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Contents of this Number.

HELEN KELLER FUND FOR TOMMY STRINGER

Friend, Clontarf, Canada	$ 25
Cash, Philadelphia, Pa	1 30
H. L., Ind	1 50
Epworth League, St. Davids, Can	3 55
David Lucas, Jewett, Ohio	1 00
A. L. Day, Paterson, N. J	1 00
B. & W. Stephens, Fayette City, Pa	1 00
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S. & E. Davis, Montrose, Col	50
P. W. Smith, Ephratah, N. Y	80
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H. C. Finch, Oil City, Pa	1 00
Mary E. DeKalb, Raceville, N. Y	1 00
Mary Jaessing, Maumee, O	1 00
J. Johannsen, Port Clinton, O	50
	$26 50

Including above amount, subscriptions have reached the sum of $123.65.

Special Notices.

Remember that our untested queens come up to $1.00 each during October.

NEW SEEDS AND NEW PRICES FOR 1892.

Of course, we do not undertake to raise all the seeds we sell; but there are certain kinds of which we make a specialty, or that, for certain reasons, we prefer to raise; and as I make it my business to examine personally the plants and see to the curing and selecting, I feel sure that what seeds we raise are true to name, and as good as can be found. Seeds are never saved except from the best, and from a crop that has given us special satisfaction.

Asparagus.—Ounce, 5c; lb., 75c. Asparagus-roots, two years old, ten for 10c; 100, 75c. If wanted by mail, add at the rate of one cent each for postage.

Henderson's Bush Lima Bean.—Half-pint, 15c; quart, 50c; peck, $3.

Kidney Wax Bean.—Pint, 15c; peck, $1.75.

White Kidney.—Pint, 10c; peck, $1.

White-Plume Celery Seed.—This seed is not new; but we would rather have it to sow than any new seed in the world, because it neither runs up to seed nor rusts, and it is a part of the same seed that we sold and sent out during the past season. We have bought up all that was to be had—only 35 lbs. Per oz., 20 c; lb., $2.50.

Shoepeg Corn.—Half-pint, 5c; peck, $1; bushel, $3. This is not only equal to any sweet corn, but it is perhaps the best for table use of any thing known. Our yield this past season has been enormous. The stalks were allowed to stand very close—closer than we ever put any kind of field corn; but, notwithstanding, the greater part of the stalks contained three ears, a few of them four, and scarcely any of them less than two ears to the stalk. Of course, the ears are small. I should think it would be of great value for a silo. Of course, our large crop was secured on ground thoroughly underdrained and well manured.

Our late mammoth sweet corn—the special strain that we have kept for so many years—we offer at the same prices as per above. If anybody should prefer to buy it on the cob, they can have it at just half the above price.

Onions.—We have now thoroughly cured as fine a crop of Spanish King or Prize-taker onions as you often see in the market, imported from other countries. At present we offer them ready for shipment at $1.00 per bushel; $2.50 per barrel of 11 pecks. Onion-sets, Yellow Danvers, 20c per quart; $1.50 per peck, or $5.00 per bushel. We have three kinds of *white* onion-sets which we offer at 30c per quart; $2.25 per peck, $7.50 per bushel. The three kinds are, the old well-known Silverskin; the New Mammoth Silver King; and the beautiful oval White Victoria. These are all put through a sieve that screens out every thing larger than ¾ inch in diameter. We have another larger size, which are sometimes used for sets, but more often for pickling, a little larger than the above, which we furnish at just half the above prices. If wanted by mail, add 10c per quart extra. The question has come up, Will not *all* of these foreign onions winter over like the American Pearl, if planted in the fall, so they may take root and make a little growth? We can only say that we are testing the matter, and will give a report in the spring.

Potatoes.—Early Ohio, $1.25 per bushel.

At the present writing we do not know any thing about the market price for these; but we have concluded to offer ours as above, subject to advance or decline in the market.

Early Puritan, $1.00 per bushel, or $2 50 for a barrel holding about 11 pecks. These Early Puritans were all raised from second crop seed sent us from the South. This year this kind of seed has given us much better potatoes than seed of our own raising. They were shipped us last fall, just before freezing weather set in, and, of course, they did not have to stand in the cellar nearly as many months as potatoes raised here in Ohio. Friend Terry has also expressed himself as much pleased with the second-crop seed-potatoes raised in the South. This promises to open up a new industry for our friends who live far enough south so they can rise two crops of potatoes.

