued violation of their con-

tract. It's a great fair, but there's nothing fair about the authorities.

THAT GLEANER in all fields, Herr Reepen, in *Centralblatt*, refers to A. I. Root's warning against adulterated wax in foundation on account of breaking down in hot weather, and then says that, unfortunately, they understand adulteration better in Europe, as, to their great sorrow, adulterated foundation does not break down. There!

WHEN I SAID that no after-treatment would change the sex of an egg, I think I had in mind the food and construction of cell. At the same time, if I had expressed myself with regard to it I should have said that such change as that mentioned by friend Schuddemagen, on p. 216, was impossible. If the observation of others agrees with his, I shall have to own up that that was another of the things I didn't know.

QUEENS LAYING IN QUEEN-CELLS.

DOOLITTLE FURNISHES PROOF THAT QUEENS DO SOMETIMES LAY IN QUEEN-CELLS.

All of the older readers of GLEANINGS will recollect that there has been, in the past, much discussion regarding whether the queen ever lays the eggs directly in the embryo queen-cells, found in the hive during times of natural swarming, and when the bees supersede their queens. Years ago nearly every one claimed that, as the queen had such an antipathy toward rival queens, it would be impossible for her to lay the eggs in the cells prepared for her rival in the hive, and claimed that the workers carried the eggs found in these cells and deposited them there, keeping the queen from removing or destroying these eggs, and the larva which might hatch from them, by clustering about the cells. Right here I wish to say that, in all of my experience for the past twenty-five years, I have never known of a single egg being conveyed from one cell to another; but in scores of cases have I known larvæ to be transferred by the bees to different combs and queen-cells. On this one point I have been more particular than on most others—so much so, that, of late, I have wondered whether those who told about bees removing eggs did not really mean larvæ. I call to mind one particular case in the past, where larvæ were removed by the hundred, as it were, but only two eggs were found in queen-cells, although the bees had a laying queen. The circumstances were these: A swarm came out one day when I was away from home; and as the queen had her wings clipped they returned. Not desiring them to swarm, the hive was opened in the afternoon, and all cells cut off. The next day this same colony swarmed again; and before I had a chance to find the queen, she having run under the bottom-board of the hive, the bees commenced to return; and while they were doing so another swarm came out, and, without stopping to circle, as they usually do in the air, went directly in with the returning swarm. Before things became settled, a second and third swarm came out from other hives, and went in with those already returning, so that I had four prime swarms in and on that one hive the queen in the mean time crawling out from under the bottom-board and going in with them. As the three queens belonging to the other hives had their wings clipped, they could not go with the bees, but were returned to their respective hives, and the bees allowed to remain to see what would become of the matter. The next day the four swarms came out as one, and were hived in a specially prepared hive, from

which I secured about 100 lbs. of comb honey in about two weeks. An examination of the old hive showed hundreds of queen-cells started all over the combs; and, as I now remember it, 178 of these cells had little larvæ in them, swimming in royal jelly, while only two had eggs in them. As many of these cells were built on the sides of the frames it would be impossible for larvæ to have gotten into them (or the cells built over larvæ), other than by the bees carrying them there. But, to return:

After a little such men as Gallup, Grimm, and others, came to believe that the queen deposited the eggs for all queens in the queen-cells, where the colony was in a normal condition; and, if my memory serves me rightly, Mr. Grimm saw a queen laying in a queen-cell, while Mr. Gallup believed they did so by the position of the egg in the cell. Later on a hired man whom I had, saw a queen lay in a queen-cell while I held the frame which they were on, in my hand, as I gave years ago to the public; and many others now admit that the queen lays the eggs found in the queen-cells in times of natural swarming, although I see that "Langstroth on the Honey-bee," as revised by Dadant, has these words in it: "We will hazard the conjecture, that, in a crowded state of the hive, the queen deposits her eggs in cells on the edges of the combs, some of which are afterward changed by the workers into royal cells. Such is a queen's instinctive hatred of her own kind, that it seems improbable she should be intrusted with even the initiatory steps for securing a race of successors."

I read this statement with surprise, after all the light we had been having thrown on the subject. None of the eggs laid in the queen-cells, produced during natural swarming, can possibly produce rivals to the old queen, for she has either departed from the hive before the young queens hatch, or the cells are torn down by the workers on account of a scarcity of honey, or unpropitious weather, whereby swarming is postponed indefinitely. But there is a letter lying near me, that has just come to hand, which gives a case of a queen laying in a queen-cell, which is more perfect in all its details than any thing we have had before, and which I think should go on record for the benefit of those who are to come after us. After writing of the strength of his bees, and how a part of them are in hives having glass in the back, the writer, J. E. Ginn, of Ellsworth, Me., speaks as follows:

"I have just seen (June 22) the queen lay an egg in a queen-cell, the same being not more than ten minutes ago. I thought I would write you at once, so I could give all the details correctly. There is a one-inch space between the frames and the glass, and the bees built a piece of drone comb in this space, the same having drone brood in it. Looking in to-day I saw a queen-cell half built on the edge of this in plain view. The queen was one inch from this cell, and one of the bees was feeding her. After a moment she passed in between the frames for a second or so, when she came back and went directly to the queen-cell, put her head up into the cell, then, curving her abdomen, she inserted it well up in the cell and deposited the egg. After laying the egg she again examined the cell, remaining in it with her head, perhaps ten seconds. I have written at some length, for the queen seemed to be so particular. I have seen queens laying in worker comb many times; and while they would examine the cells before laying in them, yet I never saw one look into a cell after she had laid an egg in it, as did this queen the queen-cell she had laid in."

You will notice that our correspondent says the queen inserted her abdomen "well up in

the cell" (italics mine), so it would seem that a queen lays in a queen-cell just the same as in other cells. The position the queen must assume in laying in queen-cells was one of the strong points brought to bear on this matter by the doubting ones. It would seem to me that there should be no longer any doubt in the matter of queens depositing eggs in queen-cells.
 Borodino, N. Y., July 5. G. M. DOOLITTLE.

BARRELS FOR EXTRACTED HONEY.

PLAIN DIRECTIONS ON WHAT BARRELS TO USE, HOW TO CLEANSE, HOW TO PREVENT LEAKAGES, ETC.

[The following, and especially the directions from Chas. Dadant & Son, is so valuable and reasonable that we are glad to place it before our readers. We have not produced extracted honey in any quantity for years; but as the Dadants have had such a large experience, we have no doubt that their advice not to wax is correct.]

Please give me some advice in regard to the use of barrels for storage of extracted honey. I can not obtain new barrels, but have the usual choice of empty ones from grocery or liquor stores. I greatly injured the flavor of a quantity of nice clover honey last season by storing in wine-casks, though the same had been carefully waxed in accordance with instructions in the "A B C of Bee Culture." I am inclined to favor high-wine or syrup casks, thoroughly sealed and waxed, but should like advice from some one having experience.
 Hull, Quebec.

SUBSCRIBER.

Chas. Dadant & Son, of Hamilton, Ill., answer the above as follows:

We have always used second hand barrels for extracted honey. Those that we prefer are barrels that have contained pure alcohol. Such barrels are not charred inside, but are gummed instead with a preparation of glue which honey does not dissolve, and they do not leak, unless they have been exposed to the weather, or filled with water.

We have also used, without unpleasant effects, whisky-barrels, but these are often charred on the inside, and this must be ascertained before they are used, as it is of great importance. The little pieces of charcoal which become loosened from the walls of the barrel mix with the honey, and are very difficult to remove, as they float about in the honey, after having become soaked with it. Charred barrels should be discarded.

We would not advise the use of any other barrels, unless they are new. We will say, however, that a barrel that has contained wine, molasses, or syrup, may be used if it has been thoroughly cleansed.

To cleanse a barrel thoroughly, it is best to remove one head, and some care must be exercised in order to replace it in the same position, or the barrel might leak. Follow these precautions:

First mark the head and the chime, or end of staves, with a chisel or some sharp instrument, so that you may find the exact position occupied by the head, when putting it back. Mark two places so as to make sure. Then take a large gimlet and screw it into the middle of the head for a handle, taking care not to pierce the head through. Then remove all the hoops except the top one. They may also be marked, if necessary, so as to be returned to the same position. When all are removed but one, have some one hold the head by help of the gimlet until the last hoop is off. When the barrel has been cleaned, put the head back in the same position.

We would not advise any one to use barrels with any sour or smutty smell; but such barrels, in a case of necessity, may be cleaned by washing them, after removing the head, with a pint of oil of vitriol mixed with about two gallons of water, or with a little caustic lime diluted in water. But after cleaning a barrel in this way, it should be again washed with water, and scalded if need be. A few days of exposure to the air will help.

Old barrels, the wood of which has become soaked with water, are very objectionable—the more so as they will dry when filled with honey, and in drying will shrink to such an extent as to be unable to

hold their contents. The right kind of barrels to use should not leak when very dry, and that is why we prefer the alcohol-barrels to any others, as the very dryest timber is used in their manufacture.

We used to wax barrels years ago, but abandoned the practice, as we found it rather expensive and inefficient.

After emptying honey-barrels, we place them in a dry shed. We do not wash them until ready to fill them again, and then use only a small quantity of hot water. We use iron-bound barrels exclusively, as the hoops may be tightened much more efficiently than wooden hoops. We have never experienced any difficulty in procuring all the barrels we need, at from \$1.00 to \$1.50 each, even in the season of 1889, when we harvested some 75 barrels of nice clover honey.

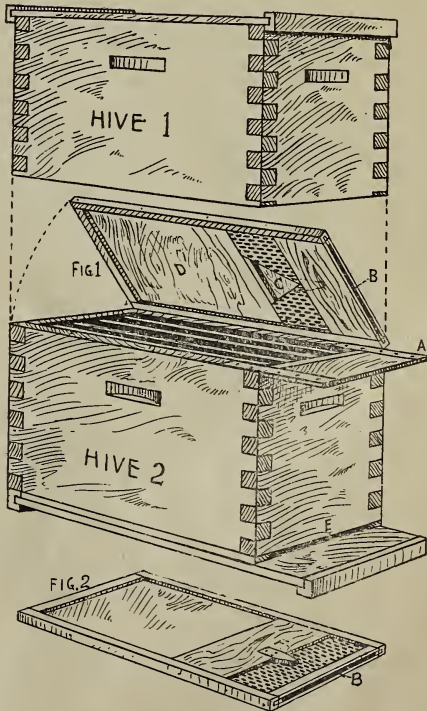
CHAS. DADANT & SON.

American Bee Journal.

SELF-HIVERS.

HOLTERMANN'S IMPROVEMENT AND SYSTEM OF MANAGEMENT.

Ever since the convention of the North American bee keepers at Washington, and the explanations of E. R. Root, and his illustration by sample of a self-hiver, I have felt that the day would undoubtedly come when this appliance would be very largely used. Having carefully read almost every thing that has been said upon the subject in our leading bee-journals, I now believe that the self-hiver has many strong friends, and some who look upon its success in the future with doubt. The accompanying self-hiver, I think, is something better than



has yet been got out. 1. The ventilation of the hive by means of it is more easily secured; 2. The bees have a less distance to travel; 3. Although I do not think that, after the first few times, bees are much inconvenienced by passing through perforated metal, yet it is no

RAMBLE NO. 88.

HOW MR. HUNT PUTS IN FOUNDATION; NEW SQUARE CANS IN CALIFORNIA AT 72 CTS. PER CASE; RAMBLER'S ACKNOWLEDGMENTS TO HIS LADY FRIENDS.

advantage to them; and by this design they require to pass only once through the metal. The queen, passing the two metals by means of the channel, finds herself at either one side or the other. This portion of the design is the idea of W. M. Bayless. His proposition was to do this by means of a bee-escape. I proposed a simpler device, and the leading of the queen to the outlet, which his did not possess.

Next, I like an alighting-board, and the accompanying one is a simple device. It can in a moment be attached to any hive. The tin clips are slipped between the self-hiver and the wall of the hive. The slight bevel to the front board gives the alighting-board a slight pitch.

The objection raised as to the necessity of lifting hives to see whether the bees have swarmed can be overcome readily, and I have arranged the following device: The new hive has at the front of it, and about half way down, an anger-hole which is covered with a large button. In passing from hive to hive to examine for swarms, all that is necessary is to open and close the buttons. If the bees are down, examine for swarms; if not, pass on and save your back. I have as yet had no swarms, as increase is kept down and supers are on most of the hives; but several self-hivers are in place, and some have already reported success in hiving bees with the Pratt self-hiver. The Ontario Apicultural and Experiment Union are testing the Pratt self-hiver. I thought it best to say this first, as it had to a certain extent already been tested. The idea was, to test the principle of self-hiving—not special designs. Self-hivers must mean a great deal for the agricultural classes; hence the selection of the experiment. The Langdon device may be good. It has some things entirely original; but the device of throwing the bees into a new hive to overcome the swarming impulse is, I believe, that of C. W. Post, Murray, Ont. His plan was published some years ago. He placed two sticks, crossing one another at right angles; and where they crossed they were placed upon a post and joined to it by a bolt, allowing the top part to swing around. Upon each arm was placed a hive with bees; and during the season each hive was given a quarter-turn, thus each day giving the flying bees a new home. Mr. Post, who has had a wide experience, having about four hundred colonies, claimed then, and has claimed ever since, that this system prevents swarming.

In closing, permit me to say I have for years felt that swarming can be easily prevented. Mr. Post runs out-Apiaries, and watches for swarms only when other work is to be done; and as several go from yard to yard, and together finish up the work, this is only a small proportion of the time. He does not claim, in the ordinary way, that no swarms issue; but the percentage is so small it is not worth while watching the bees. Between a self-hiver and greater attention to methods of prevention of swarming, a far higher yield per colony will be obtained. I have not had twenty (probably not fifteen) per cent of swarms during the past six years.

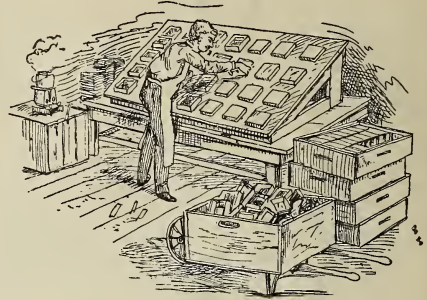
R. F. HOLTERMANN.