Early Sugar Pumpkin.—Oz., 5c; lb., 50c.

Bloomsdale Spinach.—Per lb., 25c; 5 lbs., $1.00.

Ignotum Tomato.—Per ¼ oz., 10c; oz., 30c; lb., $3.50. This seed is all from selected specimens grown on our own vines.

Livingston's Beauty, from selected specimens; oz., 5c; lb., $2 50.

HONEY-BEARING TREES AND SEEDS.

Basswood trees.—One foot and under, each, 5c; 10, 30c; 100, $2.00. By mail, each, 8c; 10, 35c; 100, $2.25. One to five feet, each, 10c; 10, 75c; 100, $5.00.

Tulip (or whitewood) trees, 10 to 15 feet high, each 25c; 10, $2.00; 100, $15.00. Smaller size, 5 to 10 feet, each, 15c; 10, $1.25; 100, $10.00.

These latter are very handsome trees, having been in nursery rows for several years, and having been carefully pruned, so they are of nice shape for handsome shade-trees. For a description of both tulip and basswood, with illustrations, see our A B C book.

Alsike Clover.—At present there seems to be no very definite price in the market. There have been some sales of seed at from $6.00 to $7.00—$7.50, perhaps, for very choice seed. The lowest price we dare quote at retail at present is $9.00.

Japanese Buckwheat.—As the crop has not as yet been harvested, no prices have been settled on. It probably will not be less than $1.00 per bushel. In order that we may settle upon some price as near as possible, we would ask the friends to tell us what they have, either of alsike or buckwheat, and also mention what prices have been offered. In this way we can determine about what prices the product will probably bring.

HONEY COLUMN.

CITY MARKETS.

CHICAGO.—*Honey.*—As yet, but limited quantity of honey on market, We have good demand for fancy white at 16c; other grades, 14@15. Extracted selling from 7@8. *Beeswax*, selling quick at 26@27c.
Sept. 19. S. T. FISH & CO.,
189 So. Water St., Chicago, Ill.

KANSAS CITY.—*Honey.*—Supply of comb and extracted light; demand good for comb. 1-lb. white, 16@17; 1-lb. dark, 12; 2-lb. white, 14@15; 2-lb. dark, 10@12. Extracted, white, 7@7½. Dark, 5½@6. *Beeswax*, 26. HAMBLIN & BEARSS,
Sept. 21. 514 Walnut St., Kansas City, Mo.

ST. LOUIS.—*Honey.*—The market is quiet. We quote: Comb, common, 10@11; choice, which is very scarce, 12@13½. Extracted, in barrels, dark, 4½@4¾; light and good flavor, 5@5¼; cans and good flavor, 7@7½. *Beeswax*, prime, 26.
D. G. TUTT GRO. CO.,
Sept. 21. St. Louis, Mo.

NEW YORK.—*Honey.*—Comb honey now arriving. Warm weather checks demand yet. We expect a good business when it becomes cooler. We quote: No. 1 white, 1-lb., 16. No. 2, 13@14; 2-lb., No. 1, 14. Extracted, basswood. 7¼@8; California, 7@7½; common southern, 65@70c per gallon. *Beeswax*, 26c, with a good supply and limited demand.
F. G. STROHMEYER & CO.,
Sept. 21. New York.

ALBANY.—*Honey.*—The continued warm weather has a depressing influence on the honey-market, and but very little doing. We look for an improved state of affairs as soon as we get colder weather. No change in prices since last quotation.
CHAS. MCCULLOCH & CO.,
Sept. 22. 393, 395, 397 Broadway, Albany, N. Y.

COLUMBUS. *Honey.*—Owing to warm weather and abundance of fruit prices have weakened. White-clover selling at 16@18; and demand fair. Look for better prices with the approach of cold weather. No sale for dark or extracted honey.
Sept. 19. EARLE CLICKENGER,
121 S. Fourth St., Columbus, O,

CLEVELAND.—*Honey.*—Our honey-market quiet. Fine white comb, 1-lb., 15@16; inferior, very dull, 10@12. *Beeswax*, pure, scarce, and selling 28@30.
Sept. 19. A. C. KENDEL,
Cleveland, O.

SAN FRANCISCO.—*Honey.*—Firm, extracted, 5½@6; comb, 12@14. *Beeswax*, 24@25.
Sept. 15. SCHACHT, LEMCKE & STEINER,
San Francisco, Cal.