Brantford, Ont., Can., June 13.

P. S.—Since writing the above there is a little experience which may be of benefit to others. Perhaps it reveals stupidity on my part not to have thought of this in the first place, but I have no objections to allowing others to benefit by my mistake. I find the best way when putting on self-hivers is to close the lower entrance and slant the board from the self-hiver alighting-board to the ground, covering up entirely the old entrance, when the bees will readily take to the new.

R. F. H.

There is probably no bee-keeper who has been obliged to handle the many pieces that pertain to his calling but has studied upon mechanical means to handle the multitude of pieces more rapidly, and thus cheapen the cost of production; and the many little inventions all show that busy minds are at work trying to make short cuts to the desired end.



HUNT'S METHOD FOR PUTTING IN FOUNDATION.

I found in the shop of Mr. Hunt, of Redlands, several of these cunning devices, and among them a very rapid method of putting foundation into sections. Mr. Hunt's apparatus will be readily understood by reference to the sketch. It consists of a wide board upon which are arranged permanent blocks, the thickness of which is half the depth of a section, and large enough for a section to fit quite loosely over it. Any number of these blocks can be thus arranged, but usually as many blocks as there are sections in a crate. It is but a moment's work to pick up a number of sections that have already been put together, and distribute them over the blocks. A pot of white glue, kept warm over a lamp, is placed near at hand; the foundation of proper size is picked up, and the edge lightly touched with a little paddle from the glue-pot, and the foundation is dropped into the section; the board upon which the blocks and sections rest is set up at quite a sharp angle, and the piece of foundation drops immediately against the section, where it becomes a permanent fixture. The whole number of sections for a crate are filled; and by the time the last piece of foundation is dropped in place, the first one is ready to come out, and the whole are soon in the crate. I never saw Mr. Hunt try to compete with the Daisy or any other fastener; but he claims that he can beat any machine made; that his wife can also do the same, and his twelve-year-old boy ditto. There is also an advantage in using glue, for it holds the foundation in place more securely than any other plan. This is quite a consideration where the crates and contents are to be rattled over rough roads, up canyons and down hogbacks. The same plan can be applied to any size of section and to brood-frames.

The subject of old versus new cans comes up again this year, and will continue to present itself until new cans are used altogether in place of the old. This year the old cans cost nearly as much as the new; and under this condition of things there is no excuse whatever for bee-keepers to use them. The chief disad-

vantage in using old cans is, that dealers look upon them with suspicion. So many kerosene-cans that have not been properly cleaned are used, that, in some cases, the honey tastes strongly of it, and is practically worthless. Dealers invariably inquire if the honey is in new or old cans. If in new cans it is easier to

me. All of these would fall a prey to the cat. I think if I could live among my pets without being troubled by the destroying and frightening influence of the many hunters who prowl around here I could easily tame the most of my little wild friends. Oh, no! there is no room for cats here.

A friend in the far East touched a tender chord in my nature by sending a package of automatic patches for my pants. If you have a rent or hole in a garment, all you have to do is to cut a piece of coffee-colored tissue to the desired size, and place it over the rent; then cut a piece of cloth the same size and place over the tissue; apply a little moisture and a warm flatiron, and the job is done. Next to the bachelor's button, that needs no needle and thread to attach it, this patch is the bachelor's next best friend. As the saying is, I am a thousand times obliged to the lady in question. It shows in her a high utilitarian cast of character, which, I am honestly bound to say, I admire. For the benefit of my fellow bachelors, I would say that these patches can be obtained of J. F. Upson & Co., of Unionville, Conn.; 25 cts. per package. In order to render all aid possible, I herewith give a sketch of the way the patch is applied by the

RAMBLER.



RAMBLER AND PATENT PATCHES.

make a trade, and at a better price. Leakage from old cans is another important item. It is the usual plan to test them by blowing into them. Place the mouth against the orifice, if the size will admit of it, and blow. If the can holds the air until you remove your mouth it is pronounced sound; but many times a little rust spot or a little line of rust along a seam will afterward break open, under the jolting of teaming, and the result is a lost can of honey. The contents thus lost would pay for several new cans. During the last session of the California Bee-keepers' Association, the secretary was directed to correspond with the manufacturers of cans and cases. In compliance with that request he found that cases with two cans could be purchased in San Francisco for 72 cts. each, in quantities, or 74 cts. with a center-board in the case. It is hoped that the association will have samples of cans for examination at their next meeting, and take strong action in favor of new cans.

And now, Mr. Editor, I wish to occupy a little space in which to thank the many fair correspondents in the East for their kindly interest in the comfort and welfare of the Rambler while on his lonely ranch. I will individualize only a few, and first wish to say to that dear one who wrote from the sunny southland, asking if I was "a real verity" or a fiction, that I am a genuine verity, and have been for several years; am subject to corns and backache just like other samples of the male sex; the apiary which I control, and the cabin in which I live, and the dear old smutty flapjack-griddle, are all verities, just as pictured in GLEANINGS.

Another dear wants to know if I do not want an Angora cat to keep me company. Why, bless you, no! The cat would destroy more company than it could replace by its purring presence. While I am writing this letter a brown bird is hopping around on my doorstep, and a cat would soon exterminate the bird. Three gray squirrels are playing around the wax-extractor, and this evening half a dozen rabbits will come up near my door to entertain

THOSE OLD BEE-BOOKS.

ANOTHER PEEP AT THE "GOOD OLD TIMES."

In the year 1679 a great famine in bee-literature seems to have struck England. This was during the reign of the "Merry Monarch," Charles II. This said Charles had in his employ a man named Moses Rusden, a druggist, as Royal Bee-master. That means, probably, that Mr. R. got some of his honey before the jolly monarch, who said he would thereafter eat honey only from Mr. Rusden's apiary. Even to this day, very shrewd tactics are resorted to in England to get the royal indorsement on certain articles of food. This done, somebody's fortune is made. Mr. Rusden's sudden elevation probably put it into his head to write a book on bees; and a more useless compilation than this it would be difficult to find. Still, I am thankful we have the book. It contains 142 pages, 4 x 6 inches. The print is very good, and might pass off as being a hundred years younger than it is. The everlasting mystery about the sex of bees is the burden of it. The writer assumes that, whatever else is true or false, the principal bee in a colony is a king, and he tries to prove this by saying that he had seen the king deposit its seed on his hand. It seems incredible that one who has ever seen houseflies busy with their economy should have failed to conclude that there was not the least probability of a male insect doing any thing of the kind, as there could then have been no inciting cause for the act. On the other hand, how easy to conclude, from what we see of other insects, that it must be a female that made the deposition of matter on the hand! Nature is liberal and even lavish in the use of egg-material, but exceedingly sparing of the life-germ itself. How little Mr. Rusden dreamed, as he looked at the innocent egg of the queen, that the office of the drone toward that egg had been performed long before, and that said drone was gathered to its fathers — or grandfathers, perhaps! The error was the same as if he had confounded a hen's

egg with the subtle principle of life within. What a pity that the egg which Mr. Rusden saw on his hand didn't have a lime shell around it! The error arose from the fact that they assumed that the queen is a true male, the workers true females, each meeting the king in the hive, and that the drones were designed simply to keep the brood warm. What a pity that somebody in those days did not happen to see a queen and drone on their wedding-flight, and thus have given him a hint as to the true office of the drone and the sex of the queen! No one thing helped to confirm them in their error more than the idea that the colony is made and fashioned by the Almighty after the model of the British government. This is seen in those passages where those old writers refer to the loyalty of the bees to their monarch—as if bees had any idea of loyalty, in the human sense! This talk was all to please the king and to gain his favor. If the analogy were to be carried out, why did they not wind up by saying that, when the bees find their monarch has outlived his usefulness, his most dutiful subjects, for the good of the commonwealth, run him through with spears, and put in a new ruler, regardless of his being a Stewart or of the house of Hanover? That would not do—it would savor of disloyalty. But after all it was of but little consequence to them, in the production of honey, whether the queen was believed to be a male or not. The bees themselves understood all about that, and that was the main thing. But it makes a great difference in our day.

The only disease that bees seemed to have in those days, 225 years or so ago, was what we call dysentery — at least, the description seems to tally exactly with what we call that.

Mr. Rusden claims that bees have the same senses that men do, and there seems no room to doubt the correctness of his argument, especially in regard to hearing—the only disputed point. He maintains that bees do nothing in their work except by the direct command of their king. I presume he meant to except balling and assassination. He says they never swarm except by command of their ruler. I will here quote a few words:

“The king's government is just, because he oppresses none; the consequence of which is, unity throughout the whole kingdom. His government is absolute, because his orders are never disputed, but obeyed, as well in swarming, and executing their drones and young princes, as in watching and working.”

I strongly suspect that Moses meant the quotation above as a gentle hint to certain two-legged kings of his day.

As for hives, it was the old straw skep, every time; but for all that, they seem to have had about as little trouble in wintering as the boys do in our times.

At the end of the book the author says, rather boastingly:

If any man knows any thing
More true than I impart,
Let him disclose it;
Otherwise improve with me this art.

Right under these words somebody has written (I rather guess it was Mr. Henderson, who formerly owned the book)—

Thousands of men, since you wrote this
Conceited book of lies,
Where ignorance is bliss
'Tis folly to be wise.

Standing on the superior plane of to-day, it is certainly interesting to follow the gropings of men in those dark times as they worked toward the light. The progress has always been upward, and some day other people will look down on us for some of our follies. But progress in natural science during the next 200 years will,

in all probability, not be so great as it has been during the last two centuries; for our progress has been largely due to the present condition of the microscope, which enlarged our range of view into the little world as much as the telescope did into stellar space.

In this book I was pleased to see that the author frequently refers to Mr. Purchas, 1657, and to Mr. Butler, 1609, the authors of the books I have previously mentioned.

One very commendable thing Mr. Rusden had in view was the abolition of the old system of brimstoning bees to get their honey. This was so distasteful to him that he says of it, “It is like the method of the Devil, who pays his most industrious servants with the greatest ruin.” He enjoins his readers, if they have been benefited by his work, to “give God the glory, in beholding his wonderful works in these small and admirable creatures.” How much better that sounds than to attribute it all to a blind an unknowing force, with no intelligence back of it, called *nature!* It is all of a piece with every English bee-writer whose books I have so far examined. I wonder whether that has any thing to do with the stability and general excellence of the British government as compared with the ever-shifting and revolutionary character of some who have said in their national decrees, “There is no God.”

Mr. Rusden dates his book, “Near the Sign of the King's Arms in the Bowling Alley, in Westminster, near the Abbey, July 13, 1679.”

Medina, July 8.

W. P. R.

HOW TO INCREASE THE WHITE-HONEY CROP.

HOW TO CONVERT UNFINISHED SECTIONS INTO CAPITAL; A VALUABLE ARTICLE BY B. TAYLOR.

What a splendid thing it would be if we could increase the white-comb-honey crop 40 per cent! I was in St. Paul some years ago, and had a small quantity of section honey to dispose of. A certain dealer was recommended to me who was said to buy nice honey. I found him, and offered my goods.

“Is your honey white?” he asked.

I said it was very good honey.

He answered, “I don't care any thing about whether it is good or not; what I want to know is, is your honey white? If it is white it will sell whether it is good or not. I know that dark honey is sometimes better in eating quality than white, but it will not sell. If your honey is not strictly white I do not want it; if it is white, bring it along and I will give you a good price.”

My honey was not strictly white, and I failed to make a sale. Three poor crops have left St. Paul and Minneapolis markets bare of white-comb honey; and yet dark goes begging. White-comb honey is what we want; and in this article I propose to tell how I expect to increase my crop 50 per cent this year. Last year, at the end of the white-honey flow, I took off all my supers of sections, whether they were finished or not. I picked out the finished sections that were properly sealed, crated them, and then extracted the partly finished ones. This extracted honey I sold readily for 12½ cents per lb. This was more than it would have brought if the sections had been left on the hives and finished with dark honey. I set those empty sections of comb into supers; spread a sheet of paper between each super; covered all tight to keep out mice; and now at the commencement of the flow of honey from white and alsike clover. I have nearly 100 supers, of 24 sections each, filled with empty

combs, and I am filling each super with 12 sections of comb and 12 with full sheets of foundation, the combs having been all leveled up evenly and smoothly on the handy comb-leveler.

Honey is now coming in here at a great rate, as there are 100 acres of alsike within two miles; and I have found cases in which the 12 sections of drawn combs were nearly filled with honey in three days, without those with foundation being touched at all. Clover is just fairly opened. The basswoods are fairly bending with blossoms; and you need not laugh when I tell you that it was my great modesty that made me name 50 per cent as the measure of my increased crop by having sections of drawn and leveled combs in which the bees could deposit their loads of nectar without having to wait to build store combs, for I expect to increase my crop fully 100 per cent this year. When the basswood flow is over I will take off all the supers; take out the finished sections; extract the unfinished ones as I did last year; but the empty combs will be immediately leveled up and returned to the supers, half comb and half foundation as before; and the cases will then be returned to the hives, to be filled with dark fall honey. This honey will, at the end of the season, be extracted, and either sold or reserved to feed the bees and raise millions of workers for the next year's white-honey flow. The empty combs will be given to the bees after they are extracted, to be cleaned of all honey. This will be done by returning the combs to the supers; and then some fine evening, when the bees are flying, set the supers all out in the yard, without any covers, so that the bees can get at them without hindrance, and they will clean them all up by night. In the evening, after all the bees have gone home, the supers will all be removed to the iron honey-house, where no bee can enter, and no robbing will be excited. The combs will then all be leveled up immediately, as they work much nicer when fresh; they will then be returned to the supers, and piled up as high as I can reach, with a sheet of paper between each super, to be used next year in the same way, to secure another big crop of that orthodox luxury—white-comb honey.

Forestville, Minn., June 26. B. TAYLOR.

PULLED QUEENS.

DR. MILLER EXPLAINS WHAT THEY ARE, AND WHY HE PREFERS THEM TO QUEEN-CELLS, ETC.; A VALUABLE ARTICLE.

On page 526, friend Root, you ask C. C. M., of Illinois, to tell "C. C. M., of Ohio," what a "pulled" queen is. A pulled queen may be made to play so important a part that I am glad not only to tell what it is but to tell some of the things about it that may be of use to others. When a colony prepares for swarming, it is well known that a number of queen-cells are started; and about the time the first one is sealed the swarm issues. I may say, by the way, that I am saying this on general authority, for my own experience is that bees oftener swarm before any queen-cell is sealed. In any case, after the swarm has issued, a second swarm is likely to issue; and before this swarm issues, piping and quacking may be heard.

At the time of this piping and quacking, there is a young queen at large in the hive, the one that does the piping; and the queen or queens that quack in response are mature young queens that have not yet left the cell, but would do so at once if the coast were clear. They are, perhaps, deterred from issuing from their cells

by the fear of the piper, or, more likely, because the workers that constantly surround the cell drive them back whenever they attempt to come out. You can take out a frame, pull off these queen-cells, or pull the end off them, releasing the queen, and such a queen is called a "pulled" queen.

It is well known that a young queen just hatched may be put into any hive, and the workers seem to pay very little attention to it. I doubt, however, whether this is so unexceptionally true as some seem to think. A queen just hatched may be put into a colony having a laying queen, and may supersede her; but I am sure such will not be the case under all circumstances. Acting on the theory that young queens would be kindly received, and assume control anywhere, I tried one summer to replace a large number of my old queens by putting into the hives young queens just hatched, trusting that they would kill the old ones. In at least some of the cases I found the young queens all right for a day or two, but sooner or later they all disappeared, and, if I remember correctly, the thing was a failure in every instance.

If there had been no laying queen in the hive, or one that for any reason the workers desired to supersede, the result might have been different. It is possible that the young queen gets along on good terms with the workers till she takes it into her head to make an attack on the old queen, when the workers put her out of the way. Still, I have known bees to attack a young queen with no laying queen in the hive, the laying queen having just been removed; but generally, after annoying her somewhat, I think they let her go. While a very young queen will be accepted, at least for a time, almost anywhere, it is well known that a virgin queen several days old is difficult to introduce. It may be, then, that the difficulty of introducing increases with age, and that a queen that has been held in her cell by the workers for a day or two is not so readily received by the bees as one that has not yet attained sufficient age to try to leave its cell. I am inclined to think such is the case.

At swarming time, when it is a common thing to find ten or more queen-cells in every hive from which a swarm has issued, the supply of pulled queens is likely to be greater than the demand, so I have generally paid little attention to the appearance of the cells, but pulled all indiscriminately; and if the queens were not ripe enough it was an easy thing to throw them away. To be serviceable, it is not necessary to wait until a young queen is gnawing its way out, nor till it is well colored. No matter how green-looking a queen is, if it is mature enough to hold on to the comb and travel over it, it will be all right. Younger than this, the bees will drag it out, just as they would a dead bee.

In forming nuclei I think it much better to give a pulled queen than to give a queen-cell. It is less trouble. There is less risk; for there are a good many cases, whatever may be the reason, where a good-looking cell contains a dead larva, and sometimes a dead queen that looks fully matured. It saves time, for the cell may be several days hatching. Besides, if there be any advantage in having a young queen raised in a full colony, and I think there is, a pulled queen has that advantage to the full.

A pulled queen is the quickest and easiest cure for laying workers. So far as I have tried it, it is a sure thing. Just drop a pulled queen on the comb among the brood, and that's all. I believe that, if you try pulling queens, you will not be sorry.

C. C. MILLER.

Marengo, Ill.

JAKE SMITH'S LETTERS.

THAT PALLUS HIVE A FAILURE.



*A. I. Gleanings—dear Sir:—*You know that bee pallus I got. Last yeer it diddent do nothin, but then it was a bad yeer. I took hart when I see how the white clover was a boomin evrywhere this yeer, and evry little while I lookt into it to see if the bees were a bildin down into it from the hive a sittin onto it. Finelly 1 day I see the bees a hangin down into it a little, and my hopes begun to raise. You know the agent sed how the bees wood fill it fool of combs, and hunny, and never swarm. And he was a reel nice-appearin man.



BOOKS THAT HAVE HELPED ME
(IN THE HONEY BUSINESS.)

Well, it wazent but a phue days after that when out cums a swarm. I hived it into a skep washed out with salt water. They say the bees likes that. Then in a week or so another swarm cum out. And, wood you beleave it?

they was another still. That left the old hive so week it wazent no good hardly, and I jist took it off from the pallus and sot it down on the ground. Ime dun with that pallus. I haint no faith into it. For at the rate it has gone so far, it wood take 100 yeers to git it filled.

Now what I want to know is what use I can make out a that pallus. Wood it be good to raze your chickens in, or to raze sellery? Glass mite be poot on top. Mebby you cood tell, Mr Gleenings, in them pages of your magazeen where you tell about razin stroberries and cab-bidges.

That magazeen of yourn is a rite good book. Zed is wonderfully took with it. And my old woman she likes them eggzortations of yourn. But I doant see that you and R. H. Randall makes out right clear how evil cum into the world. Also I doant see how it makes so much difference. Around here we are a good eel more interested to know how to git it out than to know how it cum in. The uther day the old sow got into the garden, and we diddent stop to argy how she got in, but jist all of us set to and druv her out. If we had stoht to argy if she got in the gate or under the fence before we jined forces to git her out, we mite hed more nollidge, and agin we mitent, but wede a hed a good bit less garden sass.

That A B C book of yourn is tiptop. Do you have a First Reader that cums after it? If it keeps on to the Fourth Reader they must be a good deal to lurn about keepin bees. But your way of keepin bees is a good eel different from ours. Seems to me if you never took up no bees in the fall but jist kept them all, that the whole farm would git cuverred with bees. But I must say it always did look kind a tuff to smuther the poor little insecsk after thade worked hard all summer long to git sumthing ahead for winter.

Zed says we must adop the new methods, but it seems kind a queer like to think you can git more hunny by leavin the bees to eat it up in the winter.

I see a peace in a paper rit by a man in Cleveland tellin how he had been grately helped in gittin hunny by a number of books. Zed thot it wood be a good thing after we got threw the A B C to have some more books, so we sent to the Cleveland man for a list of the books that had helped him. He diddent send no list, but sent us this pickter a showing how the books had helped him in the youthful period of his childhood. He got the joke onto us pirty good, diddent he?

JAKE SMITH.

HUMBUGS AND SWINDLES.

The United States Department of Agriculture has seen-fit to send out an extra bulletin, cautioning farmers against

NOSTRUMS FOR INCREASING THE YIELD OF MILK.

The bulletin is by Prof. H. W. Wiley, Chief Chemist of the U. S. Department of Agriculture. The principal swindle is the black-pepsin fraud; and the whole thing seems to emanate from the man Bain, hailing from the vicinity of Zanesville, O. This Bain seems to be not only the bane of our State, but if we do not get him into the penitentiary speedily he will be the bane of the whole United States; and although the black pepsin has been shown up again and again by almost all of our agricultural papers, it seems that thousands upon thousands of dollars are still being paid by the farmers and druggists into the pockets of this Bain. We

have felt it fitting to make the following extracts from the bulletin:

METHODS OF ADVERTISING BLACK PEPSIN.

In respect to the method of advertising black pepsin, the direct way of sending postal cards and circulars to the farmers seems to be the one chiefly followed.

A vigorous attempt has also been made to interest the druggists of the country in the sale of this article, as well as others of similar character. Following is a copy of a postal card which has presumably been sent to the drug-trade in general. It was addressed to Otto Bauchfuss & Co., Cincinnati, Ohio. The card was mailed at New Concord, Ohio, April, 1893:

PRICES FOR 1893.

We will expend in 1893 \$125,000 advertising these specialties. Place these on your lists, as you will certainly receive orders.

BLACK PEPSIN.—A powder prepared expressly for increasing the yield of butter and cheese. Each box will make 500 pounds of butter. Retail \$2.50 per box, \$24 per dozen. Ten per cent off to wholesale and jobbing trade. Three per cent off for cash in ten days.

ELECTROFIED SILVER.—A metal for plating articles usually plated with silver. Can be used without any battery, and requires no experience to apply it. You can plate a dozen spoons in fifteen minutes, and guarantee them for ten years. Each package will do \$350 worth of plating. Retail price, \$7.50 per package, \$75 per dozen. Ten per cent off to wholesale and jobbing trade. Three per cent off for cash in ten days.

COMPOUND EXTRACT OF SALYX.—A powder for preserving fruits and vegetables. Each box preserves 25 gallons of fruit. Retail at \$1.25 per box; \$10 dollars per dozen. Ten per cent off to wholesale and jobbing trade. Three off for cash in ten days.

U. S. SALYX CO.

New Concord, Ohio, Sole Proprietors.

The electrofied silver mentioned in the above card is, without doubt, some mercurial amalgam, and is a striking example of how freely in this country the vender of poisonous articles is allowed to bring them to the notice of the trade.

"The compound extract of salyx" is the gorgeous title under which the modest salicylic acid is made to masquerade.†

Many of our friends will remember of having seen mentioned "electrofied gold," in an item going through the press, purporting to come from a woman whose husband was an inebriate. By means of the electrofied gold, which she bought at a drugstore, she had entirely cured her husband, or he cured himself, of the appetite for strong drink. After going to the drugstore, and finding that the druggist had never heard of such an article, the interested ones usually write to this poor woman who told such a plaintive story, and was glad to help people to avoid the expense of going to a Keeley institute. The treatment at the latter institute costs from \$50.00 to \$75.00 or more; whereas this good woman will send them a package of the above electrofied gold for two or three dollars.

Prof. Wiley, on page 6 of the bulletin referred to, tells us, "The value of the two-ounce box sold at retail for \$2.50, is about 3 cents."

To sum it all up, Bain charges the farmers of our land \$2.50 for a powder, the material of which costs him only 3 cents. But this is not all of it. After all is said and done, the powder has no virtue at all in converting the milk into butter. If the friends who have been buying

the recipe, and paying for the powder, hadn't been too stupid to try it they would have discovered that they could make just as good butter without the powder as they can with it. The emulsion of butter and milk looks like butter and tastes like butter, and might humbug almost any one who did not notice particularly whether he was eating butter or cheese. It must be eaten up quick, however, for it will not keep long in hot weather. The astonishing part of it is, that thousands of dollars have been spent in this country, and are being spent even now, and perhaps will be for some time to come, for this foolishness. It seems to me that every periodical in our land should lend its aid toward exposing this humbug before it is a day older; and we all owe a vote of thanks to Prof. Wiley for having sifted the matter so thoroughly. We bee-keepers know something about salicylic acid; and it is really refreshing to note the way in which friend Wiley describes the whole swindle.

Since the above was in type we have clipped the following from the *Ohio Farmer*, of Cleveland, O.:

These butter nostrums are old. They have repeatedly been exposed by the agricultural press, and yet each succeeding effort, under a new name, finds plenty of victims.

A well-known citizen of this city, last year became a victim to this fraud. He saw two pounds of butter made from one pound, by the use of a powder, and was convinced. He invested ten thousand dollars in the "company."

ANSWERS TO QUESTIONS

FROM BEGINNERS.

M. C. D., of Connecticut, asks if black bees work on alsike clover to any extent. *Ans.*—Yes, as well as any bees, though they are not so good for working on red clover as are the Italians.

W. B., of Michigan, desires to know the merits of the State of Arkansas as a bee country, and whether the markets are good. *Ans.*—We'd advise W. B. to stay where he is. Michigan has a rather better reputation for honey than Arkansas.

R. M. C., of South Carolina, wishes to know what kind of clover is best to sow for bees. *Ans.*—Alsike will grow everywhere that white clover does; and it is the kind of clover that we usually recommend. Four pounds should be sown per acre. It can be purchased of any of your dealers.

W. R., of Florida, asks what plants we recommend for honey in his State. *Ans.*—We would grow nothing that would not pay independently of any supply of honey that he might get from it. If there is an orange-grove, or field of alfalfa, in his vicinity it would probably pay to move the bees to it.

T. V. B., of Ohio, desires to move to a location where bees may be kept with the greatest profit. *Ans.*—California, Arizona, New Mexico, and Colorado are good bee-countries; but as a general thing we would not advise any one to move if he has any other business he can tie in connection with bee-keeping where he now is. Bee-keeping is a success or a failure in nearly every State in the Union. A great deal depends upon the man.

B. B., of North Carolina, writes that some time since he hived a swarm of hybrid bees that had six or seven queens, and that a neighbor who keeps bees in "gums" reports a swarm

* We have already cautioned our friends in regard to this California cold process for preserving fruits; but this is the first time I ever knew that Bain was at the bottom of that also. I should not be surprised if it transpired that all the various letters from farmers' wives, farmers' daughters, or widows with large families, which appear in our various papers, have all emanated from Bain. When a poor woman tells how she has made money, and helped an aged mother, or something of that sort, everybody is glad to read her account; and even our editors, who generally have the credit of being sharp, some of them, it seems, did not think that the clipping so innocently published was simply a big drive to advertise a most stupendous humbug. Those who took pay for inserting such letters in the reading-columns are not fit to be editors.

† Hasn't Prof. Wiley hit it to a dot in the above wonderfully expressive sentence?

with several queens. B. B. wants to know whether that often happens. *Ans.*—A swarm is quite apt to have more than one queen with it, especially if it is a second swarm. In that case there may be four or five virgin queens.

B. F. M., of West Virginia, inquires in regard to a certain suspected sample of diseased brood, a sample of which he sends. *Ans.*—We are not of the opinion that the brood in question is affected by what is known as foul brood. It is a good deal like what was described last year in GLEANINGS, page 594, Aug. 1st. It occasionally gets quite a start in an apiary; but as it is not very infectious it goes off itself when the honey begins to come in. We think you will find the brood to be all right further on in the summer.