DETROIT.—*Honey.*—Comb honey in fair demand, and bringing 11@13. Extracted, selling slow at 7@8. *Beeswax*, dull, 25@26. M. H. HUNT,
Sept. 21. Bell Branch, Mich.

KANSAS CITY.—*Honey.*—The demand is steady; supply light. White 1-lb. comb, 15@16; dark, 10@12. Extracted, white, 7@7½; dark, 5@6. Receipts of comb and extracted light. *Beeswax*, demand good, supply light, 23@26. CLEMONS, MASON & CO.,
Sept. 21. Kansas City, Mo.

NEW YORK.—*Honey.*—Honey is coming in very freely, but very little going out on account of the exceedingly warm weather. We quote fancy 1 lb. sections, 15c; 2 lbs., 12@13; fair, 1 lb., 13; 2 lbs., 11@12; buckwheat, 1 lb., 10½@11; 2 lbs., 9@10. Extracted, 7@7¼. *Beeswax* firm at 26@27c; stock exceeds the demand. CHAS. ISRAEL & BROS.,
Sept. 25. New York.

FOR SALE.—7 barrels of dark extracted honey. Will run near 500 lbs. to barrel. Make us offers on lot, or any amount wanted.
J. A. THORNTON, Lima, Ill.

I am prepared to furnish pure extracted honey in 60-lb. tin cans. New cases and cans; graded goods. Carloads a specialty. Address E. LOVETT,
11tfdb San Diego, Cal.

FOR SALE.—6000 lbs. extracted honey, in 60-lb. cans.
C. H. STORDOCK, Durand, Winnebago Co., Ill.

FOR SALE.—1200 lbs. white clover honey, in 60-lb. cans. H. VAN VRANKEN,
Union City, Branch Co., Mich.

FOR SALE.—6 tons alfalfa and sweet-clover honey in 60-lb. cans, 5c by the ton. *Must sell.* 19tfdb
A. B. THOMAS, Payson, Utah Co., Utah.

Wants or Exchange Department.

WANTED.—To exchange a good farm of 80 acres, for sheep, or part sheep and balance in cash.
J. M. CATE, Moravia. Appanoose Co., Iowa.

WANTED—To exchange wall paper, from 5c a roll and up, for honey. J. S. SCOVEN,
12tfdb Kokomo, Ind.

WANTED.—To rent or purchase an apiary of one or two hundred colonies in California or Arizona. A. CARDER, Hebron, Boone Co., Ky. 17-18d

WANTED.—To exchange a No. 1 saw-table, parallel gauge, hinge top, shaft, belt, 2 saws, emery wheel, not used over two mos.; a fine 3-frame observatory hive; a 60-lb. spring scale. All for extracted honey (white), beeswax, or offers.
18-19d H. L. GRAHAM, Letts, Iowa.

WANTED.—To exchange Barred Plymouth Rock chicks for comb honey. A. A. SIMPSON,
18-19d Swarts, Pa.

WANTED.—A position in any of the Southern States, Arizona, or California, by a practical bee-keeper, of 15 years' experience. Understands farming, and something of fruit culture.
Address Box 25, care of F. B., Gallupville, N. Y.

WANTED.—To exchange a fine 20-acre fruit-farm, at Terry, Miss., 1500 peach-trees in bearing, for city property, or offers. A desirable home in the sunny South. GEO. GOULD, Villa Ridge, Ill.

WANTED.—To exchange one fine breech-loading shotgun, one Safety bicycle, used but little (only one year from shop), for bees or supplies within 300 miles of F. H. HOWARD,
18-19d Garden City, Kan.

GLEANINGS IN BEE CULTURE
A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS
ILLUSTRATED SEMI-MONTHLY
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STRAY STRAWS

FROM DR. C. C. MILLER.

ARE YOU READY for winter?

THE NORTH AMERICAN meets at Albany, Dec. 8–11.

DOUBLING UP COLONIES may be done more easily now than later.

I'M GLAD to see Hive-making, in the latest A B C, brought right up to date.

"PRINCESS" is what our English cousins say, instead of "virgin queen." Isn't princess a better name?

MAY A KIND PROVIDENCE attend Bro. A. I. on his journey, and bring him back younger and stronger, outside and inside.

"TEN THOUSAND BEE-KEEPERS in the U. S. having 500 colonies each," is going the rounds. I challenge the proof that half of that is true.

COUGH MIXTURE. The *Medical World* gives this: Cod-liver oil, 2 oz.; honey, 2 oz.; lemon juice, 2 oz. One to two teaspoonfuls three times a day.