J. A. S., of Virginia, desires to get as many Italian drones as possible from his two Italian colonies. All the rest of his stocks are blacks. *Ans.*—Uncap all the drone brood in the black colonies. Give the two Italian colonies each a frame of drone comb, putting the combs in the center of the brood-nest. If no honey is coming in, feed them about half a pint of syrup daily. As soon as drones from Italian colonies are hatched out and ready to fly, put drone-guards over the entrances of the black colonies, and the chances are that your queen will be fertilized by Italian drones.

A. C., of Illinois, desires to know when it is the best time to requeen. *Ans.*—During the swarming season. A number of nice and choice cells will be at hand, and hybrid or other undesirable queens can be disposed of, and the choice cells put into queen-protectors can be given to the colonies. This will, for the time being, stop all swarming; and by the time the young queen is laying, all ideas of swarming will be given up. There is no use of talking, we get better queens from cells reared during the swarming season. We formerly di-puted that, but we now tak· it all back.

W. C., of Illinois, wishes to know whether it is advisable to take off the sections as fast as they are filled, or leave them on the hive until after honey-gathering is over. *Ans.*—In large apiaries it would hardly be practicable to take off every section as soon as it is nicely completed. The usual practice is to leave the crate on until most of the sections are filled out, and then remove it. The partly finished sections can be put together in one or more crates, and put back on the hives for the bees to complete, providing the honey season has not already ceased. The only objection to leaving the honey on longer than when fully completed is, that it becomes travel and propolis stained, and, of course, is less salable.

H. T. G., of Florida, desires to divide, and give queens to the queenless halves of the divided colonies in the most economical and satisfactory way. He has had difficulty in rearing queens. *Ans.*—During the months of August and September, untested queens will be down quite low. In lots of a dozen they can probably be purchased for 60 or 65 cts. apiece. See our advertising columns. These queens, while cheap in price, will most of them prove to be as profitable and serviceable as any; and it is certainly an advantage to buy queens occasionally, outside of your own locality. In this way a new infusion of blood will be secured. If our correspondent prefers to rear his own queens we would recommend to him any of the methods in the text-books.

H. H., of Pennsylvania, wishes to know whether we would recommend the Simpson honey-plant for his locality. *Ans.*—It is in some respects a remarkable honey-plant; and as it blossoms shortly after clover, and contin-

ues to be in bloom till nearly frost, a small field of it goes a long way toward keeping the bees out of mischief, as the bees work on it from morning till night; but after having tested it carefully, the expense of setting out the plants and keeping them in cultivation is, many times, more than can be gotten out of it. There are some places where it grows naturally; but it is not advisable to grow this or any other honey-plant that is not valuable aside from the honey it produces. Artificial bee pasturage should be confined to the clovers, buckwheat, and seven-top turnip.

J. C. S., of Arkansas, has a lot of bees on a farm 18 miles distant; and he desires to know whether he can, at this season of the year, bring them home safely; and if so, how. *Ans.*—We would avoid moving bees in the height of a honey-flow; and under no circumstances would we do so then unless we were sure that the bees would get more honey in another location. If the weather is warm, or what may be termed "hot," with the mercury running up to, say, 90 in the shade, we should prefer to fix up the bees about 3 o'clock in the afternoon. We would fasten the frames, if they are loose or the old-fashioned kind; tack wire cloth over the entrances, and fasten wire cloth over the top. Bees, during hot weather, should not have any regular hive-cover on while being moved. If a colony should be a very strong one (and such is pretty apt to be the case), the bees should be put into two hives or else have an empty upper story, with wire-cloth cover. As soon as the bees have quit flying, load them on the wagon and bring them home by moonlight, if you can select such a night in the month. As soon as you arrive home, place the hives on their permanent stands, and remove the wire cloth from the entrances, so that if, in any case, the bees should be suffering from want of air, they can be relieved.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

MRS. HARRISON'S BEE-HAT.

I want to speak in favor of Mrs. Harrison's bee-hat. I have one, and I think it is ahead of all the veils I have tried, as it is not easily soiled or torn; can be easily put on, and is safe. For the cape I take two pieces of calico (or any thing you choose), 18 inches square; sew together about 5 inches on each side; now sew it to your wire cloth, letting the seams you have just sewed come on the shoulder; now attach a string or band at the lower corners of the back cape. I put a band clear across the lower end of the back cape to make it stronger, letting the ends come out long enough to tie over the front cape across the bust. The only trouble I have found with it is, I can not eat the burr-comb honey when taking off honey.

Barron, Wis., June 27. MRS. F. G. HALL.

FRIEND JENKINS ON A WHEEL.

Friend Root:—Hail, brother wheelmen! I am one of you now. Ever since the safety has been abroad in the land, I have yearned for one; yea, verily, have ached for it; but, as you know, I am a cripple—one leg gone—and I doubted my ability to manage a bicycle successfully, so that I never felt justified in investing the price of a good wheel in the experiment. But I have a cousin and his wheel with me now; and the first thing with me was to tackle that wheel, and settle that question as to whether I could ride one or not, no matter if it

did stand me on my head a few times, and run me into fences and ditches occasionally at first, and even attempt to ride *me*, seemingly. I am master of it now. I rode it four miles over a common country road last week, and succeeded in making a sleepy, innocent-looking mule I met run away with a buggy and two men, and tore the buggy all to smash. The festive mule, the innocent travelers, and the wicked "wheel" with its rider escaped injury. It seems as though anybody with two good legs could do well with a bicycle, if I can ride one. It is going to be a great blessing to me, for I can't walk half a mile or more without pain and fatigue, and it is *fun* to run a good bicycle. In walking, my artificial leg has to do half the work; but on a wheel it need not do any of it, except, perhaps, in climbing a hill or incline. I'm sorry I didn't have one long ago. You know the rest. I indorse all you say in favor of the modern safety bicycle. J. M. JENKINS.
Wetumpka, Ala., June 23.

BEEES REFUSE TO GO INTO THE SECTIONS.

What shall I do to get my bees to store honey in surplus boxes? I have put on boxes from other hives containing bees, and partly filled boxes from hives that were working well. The brood-nest is full of honey. I have three colonies in this condition. I have also filled boxes with drone brood, and placed them in the middle of the crate. They cleaned out cells having eggs and unsealed brood, and allowed sealed brood to remain. Ten other colonies are working well. J. N. HOWELL.
Greenway, Ark., June 22.

[We should be tempted to pinch off the heads of the queens in the three colonies, if the other bees in the apiary are working briskly in sections. There are some strains of Italians that seem determined to stay in the brood-nest. Such bees do very nicely for extracted honey, but are not very satisfactory for box honey; and, sooner or later, we would introduce into those three colonies queens whose bees will go above. If you do not care to kill the queens of the three colonies, place the bees on empty frames. If there is any honey coming in, it would be more convenient for them to store it above than to wait to build out combs.]

CONTRACTING THE BROOD-CHAMBER FOR HONEY; HOW MUCH AND WHEN ADVISABLE.

We are much pleased with the Dovetailed hives which father ordered of you a short time ago, and have nice big swarms in five of them. The question I wish to ask is, whether it would be advisable to contract the brood-chamber on the eight-frame Dovetailed hive to about five or six frames for prime swarms. We have read Mr. Heddon's views upon this subject, but we should like to know whether you think it advisable to adopt the system for the eight-frame Dovetailed hive or not. We have contracted the five swarms which we have in Dovetailed hives to six frames, using two division-boards and perforated zinc strips on top of the frames. One of the swarms left its hive the second day, and took to the woods. What is the reason? Does the zinc strip take up too much of the bee-space on top of the frames?

LEE THOMPSON.

Monument City, Ind., June 3.

[Very much more used to be said about the advisability of contracting the brood-nest to crowd the bees up into the sections; but as the years have gone by, bee-keepers are beginning to feel that more harm than good is often done. The bees are more apt to swarm, with the con-

tracted brood-nest, and are liable, if contraction is carried too far, to carry pollen up into the sections. As a general thing, we would not contract the brood-nest of an eight-frame hive. If the eight combs are pretty well filled with brood, the bees will be compelled to put the honey above. A good deal, however, will depend upon the locality. In some places the eight combs, when well filled with brood in various stages, brings on a big force of bees after the honey season—just the wrong time of the year—that is, when they will be *consumers* and not *gatherers* of honey. Where the honey-flow comes on early in the summer, and there is nothing more, and no increase is desired, it may be desirable to curtail by contraction the brood-nest just at the approach of the honey-flow.]

SEVEN-TOP TURNIP AS A HONEY-PLANT.

Friend Root:—I have for some time been thinking of writing to you to know if you grow as much southern seven-top turnip seed as you could dispose of. I have just filled a contract for over two thousand pounds. I contract with seedsmen to grow as much as they wish. This is the largest contract that I have ever filled, but I don't think I should have much difficulty in supplying as much more, as my land is well adapted to this variety.

I don't know of any thing that we have in this section that builds up bees faster. Had it not been for it this year I don't know whether I should have had any increase in bees. It put my bees on a boom; but, alas! after it was over, there had not been honey enough for bees to whiten their combs, on account of the cold windy weather.

I never set out with brighter prospects, but I have no hope of any more honey until cotton blooms. J. D. FOOSHE.

Coronaca, S. C., June 23.

OUR RESPONSIBILITIES, ETC.

Friend Root:—In your footnotes to Mrs. Hawkins' remarks about having their house burned for reporting an illicit distillery, you say that it "indicates the tremendous need of more Sunday-schools and more Endeavor societies." To my mind, the great responsibility lies in the hands of the voters, who can, by electing men who would make laws, prohibit the making and selling of alcohol. The children in our Sunday-schools, and the young people of our Endeavor societies, can never put down intemperance so long as their fathers vote to sustain it, or vote for parties who do sustain it; and very likely they will grow up to vote as do their parents.

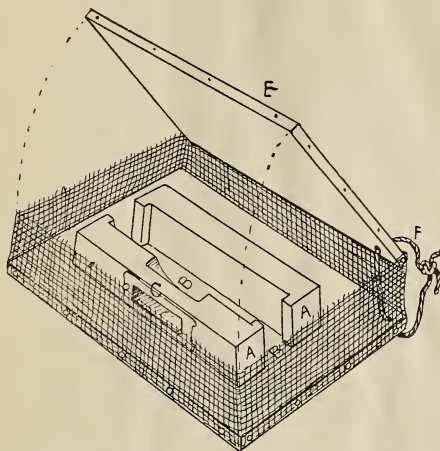
A friend of ours lies very low with consumption. Doctors advised her to use new milk, but she could not use it, as it hurt her. I took her GLEANINGS, and had her read what Mrs. John Collins has to say about adding a tenth water, and heating the milk to 120°; and now she is able to use it without any ill effect, and finds it very refreshing, and is delighted to find she can use it. Many thanks to Mrs. Collins, and GLEANINGS for reporting it.

Roseville, Ill., June 26. MRS. L. C. AXTELL.

FERGUSON'S QUEEN-CAGE.

Mr. Root:—I send you to-day a queen-cage which I invented three years ago. I will not describe it in detail. Your trained eye will readily take in all its points of excellence. I have never known a queen to be lost, introduced in this cage. Take a little piece of square stick and charge the space in the center full of candy; then run the queen in and tack down the loose end of the wire; suspend the cage between the combs by running a wire nail

through the hole. In 24 hours the bees will have eaten down and entered the cage through the perforated zinc; in 24 hours more they will have eaten all the candy out of the tunnel, al-



lowing the queen to be liberated. This is the best and only real automatic cage ever invented, in my opinion.

I. FERGUSON.

Bellevue, Pa., June 8.

[Friend Ferguson has indeed introduced quite a unique feature in his cage for introducing. There have been cages devised heretofore, making use of the candy and a piece of perforated zinc; but after the bees had eaten out to the perforation they could get in to the queen, it is true, but they could not liberate her; so it was necessary for the apiarist himself to finish the final operation, and release the queen. Friend Ferguson has gone one step further, so the bees can release the queen after a few of them have had the opportunity for formal acquaintance in the apartments of the queen.]

HOW TO GET THE BEES OUT OF THE CORNER.

Sometimes when I hive a swarm of bees they get up in a corner, or stay in one end and build out their cells all in one place, leaving the greater part of the hive empty. Would it be advisable to reverse every other frame or every frame, or hive them alone?

Just now bees are in the swim; horsemint in full bloom; every worker bee has a silver spot on its back—a sure indication that it is loaded with nectar from the mint.

Mexia, Tex., June 5.

E. N. SWINBURN.

[We would advise you to use full sheets of foundation, and then reverse the frames from end to end, as you suggest. For instance, if the brood in several frames seems to be all at one end, put every alternate frame, containing brood, the other end to. This will spread the brood.]

TRANSFERRING BY HEDDON'S SHORT WAY; QUESTIONS ANSWERED.

In your footnote to G. M. Doolittle's article on fastening combs in transferring, you highly recommend Mr. Heddon's method of transferring. Now, please tell me, 1. what you do with the young queen that the bees left in the old hive will have reared during the time the remaining brood is left to hatch.

2. Will you get as much surplus from the colony transferred as though you transferred bees and brood at the same time, by using the old combs, as Mr. Doolittle does?

3. As to the amount of surplus gathered, does it make any difference what time in the season they are drummed out? A GREENHORN.

[1. The queen left in the old box hive, if one should be reared may be captured at the last drumming-out. If she is a better queen than the old one, kill the old one, and introduce the new one to the bees drummed out three weeks previously. If she is no better than the old queen, just let her run in with the rest of the bees into the new hive, and the stronger queen of the two will remain in possession.

2. Yes, we think you would get just as much honey.

3. It would make some difference. It is best not to disturb the bees when they are in the midst of a honey-flow, more than is absolutely necessary. It is preferable to transfer as early in the spring as possible, whether by the Heddon or any other method.]

ANOTHER CORRECTION IN SPELLING.

Plze tell Ellery Krum hee doant no howe too spel worth schux. Thee eyedeea uv spelin *munki*. "monkey!" Moast eni *munki* noze beter. Eye ges eye waant won ov them poker-dot queans heze goin to raze.

GEORGE WASHINGTON BILLINGS.

International Bridge, Can.

REPORTS ENCOURAGING.

Bees are doing finely here this year.

JAMES A. DIDDLE.

Winifred, W. Va., June 19.

This is an "elegant" season for honey, with us.

AMOS EVANS.

Cassville, Pa., June 19.

R. WILKIN'S BOOM.

I have 17 tons of choice honey, and 175 increase from my 250 hives this season.

Newhall, Cal., June 16.

R. WILKIN.

My bees are booming, and bringing in the nectar. Every thing points to a large honey-yield.

W. A. HAMMOND, M. D.

Paris, N. Y., June 20.

Bees are carrying honey rapidly for us. It really seems like old times to go among the hives now. We haven't had a good crop in 7 years.

H. D. BURRELL.

South Haven, Mich., June 19.

We have the best crop of honey that we have had for 10 years. Nearly every hive has 48 sections finished.

PERCY COVINGTON.

Appleton, Md., June 21.

The bees are just rolling in the honey from clover. Swarming is nearly over. I have several colonies that are filling their third super.

Flat Rock, Mich., June 24. D. I. WAGAR.

Our honey crop bids fair to be a good one this year. Mr. L. A. Sawyer is taking care of our bees this year. He has taken considerable honey already.

Mrs. LUCY C. SLEASE.

Roswell, N. M., June 27.

Bees are booming; business is booming, and bee-keepers are feeling tickled. It is an old-fashioned honey season. I hear of a party that has taken off 600 lbs. from a few colonies. Clover is yielding immensely.

F. A. SALISBURY.

Syracuse, N. Y., June 27.

Our bees are doing well. Had 160 colonies, 290 now; have taken ten tons of honey, and still at work. I produce extracted honey only. I am located $3\frac{1}{2}$ miles from the railroad.

Piru City, Cal., June 10. JOHN HOLSER.

Bees are booming; weather is fine; white clover in abundance, and every thing points to a big flow. Swarming commenced June 9, and continues with unabated fury. Fatality among bees in this vicinity was great during April, mostly spring dwindling.

A. Y. BALDWIN.

De Kalb, Ill., June 19.

Bees haven't done better for ten years. They have the surplus arrangements filled. Honey sells readily at 18 to 20 cents. The bees are swarming some. We have had a honey-dew for two weeks, and the poplar, basswood, and white clover are full of bees.

C. E. SHRECKENGOST.

Putneyville, Pa., June 27.

Bees have been booming for the past week; even the weakest colonies are filling up their hives with brood and honey fast. Nearly all the better colonies are working in the sections; some of them have one case of 28 sections full of clover honey, which is in full bloom, and very plentiful. Linden promises much; trees are loaded with buds, which look healthy.

C. THEILMANN.

Theilmanton, Minn., June 21.

BIGGEST HONEY-FLOW IN YEARS.

We are having an old-fashioned season here for honey. The fields are white with clover, and the bees are just booming. It yields honey this year. Basswood is commencing to bloom; can't say yet how it will yield; but if it does fairly well we shall get the biggest yield of white honey in four years. In fact, we have already, on clover alone.

S. H. MALLORY.

Decatur, Mich., July 6.

Honey is coming in fast now, and it is nice. If my bees had been strong this spring I should have had more honey by this time than in any other year since I have had bees. You can tell how the honey is coming in, for I put a swarm on combs, and they filled the hive with honey, and capped it in five days; that is good enough; I have about 600 lbs. in sections now, and they have worked better to-day than ever before.

Dover, Mich., July 6. A. N. WHITLOCK.

BEST HONEY SEASON SINCE 1888.

Friend Root:—We have had, and are still having, the best season since 1888. The season opened with a good flow from cherry-bloom. Three days of very warm weather at the time enabled the bees to restock their hives with stores, and gave brood-rearing quite a boom. Then four days of hot weather during apple-bloom crowded the stronger hives with honey, and enabled me to extract 200 lbs.—something which occurs but about once in five years here. After the fruit-bloom, horsechestnut, hawthorn, and locust kept the bees moderately busy till white clover. This is a great year for the clovers. I never saw the roadsides and fields fuller of white clover. Basswood is about opening, and promises well. This, with sumac, sweet clover, catnip, etc., will, with an occasional rain, keep the bees busy till about the 25th of the month, when our white-honey season here usually comes to a close. Last season bees were on the brink of starvation all through June, and began to gather a surplus only about July 6.

JAS. MCNEILL.

Hudson, N. Y., July 8.

OURSELVES AND OUR NEIGHBORS.

And he said to them all, If any man will come after me, let him deny himself, and take up his cross daily, and follow me.—LUKE 9:23.

A great circus was coming to Medina. The bills were up all over the town, and for days people would stop and look curiously at the great colored pictures. For a number of years circuses have given Medina a wide berth; in fact, for several seasons no circus at all has come to our place. It was reported that the showmen gave, as a reason, that the town was so *puritanical* they could not get enough to pay expenses. Of late, however, they stop here, usually once in a season; and I fear they are pretty well patronized also. Now, in saying this I take into consideration that a great part of my readers may not agree with me that circuses are, as a rule, demoralizing; and it is possible that I am wrong about it. I do not *think* I am wrong about their being demoralizing, after all; but it may be possible that there is enough good connected with them to counterbalance the evil. I say *may be*; yet I feel very sure that I am right. A great many times during the past few days I have been asked to give my reasons for hating circuses. Well, in one sense I do *not* hate them. A young friend of mine said, a few days ago:

"Why, Mr. Root, if you do not like circuses, of course you do not need to go to them; but why not let other people, who do like them, use their own judgment, and go?"

"But, my young friend, you are mistaken. I *do* like circuses; and I feel sure I should greatly enjoy going—that is, there would be one kind of enjoyment. This enjoyment, however, would be greatly marred by the twinges of a guilty conscience. To tell the truth, it is quite a cross to me now, and has been all my life, to stay away from circuses. I feel ashamed of myself when I admit it; but perhaps I can help you more by confessing the truth."

I have sometimes thought there were few people in the world who have such keen enjoyment—that is, enjoyment of a certain kind—in worldly things, and perhaps I had better be still plainer, and say *sinful* things, as I have. But the constant thought with me—that is, I hope it is my constant thought—is not, what I *want* to do or would *like* to do, but what I *ought* to do. I have told you about having times of temptation when I could say, almost with a groan, "Oh, I wish it were not wicked to drink lager beer!" Well, I have lately said to myself, not with much of a groan, however, I am free to confess, "Oh, I wish it were not wicked to go to circuses, and take the children!" How I should enjoy going with the little ones, and explaining things to them, providing the innocent part of the entertainment could be separated from the wrong and wicked!

Perhaps some of you would like to have me define more particularly about the wrong and the wicked. Let me say, first, that there are extremes both ways in this matter. A very good Christian friend of mine can not be satisfied because I have taught that it is right to go to fairs, and take the children. He thinks fairs are wicked—that they are the works of the Devil. Well, so do I, to a certain extent; but they are, in a measure, educational, like our schools, and the fairs belong to *us* as a people. We can stop the gambling, the horse-racing, and the drinking; and we *are* stopping all these things by going with our *families*, and taking right hold of the management, and insisting on decency and sobriety. Now, the circuses are not ours. They are mostly in the hands of men whose aim is to make money,

with little or no regard as to how they get it. When the bill-posters came along they wanted to give me some tickets for the privilege of using steam from our boilers, to make their paste. What ought I to have done? Well, may be I did not do the wisest thing; but after studying a moment I told them they could have the steam, but that, if they would excuse me, I did not care for any tickets. They may have given some tickets to the engineer and his assistant. I decided it was their business to accept them or not, as they might choose. Then they wanted to water the animals at our hydrant. I have never yet refused drinking-water to man or beast, and I hope I shall never be obliged to; but while they were watering the animals, one of the bosses, to show off, or to show his authority, gave vent to a string of oaths that was really hideous. Very likely he thought it was a good opportunity to impress the people, mostly boys and girls, with the fact that skill and practice had made him pretty nearly perfect in doing more cursing and blaspheming in fifteen minutes than anybody else they had ever heard. It was before our Sunday-school children, members of our Endeavor societies, and before little boys and girls who had probably never before in their lives heard any thing like it. You may say the managers of the circus were not responsible for this; and you may urge, too, that many railroads are managed by a good many of that sort of people. Yes, that is true; but I think the worst swearing I ever heard in my life was around circuses, and I never saw a circus free from it. Again, we not only have swearing and drinking, but more or less *gambling*, interwoven all through the network of the circus management. I have been told there is such a vigorous protest against the gambling that there is less of it now than there used to be. I sincerely hope so. Last, but not least, every circus must have a troop of women performers. Without them the circus would go down. Let it even be noised abroad that there are no women, and see how it would kill out the show. As an illustration: Popular taste, or a sort of low brute taste, demands that rope-walking be done so high up, that, if a performer falls, it will be very apt to kill him. Pray tell me why people could not pay just as much money to see it if the rope were only *two feet* above the ground. In the same line, popular taste demands that the acrobat perform on a trapeze up in a balloon. People would not pay over their money unless the performer is so high up that, in case of an accident, he will be crushed to a jelly. Now, I think it is the same taste, or a worse one, that demands that *women* and not *men* shall come before an audience in a nude state, or as nearly so as the laws will permit, and perform. I once heard of an enterprising showman who found a man so womanlike in his appearance that they fixed him up and passed him off for a woman. It was discovered, however, that a monstrous fraud had been perpetrated on an innocent and unsuspecting public. A woman was pictured on the bills, and she was advertised as a woman; but after they had paid their money, with the full understanding that they were to see a *woman*, it turned out to be a *man* fixed up. Now, is it not true that the taste that demands one shall risk life before you pay over your half-dollar, is exactly the same *sort* of taste (only a *worse* one) that demands that a woman should risk or *throw away* what is more to her than life? I am not preaching at *you*, dear friends; for it would very poorly behoove me to do so while I remember that, when I used to go to circuses, I demanded pretty much the same things that you demand; and if I listened to that same low

spirit that demands that men shall risk their lives, and women risk something *more* than life, I should feel indignant, with the rest of the world, after I had paid my money to see a *woman* perform, and then discover that she was *not* a woman. When somebody will come out with a circus without women performers, without risking life and limb, and with no more profanity, intemperance, or gambling than we meet at fairs, I believe I shall go to circuses and take all the children. Skill in gymnastic exercises is a good thing. It is taught in our schools, and some of the finest experiments in mechanics and natural philosophy I have ever seen were in circuses. I like to see a wheel-rider so expert that he can take a common wagon-wheel and ride it around before an audience. But this will do for the matter of circuses. Let us now turn to our text.

Our boy Huber is of just the age when it would be supposed he would find it a hard matter not to go with all the rest of his playmates and associates. I rather expected he would go, and felt sorry to think I could not conscientiously go with him. I gave him permission to do as he thought best in regard to the matter, as I have done with all of our children. He made up his mind, however, before circus day came, that he was not going—not because his father said he must *not* go, but because he did not choose to go anywhere that his father could not approve of. I confess it made my heart ache to see him move his playthings to the opposite side of the house from the one that gave a view of the great tent with its crowds of people. May God help me to reward him! And just here comes in the thought expressed in our text. If any man will be a follower of Christ Jesus, he must deny himself—not only now and then, but “daily,” as Luke puts it. Toward evening, after the show was over, some of the family, I do not remember which one, asked the question:

“But what is the good of depriving ourselves of these things that everybody else seems to think not particularly wrong? In other words, what shall we gain by being so very strict and precise?”

As soon as the question began to be framed, I was dimly conscious that there was some special promise in the Bible to the faithful, right along this very line, but I could not recall it just then. I said something like this, however:

“Dear friends, we have a plain and clear Bible promise that we shall receive tenfold more than we give up, here in this present world, and eternal life beyond.”

As I passed on down the walk with the thought in mind, I began trying to recall where it was that Jesus gave us this promise; and I found it in the 19th chapter of Matthew. Before I quote it I wish to say to you that one of my besetting sins in my early life was exaggeration. I always liked to put things strongly; and when I wanted to make a point, I was very apt to overstate. For years I have been battling against this temptation; and finally I decided that I would make a practice of understating, or, as you might say, bending the bow in the opposite direction, that it might be more likely to remain straight when it was let loose. In fact, I wanted it to bend the other way. It is far better to put the thing too mildly than to get into the habit of being too extravagant. You may be sure I felt glad, therefore, when I turned to the 29th verse, and read, “And every one that hath forsaken houses or brethren or sisters or father or mother or wife or children or lands, for my name’s sake, shall receive a *hundredfold*, and shall inherit everlasting life.”

Now, friends, let us stop a little to consider these wonderful words and this wonderful promise to all who give up or forego the things of this world for the good of others or for the sake of Christ Jesus; and let me say, that, to my mind, the great distinguishing feature between those who accept the gospel and those who do not is this matter of self-denial. The Christian *must* deny himself, or he can not be a Christian.* The man of the world need not deny himself at all, unless it be for the looks of the thing, or for the sake of decency. Since I have tried to answer some of the questions from skeptics, a great many letters have come in—more, I am sure, than it will be possible or well for me to try to answer personally. But this very matter now before us should answer all who are really seeking the truth. The Christian constantly puts aside selfish feelings and selfish motives. He gives up for the sake of others, or for Christ's sake, as we sometimes term it. And, by the way, the whole world is clamoring for men who can be depended upon to *deny themselves*, as in the language of our text. The whole business world is demanding men who can not be bought, nor bribed by appeals to their selfish feelings and passions. The perpetuity of our American republic depends upon finding men who are *ready* to deny themselves. If Christianity does not furnish any more self-denial and self-sacrifice than infidelity (or, if you choose, those who neither accept nor reject the Christian religion), then we may as well give it up. By their fruits ye shall know them. If you, my friend, want to employ a man, and want a man who will do his duty whether you are looking at him or not, do not the Christian people among your acquaintances average better than the others? Now, mind you, I do not mean simply *church-members*. If I wanted a good man for an important place, and wanted somebody I could trust when I was not in sight at all, I should, other things being equal, greatly prefer a man who attends church regularly, and one who takes some part in the Sunday-school, weekly prayer-meetings, etc. I should feel sure that such a one would deny himself when the temptation to shirk or cheat, or even to be selfish, came up before him.