THAT MAN QUIGLEY says I invented a feeder and then let my own bees starve. But he's improving the *Missouri Bee-keeper* so much that I forgive him.

IF HOUSE-APIARIES should come into general use, "invalids and women" would have to seek something other than bee-keeping as an outdoor occupation.

THE *Apiculturist* is catching it from the *B. B. J.*, which thinks Hutchinson didn't come down hard enough on the *Api.* for being a "big booming circular."

FROM NO COMPRESSION to thumb-screws is a pretty big jump, E. R. I'll not go to either extreme at present, but be "mejum" and give wedges a fair trial.

IF HORSES OR COWS are smart enough to unlatch a gate, just put on two latches and you've got 'em. They can't unlatch both at once, and you can.—*National Stockman.*

C. J. ROBINSON, in *American Bee-keeper*, thinks I "assume" when I give Langstroth credit for inventing a frame surrounded by a bee-space except at the point of support. If I assume in that, what a lot of "assumers" there must be!

MRS. JENNIE ATCHLEY says, in *Missouri Bee-keeper*, "When a person thinks he or she can tell what a queen is altogether by her looks, I am here to tell you that such a person is simply off his base." Your head's level, Jennie, no matter how you put up your back hair.

THAT INCIDENT on page 737, of the bees getting out in hauling, I read with intense interest, nearly holding my breath till I reached the outcome. I've been there myself too often.

"HANDLING HIVES MORE and frames less" doesn't suit me. I'd rather spend an hour handling frames than hives. The thing I'm after is handling *hives and frames* less. Guess that's what E. R. is struggling after too.

CANADIAN BEE-KEEPERS should have a law passed prohibiting D. A. Jones from working at any thing else than bees. When he's held right down to it, Bro. Jones is a good editor, as the improvement in the *C. B. J.* shows.

WHAT AILED the summer, that the bees let up so early on storing? Was it too cold? It was a remarkably cool summer; but to make up for it we have in the last half of September the hottest kind of summer weather.

THE WEATHER takes up so much room in the *British Bee Journal* as to astonish an American reader. But then, American journals would do the same thing if they had any thing like the same kind of weather for the whole country.

WHEN DRIVING, does your horse switch the line under his tail? Just cross one line over the other twice, and he'll not get the lines under his tail very often; and when he does you'll not pull him clear out of the road in getting them out.

PUNIC BEES, while so highly praised by those who sell them, have strong insinuations thrown out against them by British bee-keepers, as being in the line of humbugs. As yet, I can only say that, in appearance, they are decidedly different from all other bees I have seen.

WHAT MADE YOU haul home your bees from the Shane yard so early, friend Root? They surely could have something to browse on there more than at home. I may be wrong, but I have always left my bees in the out-apiaries as late as possible—only so they had time for one fly before going into winter quarters.

MRS. HARRISON, in *A. B. K.*, supposes "I don't know" whether the six or eight barrels of sugar I fed to my bees was a paying investment. Now, Mrs. Harrison, I think I do know something once in a while, and that's just one of the times when I do know. Without feeding, a good many colonies would have died which gave me a fair share of the 8000 or 9000 pounds of surplus.

THE *British Bee Journal* says: "If, say, a third of the center combs, with brood, queen-cells, and adhering bees, are removed bodily from the parent hive, and replaced with foundation directly a top swarm has cleared out, the latter may be returned the same evening,

and will rarely come off again." I don't know whether that would work in this country, but I'm afraid.

Cheshire thinks that there is something in the old-fashioned idea of making noises to induce a swarm to settle. He thinks bees choose quiet times—notably Sundays—for swarming, when they can hear the queen. But then comes the old question, If the din makes them settle because they don't hear the queen, why don't they generally settle when they come out with a clipped queen, which they surely don't hear?

WAX SECRETION.

E. FRANCE GIVES SOME INTERESTING EXPERIENCES, PROVING THAT OLD BEES DO SECRETE WAX AND BUILD COMBS.

I have been trying to find out just when bees secrete wax, and some other matters. That the reader may perfectly understand me, and what I have to say on the subject, I want you to read several articles in back numbers of Gleanings. First, one by Prof. Cook, 1891, page 212. There you will see that he thinks wax is not secreted unless it is wanted to build combs. Now, this is just what I think about wax secretion: That wax is not secreted unless it is needed to build combs. But, how is wax secretion brought about? Can the bees secrete wax any time it is wanted for comb-building? I believe they can, and will try to prove it further on.