Let us now go back a little and see if we can not find something new in that 19th chapter of Matthew. About the middle of it we are told that a person came to Jesus, saying, "Good master, what good thing shall I do that I may have eternal life?" You know what the reply was. You know, also, that Jesus told him finally to "go and sell that thou hast, and give to the poor, and thou shalt have treasure in heaven, and come and follow me." The disciples were standing near during this terrible test; and when this model young man went away sorrowful, because that final test would sweep away all at once his great possessions, the disciples marveled. Then the Master told them that a rich man could hardly enter the kingdom of heaven. In fact, he said it was easier for a camel to go through the eye of a needle than for a rich man to enter the kingdom of God. I know there have been many explanations in our day to do away with the camel and the needle's eye; but I prefer to take the Scriptures just as they read. May be it is because of my old love of strong statements; but it does not matter very particularly. The

thought seems to be that, no matter how rich a man may have been in this world, his riches certainly will not be any passport, or give him any privileges in the world to come. No wonder his disciples were "exceedingly amazed," and said among themselves, "Who, then, can be saved?" Peter, however, had another idea in his head. He interposes, as he often did, and says, "Behold, *we* have forsaken all and followed thee. What shall we have therefore?" Peter was right. They had left home and friends, houses and lands, their boats and fishing-tackle; they had given up position and employment; they had left worldly occupation, and, in short, the great busy world itself. They *were following* Jesus, and proposed to follow him, no matter where he led; and Peter's question was not so very much different from the one propounded in our own home—"What shall we have, or what shall we gain, by giving up or foregoing every thing that is even questionable?" The Master answers, and says to them who have followed him, and proposed to follow him, that "every one that hath forsaken houses or brethren," etc., "for my name's sake, shall receive a hundredfold, and shall inherit everlasting life." In Luke we read, "Verily I say unto you, there is no man that hath left house or parents or brethren or wife or children, for the kingdom of God's sake, who shall not receive manifold more in this present time, and in the world to come life everlasting."

Now, these poor simple followers were, like ourselves, prone to get enthusiastic, and full of a certain kind of patriotism. Peter especially was almost always ready to declare he would give his life; and at one time he seemed quite determined to sacrifice his life needlessly. In order to correct this tendency, and to make these poor friends of his comprehend something of what his followers *might* be called upon to endure, he commenced to tell them, with a vein of sadness, we may suppose, of what the future was to bring forth. He says, "Behold, we go up to Jerusalem, and all the things that are written by the prophets concerning the Son of man shall be accomplished. For he shall be delivered unto the gentiles, and shall be mocked, and spitefully entreated, and spit upon; and they shall scourge him, and put him to death, and the third day he shall rise again." Luke tells us, however, that they understood none of these things. We know that at least some of them had their minds occupied with something else. Jesus had commended them; in fact, he had paid them a wonderful compliment by admitting that they, these chosen few, had indeed *left all* and followed him; but even in spite of his reminding, in spite of his admonitions, a foolish and selfish ambition came in right here. As soon as they got by themselves a dispute commenced; and the Master was finally obliged to interpose. Do you remember what they were disputing about? Why, these very friends of his—in fact, the two that seemed to be specially spiritual-minded—one of them was even the "beloved disciple," were contending about who should have the best places. When this great event should come about, when they should indeed be appointed to judge the twelve tribes of Israel, Peter and John put in for the places nearest the Master, one on the right hand and one on the left. As we contemplate these things, and it brings a feeling of sadness over us, there is at the same time something encouraging. Even St. James and St. John, as we are wont to term them, were human, like ourselves—so exceedingly human that, when he tried to tell them of his approaching fate, their heads were so filled with foolish and ambitious schemes that they did not even hear it. Those who are inclined

* How much intemperance would there be in our land if all mankind would come up to the standard of our text, or even a *little way* toward it? The man who is accustomed, day by day, to deny himself and to keep down all these low appetites and passions, will never be in any danger of giving way to the appetite for drink.

to criticise Christians should remember this: That even the best of us, with all our best intentions to be self-sacrificing, and to be meek and humble followers of Christ Jesus, are often, almost unconsciously, exceedingly selfish.

Now, dear friends, the Bible is ringing with texts along this line of self-sacrifice; and there is not a greater truth in this whole wide world than that the man who is constantly seeking self-gratification will utterly fail in that which he seeks after. "Whosoever shall seek to save his life shall lose it." And, again, the one who decides to deny himself, and to put down every selfish feeling, just as soon as it puts in an appearance, shall, almost unconsciously, find the truest and straightest path to real happiness. "And whosoever shall lose his life shall preserve it." Why, I am sure, dear friends, that you have all had experiences along in this very line. You have again and again decided (perhaps with a sigh) that it was best for you to give up something you very much wanted; yet you decided that, for the sake of *peace* and *good will*, you would say nothing, and bear the cross; and, to your great astonishment, you discovered very soon afterward, that, in giving up and in putting aside self, you found a great *blessing*. Does not our text express it beautifully? "Let him deny himself, and take up his cross daily." And then, again, in the verse beyond, "But whosoever will *lose* his life for *my sake*, the same shall save it."

NOTES OF TRAVEL.

ON THE WHEEL—CONTINUED.

After looking at the spirea we pushed on through the evergreens, and my eye at first caught on to the strawberries; but it was not long before I uttered another exclamation of surprise as I saw the most luxuriant growth of clover I think I ever set my eyes on before. It was so thick and strong that it fairly rolled over on to the cultivated ground. I turned to look at friend Terry, and he smiled as he replied, "There, Mr. Root, that is what I wanted you to look at when I sent you that urgent invitation. I thought I would let you alone until you ran on to it yourself."

At this I raised my eyes and looked over the green field. Then I turned my face to the right and to the left as I replied, "Why, your clover is not *all* like that *all over*, is it? Is not this a piece where you put on so much manure to get something extra for your strawberries, two or three years ago?"

"Well, you shall be the judge," said he.

Then we went all around the clover-field and examined it. It was almost too wet from the recent rain to wade into it very much. Several times I thought I saw a place where it was not as tall, and so I *did* wade out in to see. But Terry's thinking and working had got it almost perfect. It was an even stand from one side of the field to the other, just as regular as if it were a piece of mechanical work. There were no poor spots, and no extra good spots,* and at that time it had not got down anywhere. Within the past few weeks I have been having some experience with what can be done, not only with potatoes, but average garden crops, on a clover sod. We have been having the worst drouth that has visited us for many years. But every thing on the clover sod is walking right along, keeping up its color, and making a strong thrifty growth. To-day is the

* Not even where this ground had been manured so heavily for strawberries.

10th of July; but since the 1st day of June we have not had enough rain altogether to make an ordinary shower, while the mercury has at times been in the 90's. Now, I do not know what the result would be of turning under such a growth of clover as I saw that day; but from what experience I have had, I think it must be something immense. I questioned a little, and friend Terry admitted that the crop promised to be so great as to fill all his barns—may be more too.

Before leaving home I had been worried because of the quantity of docks that were coming up in my potato-field. Old farmers shook their heads, and said I would have to dig them out, root and branch. Now, there were so many that that meant considerable hard work. I did not know how docks could have come on my ground to that extent. But I concluded it must have been in the clover seed, and that, when we turned the clover under, the docks grew up "t'other end to." I have spent some money in digging out docks, and I have had some experience, as you may remember, in killing out Canada thistles; and when some of my men asked whether they should dig out the docks, I told them to wait a little until I found out more about it. In fact, I proposed to write to friend Terry and ask him to tell me on a postal card whether such cultivation as we give potatoes would not kill out even docks as it did Canada thistles. Well, when I looked over his potato-fields where the potatoes were just getting through the ground, I almost "chucked" as I saw the docks scattered here and there, just as they were in my own field. But I was not very much surprised either, when friend Terry said they would not do any particular hurt. He has told how careful he is about having no foul seeds in his wheat when he sows it, and therefore I rather expected he would be equally careful about his clover seed—especially clover seed without any dock seed in it; but I was not very much surprised when he said that dock seed in with the clover does so little harm that it is hardly worth while to make a fuss about it.

Of course, he would not have a dock going to seed on his premises, any more than I would; but running the cultivators as he does every few days right over the docks soon uses them up, and I found it so in my case. There is not a dock to be seen now in my potato-field, and I hardly understand it either, so little attention was paid to them. The few left in or between the hills, were, just once, cut out with a hoe.

Now, here a point comes in. A great many hard-working farmers waste their time in severe hard labor, in doing work that does not need to be done—in fact, oftentimes even worse. At this very time, right in the midst of a July drouth, people all over our town are hilling up their potatoes. Several have wanted to borrow my shovel-plow or any other implement that would just pile the dirt away up sharp around the potatoes, leaving the deep V-shaped furrows between the rows. I have attempted a little remonstrance but it is not a bit of use. When I quote Terry, they say, "If Mr. Terry says that potatoes should not be hilled up so as to prevent the hot sun from making them green, we don't want any more of Terry." If I had nothing else to do I might sit down patiently with each one and attempt to explain matters. It is no use to attempt to get them to read his book, for they have not time, or they think they know best any way. A few years ago I had a very promising piece of Early Ohio potatoes. They were doing as nicely as potatoes could well do until one day, during my absence, one of my German helpers, who felt sure it ought to be done, hilled up the whole

patch until they looked about like celery-rows fixed up for bleaching. We might have done it a great deal quicker with the Planet cultivator and horse, but I presume he fairly ached to get at it with his hoe, and do it up in the old-country style. He worked hard and did an honest job; but the potatoes wilted down right away, and there was not nearly half a crop. Now, mind you, there is a good deal to be explained about this matter of raising potatoes on the level culture. If you plant in the old-fashioned way, with a dozen big stalks in a hill, they will burst the ground open so something has to be done. If, however, you have only one good stalk in a place, and these good stalks just about the right distance apart, you will get just as many potatoes, or more, and have them nearly all of a marketable size, and not have them sunburnt either.

Since the big ditch has taken the surplus water away, friend Terry has been doing some more underdraining, and, like the rest of us, he is having some puzzling problems to work out. While looking at the water as it was running away from the black mucky swamp ground, I began to feel thirsty. When riding the wheel at the rate of thirty or forty miles a day one wants a good drink every hour or two. When I asked if there were not some springs somewhere that furnished nice drinking-water, my friend said at once, "Oh, yes! come this way." At the foot of a gravelly hill a bubbling spring burst forth, and on the brink was a glass fruit-jar used as a drinking-cup. Was any thing ever before so grateful and delicious as the water from that jar? I did not drink a whole quart, but it seems to me I came pretty near it; and it just made me feel clean and bright and strong. Now, there is one thing that I like when I go to friend Terry's. If I want to rush off in an hour or two, just as I enjoy rushing around through the world, I am perfectly free to do so. I told him I wanted the privilege of coming quite often, and therefore I proposed to make my visits short; and after having some more of those canned Sterling strawberries, with that beautiful nice bread that Mrs. Terry knows so well how to make—hold on! it may be that the bread was made by one or both of those bright and accomplished daughters who make themselves useful in so many ways around that pleasant home. How I did enjoy my wheel again after the roads had dried so as to be firm for rubber tire! I wanted to visit Matthew Crawford, the great strawberry-grower; and if I were to get off right away, and make things fly, I might reach his place in Cuyahoga Falls before dark.

Oh, yes! there is another thing that I must mention before I bid good-by to the Terry homestead. Let me digress a little first. I suppose that, for the present, it is wisdom to keep our barns and out-buildings locked up. Why, within only a few days back, even here in our moral town of Medina, there has been a great deal of chicken-thieving. One of our neighbors, who hatches chickens successfully with an incubator, has had toward a hundred choice chickens, of valuable high-priced breeds, taken from his yards. Only last night a couple of dozen of his choice pullets were carried away. At present, locks and keys seem to be the only alternative. May be locks and keys do not bother you at your home, but they are a fearful nuisance here at our place. The warehouse will be locked up, and one of the men will have the key with him in his pocket. The one who has the key will, may be, stay away half a day (to hill up his potatoes, or something of that sort), and nobody can get into the warehouse. Three or four expensive men will be standing around the door, meditating what to

do. Sometimes they get an ax and break the lock; and the consequence is, that, when the warehouse should be locked up, it is not locked at all; and when it ought to be open it is locked up, and the key lost or gone. I have sometimes said that I would about as soon have my possessions stolen every once in a while as to have such fearful bungling and losses of time with locks and keys. Well, Mr. Terry has met this same problem and solved it. He finds it policy to lock his barn and tool-house; but instead of a lock with a key he has a combination lock that costs about a dollar. All the family, and even the hired man, understand the combination. You just take hold of the knob and turn it, say, three notches one way, one back, and two ahead, and the door is open; and one who is accustomed to it will open the door as quick as with any latch. But to a stranger it is perhaps the most secure lock that can be devised, and yet the price is only about a dollar.

I shall have to tell you about my pleasant visit at friend Crawford's in my next.

HIGH-PRESSURE GARDENING.

BY A. I. ROOT.

GARDENING IN THE SHADE, ETC.

When I had the mania for sub-irrigation, on friend Cole's plan, several years ago, I spent considerable money in making reservoirs of stone, covered with earth; and the earth covering was made of mixed soil and manure for two or three feet. The development of our business, however, necessitated putting a new machine-shop right where this garden stood; and the consequence is, my nice beds that cost so much money are in the *shade* the greater part of the day. Some of them, in fact, almost never see the sunshine. Some way I could hardly bring myself to the idea of taking the earth out of those beds, and giving up what cost so much money. By a little experimenting I found that celery would do just as well, or a little better, in the shade; therefore this whole series of plant-beds is now devoted to celery-raising. A couple of hydrants furnish abundance of water, so that the little plants may be kept constantly wet until the roots get down so deep that they don't mind the drouth. Well, this ground, after having great quantities of manure applied to it year after year, has finally become the richest and nicest soil I ever saw for *any* thing. Some of the beds that I have had in use longest seem almost perfection in the way of soil. This reminds me that, when I asked friend Smith, of Green Bay, Wis., if his land got worn out with such constant cropping, he replied, "Why, nothing of that sort; in fact, it is just the other way. Here! come and look at the first acre of ground that I ever owned." Well, the soil on that one acre looked and acted a good deal like the rich loam in my first plant-beds. Besides the stable manure that has been put on, I drew many loads of muck from the swamp, and I have also put on quite a little sand with bonedust, more or less, at different times. Well, when we were crowded for a certain kind of celery we transplanted into this particular bed. I can not tell how long it takes for the seedlings to get large enough to ship; but it seems to me only just a few days. Then the bed is worked over, smoothed down, and another lot of plants go in, and they in turn take hold of the black earth so vigorously that, almost before we know it, they are ready to go out. This one bed holds about 3000 plants; and even at the lowest 10,000 rates, we get \$7.50 for

the plants of the bed every little while. Another thing, it has been weeded so much that not many more weeds come up in it. Still another thing comes in right here: The women-folks around Medina are, every little while, wanting some of that nice soil to grow their flowers in. I set the price at 25 cts. a bushel; but, I declare, if I should take soil out of that particular bed to fill orders, I fear they would scrape out every bit of it in no time at all; and I do not know how I could replace it right off. Well, every gardener or florist ought to be prepared to sell nice potting-soil. You can get a whole load of stable manure for 50 or 75 cts.—at least, we can. Muck from the swamp should not cost more than half as much; and nice sand from the lake shore, perhaps twice as much as the manure. Then you can put in rotted sods, decayed leaves, weeds, dirt, etc. Why, the cost would not be more than five or ten cents a bushel; and who would not pay 25 cts. for something that is just right to grow seeds or start plants? A great variety of refuse might go to make up this nice soil—weeds, refuse, and all sorts of trash from the garden, providing said trash is something that will rot up fine so as to go through the gardener's sieve. If one wants less than a bushel, charge him, say, 10 cts. a peck; and it will be cheaper for almost any one to pay this price for a nice article than to use the average garden soil. The trouble is with us, there is always a greater demand for "nice dirt" than the supply; and this real nice soil does not need so very much watering. It seems to hold the moisture very much better than the average soil. My impression is, that it must take years to make it. I have heard of greenhouse men shoveling out the contents of their beds every year or two. Now, that is not according to my ideas at all. If the soil does really become infected with fungus or insect-enemies, then put it out during a severe freeze, and just freeze them out.

How about the sub-irrigation part of it? Well, it worked beautifully for plants that can get down into the water. Almost every season the Hubbard squashes, melon-vines, or even cucumbers, get a start late along in the season, when the plant-trade is pretty nearly over; and when they once get their roots down, and get down to business, it would remind you of Jonah's gourd, that came up in a night. During our cellar excavations in building, we actually found the roots of a squash-vine down three feet among the wet stones. It was under glass so it could not get any rain; but yet it just grew "amazingly." The water is down so low that a great many plants can never get to it; but when any of them do, their growth is immense.

ANOTHER TOMATO BOOK.

About as soon as we have an industrial book on some special branch of rural industry, another is pretty certain to follow in its wake; and so it should be. One book can not well cover all the departments of even a single industry like tomato-growing. In our own tomato book, neither myself, friend Day, nor friend Cummins had much to say about originating new varieties. Well, this new book on tomato culture is by A. W. Livingston, the man who has given the world more and better varieties of new tomatoes than any other one man living. Livingston gave to the world the Paragon tomato in 1870; in 1875 the Acme, which had a greater run, perhaps, than any other tomato ever known. In fact, it started a new era in tomato culture; and even now friend Day gives the Acme the preference, as a rule, for his great plantation of tomatoes. In 1880 Livingston's

Perfection came out, and in 1882 the Golden Queen. In 1883 the same man gave us the Favorite, and in 1886 the Beauty. Who is there who never heard of Livingston's Beauty tomato when it came first before the world? I remember of seeing a boy on the streets, with a basketful in each hand. They were so perfect in shape, color, and smoothness, that I stood still in astonishment. Said I:

"Will you please tell me, my friend, where you got those beautiful tomatoes?"

With quite an indifferent air, as if they were nothing to be surprised at, he replied:

"Why, up there at the grocery."

"How much did you give for a basket of tomatoes like that?"

"Twenty-five cents."

He then stared at me as curiously as I had stared at the tomatoes. At this time I had paid but very little attention to tomatoes, and hardly knew what kinds were in the market. When I found the town was full of these nice ones, and nobody thought strange of it, I began rubbing my eyes. They were Livingston's Beauty. Some years later a man drove up with a load of tomatoes. He wanted to sell me some. I told him it was not any use; that our vines were loaded with beautiful ones, and nobody would give anything for them. He lifted the cover to his wagon. I offered him 25 cts. a bushel, and he took me up. Said I, "Where on earth did you find a wagonload of such beauties?"

"Why, we raised them in the field, of course. Certainly they are beauties, for we planted the seed of Livingston's Beauty, and nothing else."

We got the whole wagonload, and I saved the seeds and sold them to the readers of GLEANINGS for quite a good deal more than I paid for the tomatoes. But, about the book. It is neatly bound in cloth, and contains 172 pages, and quite a good many illustrations. It covers briefly most of the points made in our new tomato book; but there is little or nothing in regard to the cloth-covered cold-frames to make tomato-growing a success in the South. But the great and special point of the book is growing improved varieties. Almost every one would say that Livingston had originated these new varieties by careful selection, perhaps crossing and hybridizing our best varieties. Nothing of the sort. He says he worked something like 15 years in that line, but gave it up in discouragement. He had accomplished little or nothing. He gets lots of new and wonderful varieties by catching hold of sports. A large field of some choice variety of tomatoes is planted. He then goes out into the field with his eyes open, full of enthusiasm, with all his faculties on the alert for the thing he is searching for. One is reminded of the ancient sages who were in hot haste to find the philosopher's stone or elixir of life. The only difference is, that our venerable friend has found the object which he sought—that is, in scanning such a field as I have described, he found more or less promising plants. Seeds were saved from these plants, and he worked along this line for a tomato that came up to his expectations. When he got hold of the Beauty, one can readily believe that he felt like shouting, if he did not shout, "Eureka!" Experiment stations and others have been for some years looking for a tomato of the family from which we get the pear and plum tomatoes. These never rot—at least, we have never known them to rot. The only trouble is, they are all too small. The King Humbert is of this class, and also the new Peach tomato. They are enormously productive, but have been, heretofore, too small. One of the last achievements of friend Livingston is his large Rose Peach tomato. This, he says, averages about the size of the Acme. The new

Aristocrat I have mentioned is now growing on our own grounds, and has some very handsome green tomatoes on it, about the size of a hen's egg. The price of the book is \$1.00, and I think it is abundantly worth that to any one who is at all enthusiastic in developing new fruits and vegetables. The enthusiasm you will likely get from it ought to help you to sell your crop for a good many dollars more than you would likely get if you had never seen the book. You can get it of the publisher, A. W. Livingston, Columbus, O., or from this office, at the above price.

"LOW-PRESSURE" GARDENING, ETC.

Friend Root:—Will you allow me to have a say in that "High-Pressure" gardening, and tell the readers what can be done under a lower "head of steam" than you carry at the Home of the Honey-bees? First, I wish to tell you that we got the most of the seeds we planted this year of A. I. Root. I will commence with lettuce. The Grand Rapids we have been using almost every day since along in April, the first mess or two coming out of the hot-bed.

Beckert's Chartist and Early Scarlet Globe radishes we have been using for the same length of time.

Eclipse beets we have been using for some three or four weeks past; have just weighed one that draws 1 lb. 7 oz.

Purple-top White Globe turnips we have been using freely for some time past, in spite of hail, frost, and snow that they had to contend with in their infancy. If you think that early turnips are not good, just plant a small patch next March and try them. Lulu (that's my better half) says we must never be without early turnips in the spring, hereafter.

I let a few heads of the Grand Rapids lettuce stand for seed; but they seem to have been trained not to go to seed for so many generations past that they have almost forgotten how to make seed.

All that is claimed for the Select Very Early Jersey Wakefield cabbage has proven true here. In spite of repeated hailstorms, with hailstones an inch and over in diameter, cold north winds to whip them around, and one or two heavy frosts along with cool, rainy, and even cold weather, we have been using nice solid heads for about two weeks past, and have some to sell or give away. We have just weighed one that counts 3 lbs.—not an extra-large head of cabbage, but I think it does very well for early.

Talk about peas! I always thought one had to plant a big lot of seed to get a few peas; but I have changed my mind this year. American Wonder, A. I.'s catalogue says, grow 6 to 8 inches tall, so I gave them no bush to climb on, and they just sprawled out all over the ground some 18 to 24 inches; but nevertheless they gave us plenty of nice peas. But, oh my! those Stratagems! Many of the stalks were thicker than a lead-pencil, and taller than the stakes I gave them—some 3 feet. I have just made the third picking; and, *such* peas! pods 4 inches long and over, with 7 to 9 and sometimes 10 large plump peas in a pod. They are equal to any picture you ever saw in a seed catalogue.

Prizetaker onions, started from seed in the hot-bed, are now (some of them) as large as an egg, and they are just now beginning to swell.

Potato onions, large ones planted in March, have made fine hills, some hills having 7 to 8 large and small onions. We have been using them for some time, and are now about ready to harvest.

New potatoes we have been using for over a week. Early, six weeks, planted according to Terry, have single hills giving 1 lb. 13 oz. of

tubers, single tubers weighing 10 oz., and the stocks are still quite green, and show no signs of ripening.

Beans, kidney wax, are about half grown; can use them soon. Jersey limas are near the top of the poles; Kumerle bush limas did not come up very regularly, but I have a fair stand, and they promise well.

Tomatoes, largest, 3 inches in diameter. I expect to have ripe ones July 4.

I got only a dozen pepper-plants out of a package of seed of the sweet Spanish; but they are doing well, and are now in bloom.

Of the Excelsior Flat Dutch cabbage seed, I sowed about what I thought was right for our own use, and had plants to sell and give away by the hundred, and have some 300 doing well.

I could write much more, but am afraid I might crowd A. I. R. out of his garden, and cause him to ride off on his wheel. This garden is part of a run-down neglected hillside farm that was too poor to grow grain. The garden, however, was lucky in being situated just above an old rail fence that caught much of the good soil washed down from further up the hill. In the spring of 1892 it was sown to oats and alsike clover. Most of the oats in the garden plot lodged, and the chickens were allowed to clean it up. Some stable manure, henhouse cleanings, ashes, and some old plaster from the house we renovated, along with other similar articles, were applied along in the winter.

Some folks were in doubt about having a good garden on this old hillside; but I think I can show the finest garden for some miles around. Father (S. Miller) is a professional horticulturist and gardener, but I can lay it all over his garden. Asparagus, strawberries, and the like will come in next season, as I got them planted only this spring, having moved to this farm last August.

My hot-bed consists of a pile of manure, some cornstalks and straw, a frame of some old boards set on this, and some good earth sifted or raked fine in this, and two hot-bed sash 3x6 that cost about \$5.00 or less delivered. If you want a good early garden you must have the hot-bed.

Now, friends, I have not written this to boast of what I have done, but to give you a hint of what you *can* do if you will. I should like to say a few words about the Planet Jr. double-wheel hoe, and its weed-killing capacity; but if A. I. Root finds room for all the "garden sass" I have already given it will surprise me.

Bluffton, Mo., June 26.

S. E. MILLER.

[Very good, friend M.: Some of the rest of us have found that the American Wonder peas, for this year, grow a little more than six or eight inches. I do not know whether it is the extra soil up in Michigan where they are raised, or whether they have got tired of being dwarfs, and have gone back to old times, or what is the matter. Nobody has complained, that I know of, because they give a very large crop of extra nice peas, even if they do go over more ground than the orthodox ones ought to do.]

If my subscription expired, my desire for GLEANINGS has not. I drop almost every thing when it arrives, for I consider it one of the greatest boons the apianist can find, and can not be dispensed with conveniently. I for one could not do without it.

De Kalb, Ill.

A. Y. BALDWIN.

Markley's parody on the "Old Oaken Bucket," page 484, is the best reading that I have found for a very long time, except "Ourselves and our Neighbors," on page 439. Many thanks, my dear sir; and may God bless and prosper you, not only in basket and in store, but in all that you wish.

Syracuse, Kan., June 21.

JAMES H. WING.

TRADE NOTES.

NUMBER OF SECTIONS MADE BY THE G. B. LEWIS CO.

We are surprised to learn that the G. B. Lewis Co., of Watertown, Wis., manufacture annually from ten to twelve millions of sections; but during the last year, 1892, the sales, so we have been informed, were not quite so large. This is probably a much greater number of sections than is manufactured by any other manufacturer of bee-keepers' supplies. As the company in question have not advertised so very extensively, this large sale is doubtless due to the fine and uniform quality of the sections they make; in fact, we get pretty good reports of all the goods sent out by the G. B. Lewis Co.

TOMLINSON'S CLOSED-END-FRAME HIVE.

After describing Aikin Brothers & Knight's new hive, with the closed-end frames, we received letters from various sources, criticising the hive, some saying that it was made of too many pieces, etc. Among them the following is a letter received from Julius Tomlinson:

Friend Root:—

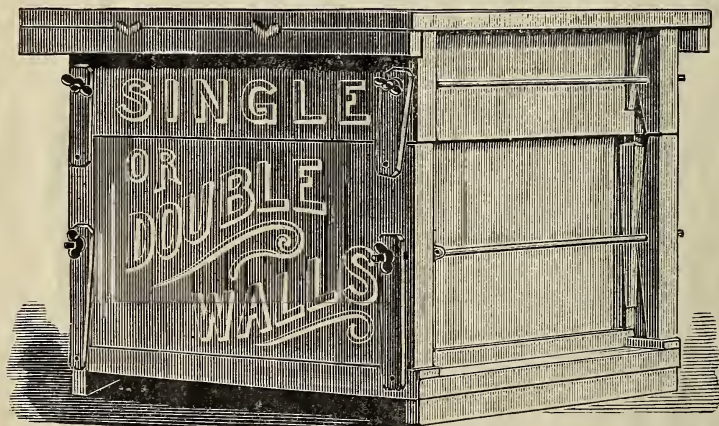
I read with interest your description of Knight's non-swarming hive. It may be a good hive, and the non-swarming principle all right; but it is too complicated, and the non-swarming feature not so simple as Langdon's. The closed-end brood-frames are a good thing; but the way of compression of the same is not nearly as simple as in my hive, as you may see if you will take the trouble to read my little book which I inclose. Bees and honey are too cheap to warrant complicated and expensive hives. Heddon once said, in our Michigan con-

Tomlinson uses a long bolt, with thumb-nuts as a means of compression, on closed-end frames; but his manner of producing compression laterally is slightly different. Instead of having a bridge-shaped cleat nailed across the end-board, he has loose wedges that he crowds down between the end cleat of the side-board and the end cleat of the end-board. The engraving below will make it plain.

A peculiarity is, that the *ends* of the frames come in contact with the side-boards that are squeezed up by the thumb-nuts and rods, and the lateral compression or pressure against the sides of the frames is effected by the wedges. Usually in such arrangements the thumb-nuts and rods compress the frames laterally; and it seems to us that, as the rods afford the more powerful compression, their pressure should be applied to squeeze the frames together.

The frames are the ordinary closed ends; but a top and bottom bar $\frac{3}{8}$ inch square is nailed to the ends so that one sharp edge or corner is up, *a la* Bingham. To contract the brood-nest, one or more frames are removed and the end-board is shoved up against the frames left in the hives. It is then, says friend Tomlinson, fastened with a wedge, and the thumb-nuts are drawn up. Just how this end-board may be wedged up, or, rather, what the wedge may crowd against, friend T. does not describe.

The cover is made of three boards, the two cracks being fitted together with a couple of V-shaped tin gutters. We do not regard this method of making covers of two or three pieces as entirely practical, and we think that friend T. will discover, sooner or later, that his covers leak badly. The bottom-board is made long enough and wide enough to reach out to the outer edges of the hive, and is cleated at each end to prevent warping. Upon the upper side and on the outer side edges are nailed two cleats $\frac{3}{8}$ thick and $1\frac{1}{4}$ inches wide. This raises



vention, that, if he were to start anew in the bee-business, he would take the old box hive, and I am not sure but he was about right.

JULIUS TOMLINSON.

Allegan, Mich., June 7.

Accompanying this letter was a booklet describing his Ideal hive, with closed-end frames. As it was made on somewhat the same plan as Aikin Brothers & Knight's hive, we concluded that a brief description of it might be interesting—the more so, as attention is now being directed toward a feasible plan whereby closed-end frames may be used successfully without the inconvenience of the old methods. Mr.

the hive-body up a bee-space from the bottom-board, and leaves an inner projecting support for the ends of the brood-frames.

The super is made on the same plan as the brood-chamber, and contains a series of single-tier wide frames. These, Mr. T. says, secure cleaner sections, and he prefers them to the section-holder, or topless wide frame.

We do not quite understand why friend T. prefers to have the most powerful compression—that by means of rods and thumb-nuts—applied upon the *ends* of the closed-end frames rather than upon the *sides*. Possibly there are some advantages in this, and if so friend Tomlinson will enlighten us.



The Son of man came not to be ministered unto, but to minister, and to give his life a ransom for many.—MATT. 20: 28.

We regret to learn that the *Canadian Bee Journal* office was entirely burned out some days ago.

SINCE the article of R. F. Holtermann, in regard to self-hivers, went to press we have received a letter from him, to the effect that his self-hiver is a perfect success.

We are still putting in foundation by using an electric current from three bichromate-of-potash batteries to heat the wires. The plan has proven to be a grand success. The work when done is not only many times nicer but decidedly cheaper; and no bee-keeper or supply-dealer who has any considerable number of sheets of foundation to put in wired frames should think of fussing with the tracing-wheel or any other mechanical device to crowd the wires, when cold, into the sheets of wax. The spur wire-imbedders, in order to press the cold wire into the foundation, mash the cells somewhat out of shape; and, besides, make unsightly teeth-marks at regular intervals along the track of the wire.

PERHAPS some of our readers are anxious to know how we are coming out in our experiments in uncapping combs by means of wires heated by electricity. J. S. Reese, of Winchester, Ky., who has been experimenting along this line, has rather given it up as a failure. Our experiments so far have been both a failure and a success; but there has been enough of the latter to cause us to still have hope. Five cells of bichromate-of-potash batteries connected in series will produce the requisite current. These cells can be made at home, not counting the time (by using common well-glazed crocks instead of glass), at a cost of about 25 cents apiece. The cost of maintenance per day for the five cells would be about 25 cents, so the expense is merely nominal; and the only point to be proven is, whether the heated wire can be made to do the work satisfactorily and with reasonable speed. Perhaps some of you may want to know what bichromate-of-potash batteries are. A full description is given on page 412 of this journal for 1892, together with full details how to make up the batteries so as to heat the wires for imbedding them into foundation.

THE AMOUNT OF COMB AND EXTRACTED HONEY PRODUCED ANNUALLY; A NEW METHOD OF FIGURING IT OUT.

In Trade Notes, mention is made of the fact that the G. B. Lewis Co. turn out annually from ten to twelve million sections. Would it not be interesting to know the number of sections that were made during any one year by all the section-makers? It is too early yet to get any figures for 1893; but the number of sections made during any particular year, if all the manufacturers reported correctly, would give us some idea of the amount of comb honey produced that year in the United States; but we should of course have to deduct a certain per cent for sections that would have been left over, and sections partly filled. Having done that, we could estimate pretty accurately the amount of comb honey produced in this country in a sin-

gle year. We will agree to report accurately, at the end of the season, the number of sections we have manufactured. Now, if the G. B. Lewis Co., the W. T. Falconer Co., the Leahy Manufacturing Co., and a host of smaller manufacturers would report, we could tell at the end of the year something near the amount of comb honey produced. Can we not secure your co-operation in collecting these valuable statistics? It is a disgrace to our industry that we are not able to give anything better than guesswork figures for the annual comb-honey product of the United States.

Suppose we do a little guesswork, or a little rough estimating. If the G. B. Lewis Co. made in 1892 ten million sections, and that during a poor year, they made at least a third of the sections produced in the United States. Therefore during the poor year of 1892 there was produced from 25 to 30 million pounds of comb honey. This would represent an aggregate of 12,000 to 15,000 tons. In a good year this amount would be nearly doubled; or, putting it moderately, 50 million pounds. As there would surely be as much extracted honey produced—probably more—the annual product in a fair season would aggregate, of both comb and extracted, 100 million pounds, or 50,000 tons. This would be, however, only about 22 ounces for every inhabitant of the United States; and as vast amounts of extracted honey are used in the bakeries, and for mechanical purposes, we see that our estimate as above is certainly moderate.

JOHNSON'S CYCLOPEDIA.

WHEN this great work first appeared in 1874 it was immediately accorded a place in the front ranks of its competitors; but it has been so much improved and enlarged since then that the first editor would hardly recognize it. Even while we have had in mind the other superb cyclopedic works with which English-speaking people are blessed, we have never hesitated to advise inquiring friends to get Johnson's, although we have used another one, printed before the work in question was out. It is difficult to give an adequate idea of this work, of which the first volume is before us. It includes all subjects lettered from *A* to *Calculus*. We made a guess at the number of pages in it, and put it at 480. If we had said 880 we should have been just right. The size of the print is exactly that of the letters on this page. The print measures 9 x 6 inches. The paper is of the very best, and has no shine on the surface, so the print is perfectly plain, no matter how the book is held in relation to the light. The latter objection has been urged against the super-calendered paper used by most of our illustrated magazines. The cuts are numerous, and first-class in every respect. So far as the work of the printer, pressman, and proof-reader is concerned, we would say, as printers, that at present the world has nothing better to offer. So far as the editorial work is concerned, every department is in charge of a literary star of the first magnitude, thus making the work a concentration of human talent not often found. This cyclopedia is perfectly adapted to the wants of the plainest person who ever uses such works at all, and yet exhaustive enough on great matters to take the place of most textbooks; or, at least, if the matter is not sufficiently treated in this work, a good textbook should be used. The other extreme, of filling up the pages with a list of every town in the United States, which can be found revised in any postal guide every three months, has been avoided. In the volume before us we find important discoveries mentioned, made in 1892, and one date is mentioned as late as Feb. 20 of

this present year. The maps are all new, and beautifully colored. We believe that every subject treated is considered in a perfectly impartial light; and while not trying to make the inventions of other nations look pale by causing them to appear in any stronger light which the editors assume by right belongs to us, we Americans have reason to be well satisfied with Johnson. We say this in view of the feeling of disappointment one sometimes feels when consulting some foreign cyclopedias for information concerning matters of particular interest to us as Americans. The entire work, in the new form, will contain eight volumes. We can commend it most cordially to our readers.

This is not a paid advertisement, but a free and unsolicited expression of our opinion. The work is truthful on the subject of bees, and that is why we like to say a good word for it.

1893 A PHENOMENAL HONEY YEAR SO FAR.

NEVER, since we have had charge of the editorial management of GLEANINGS so far as it relates to bees, have we read so many reports showing phenomenal honey-flows. Why, if you could look over our shoulder as the letters come in day by day, you would think that a veritable and prolonged honey-shower had struck the country; and the end is not yet. The season with us commenced about three weeks ago, and the bees are still working on clover, and basswood is just beginning to open up. This state of affairs seems to be existing in nearly all of the Northern and Middle States, from ocean to ocean. Yes, the California crop is going to be good too. More than all this, the crop, besides being unusually large, is remarkably choice. All samples that have been coming in were of about one grade—extra nice; and the producers, almost with one accord, write that they have tons and tons of that kind of honey.

In our department of Reports Encouraging, in this issue, we have given just a few of the fair average reports, not selecting the best nor the poorest. The few that we have published represent hundreds of others that we can not insert in our columns on account of a lack of space.

Now, it may be that there are some localities where the bees have not done well; but if so, they are very few and far between. We have had so far, in the past three or four weeks, only one isolated report, and that told the old story of the last four or five years—no honey, and the bee-keeper discouraged.

BEING IN HASTE TO THINK EVIL OF OUR NEIGHBORS; SUGAR HONEY, AGAIN.

I FELT sure that, before another honey season was over, we should feel the effects of what was said a few months ago about feeding bees sugar to make honey. A good friend of mine just brought in some honey for us to buy. I objected to paying a good price for it, as it was stored in stained and propolized sections, saved over from last year. Then he commenced:

"Mr. Root, *this* is genuine honey. The honey you are buying and paying a big price for is made by feeding sugar; and three-fourths of the honey brought into market in Medina Co. is sugar honey; but you *know* mine is just what I claim it to be—genuine honey."

As soon as I could stop him I put in something like this:

"Why, friend C., you are beside yourself. How can anybody afford to buy sugar and feed it to his bees when honey is coming in right straight along, as it has been for a month back? How can these men who, you say, buy sugar and feed it, compete at all with those who sim-

ply fix their hives and sections, and take care of the honey that comes of itself, as free as the air we breathe?"

If there had not been a good flow of honey, I should not have been so much surprised; but to hear an intelligent man claim that the nice honey that is now pouring in upon our markets was made from *sugar* was astounding. But he was not done yet. Said he:

"You can not get around it. A greater part of the honey upon the markets is made of sugar. I saw it so stated in the *Ohio Farmer* a short time ago. One of your best writers said that the small bee-keepers could in no wise compete with the specialist who makes it his business to raise honey and do nothing else. That means that the specialist feeds sugar to get his honey."

This is the consequence, you see, of having this thing get into the papers. Then he started on a new track:

"Look here. This honey of mine is ever so much *better* than your nice-looking white stuff. One of our grocers uptown tasted of one and then of the other, and he said they were nothing near alike. He said mine was ever so much better because it is *pure honey*, and the other is just sugar syrup put into combs. Why, Mr. Root, you just taste one and then the other yourself, and see the difference."

I admitted to him that there was no doubt a great difference. One lot probably came from basswood and the other from clover; and on tasting one and then the other, no one could fail to notice the remarkable difference in flavor. But some will prefer the basswood and some will prefer the clover. The difference in flavor does by no means establish the fact that one is sugar and the other is honey. Now, then, let us go back to the strong point of our defense. How can any bee-keeper buy sugar, and fuss with feeders, and produce a crop anywhere near as cheap as he who takes the honey as it comes, costing him nothing except to provide places for the bees to store it? Some, perhaps, will *admit* that the thing is impracticable and impossible during a honey-flow; but how about the fall of the year, when no honey is being gathered? Well, I do not believe that any bee-keeper will make it pay sufficiently, to follow up the business, even in the fall of the year, notwithstanding the wide difference between the price of sugar and that of dark honey; and I should be very much surprised indeed if a *single pound* of sugar honey could be found in our whole county. A. I. R.

The following, just at hand, will explain itself:

Friend Root:—I am so anxious to hear something about how the Langdon non-swarmer device worked with other people. From my experience, I have to consider it a complete failure, to my great sorrow and disappointment. T. H. KLOER.
Terre Haute, Ind.

Yes, so should we; let's have the reports of those who have tried them for '93, including one from H. P. Langdon himself. Just now we are all anxious to know about something that promised so much early in the season. We are hopeful.

The Crane has the best blast of any smoker I have seen. T. K. MASSIE.
Tophet, W. Va., June 26.

I am happy to say that we have found GLEANINGS a "good investment," and it is with the greatest pleasure that I now inclose a dollar to renew my subscription for another year. Long live GLEANINGS and all its managers!
Troy, N. Y., June 26. LEVI DE FREEST.