Now turn to April 15th Gleanings, page 318. Here we have another article from Prof. Cook on this same subject, followed by my ideas in the same line. You see I take the ground that, in order to secrete wax, the bee fills her sac full of honey, and then remains quiet, and wax secretion goes on as a consequence, just the same as a pig fills his sac with corn and then remains quiet and secretes fat.

Now turn to May 1st number, page 359, to Prof. Cook's "Nubbins." He says he thinks France makes a good suggestion regarding wax secretion, and says he shall try some experiments to prove or disprove my theory. I hope he has done so, and that others have also, as I don't want to stand alone in this matter.

Now we will turn to page 421, May 15th number, "Fragments," by Bro. Doolittle. You see he agrees that wax secretion is brought about by the bees holding their honey; but he says that the old bees returning from the field give their loads of honey to the young bees, and that these young bees hold these loads of honey till they are sufficiently evaporated to be deposited in the cells; hence it comes about that it is the young bees very largely that secrete wax. Hold on, Bro. Doolittle. Let me ask whether the bees in your one-comb observatory hive were building comb at that time. If not, what did those young bees do with the wax secreted while holding those loads of honey? Do the bees evaporate their honey by holding it in their sacs? I think not, unless they have no other place to put it. If evaporation of honey was brought about in that way, then wax secretion would be going on all the time, whether the bees wanted it or not. I have seen bees take honey from one another in that way; but how do you know that it was *young* bees that received the honey? I can not tell a young bee from an old one, unless in case of a very young one just hatched, young enough to be white.

Now let us look at the next fragment by Mr. D., about old bees secreting wax. Read this carefully; and then if you have also read all the other articles mentioned you will be ready for my experiment, which I will now proceed to give you.

On the 10th day of June I hived a good fair-sized swarm of bees to experiment on, and prove, as far as possible, how old bees will live, and also whether they ever get so old that they don't secrete wax. I gave them 9 full L. frames of combs. I took them out of my comb-room, where they had been kept since last fall, so there was no brood in them. I also gave them 9 L. frames with one-inch foundation starters above the combs, and 8 L. frames with one-inch foundation starters below the combs. The bees were working very strong at that time on honey-dew. June 19th the upper set of frames were full of combs, and they were building nicely in the lower set. At this time I extracted all of their honey, but did not weigh it. July 1st I extracted 40 lbs. of honey. The whole three sets of combs were full of honey and brood. It was then 21 days since the swarm was hived. Then I took away *all of their brood*, and there was not a bee hatched at this time. In place of the brood-combs taken out, I put in empty frames with inch starters of foundation. July 11th I took out one comb of honey, 5 lbs., and sold it to a neighbor who wanted some comb honey very much, and gave the bees one more frame with foundation starter. July 20th I took all their combs away and gave them six full combs of honey. Mind, the combs contained no brood— positively nothing but honey. Why did I take all of their combs away on the 20th? For the reason that every comb in the three sets contained brood, more or less, so I had to take them all to get all of the brood. At this time our basswood honey-flow was over. I now, July 20th, reduced their space to two stories—upper story six combs of honey with two empty frames with foundation starters, and eight frames below with foundation starters; and now that the honey harvest was over I gave them two three-pound feeders full of honey, so they can have plenty of honey for wax secretion.

July 25, according to Mr. Doolittle, all the bees should be dead; but instead they are alive, a fair working colony, and are building combs rapidly—have eggs in one of the new combs, and eggs in one of the honey-combs, whence they have removed the honey. August 3d I reduced their space to 8 L. frames, and took away all of their brood again. This makes three times that they have been robbed of their young ones. It looks too mean, when a queen has worked so hard to build up a family, to rob her in that way. Of course, the brood is given to other colonies, so there is no loss.

Now, Aug. 3d, the hive contains four combs of honey, four empty frames with inch foundation starters. The empty frames are put between the honey-combs.

Aug. 15th I looked at the bees and fed them. Since the 3d they have built comb in all of the four empty frames. One of them is a fourth full of comb; the other three are half full, and have brood in two of them. Some of the brood is capped over. The bees are at work every day when others work. They gather pollen, and appear to carry loads of honey; but it may be water. It is now 21 days since they should all be dead, according to Mr. D.'s standard; but instead there is a fair colony for a one-story hive, and they are building combs yet. I am afraid that I shall be compelled to take their brood again.

Aug. 24th I examined the bees and found enough alive to warrant further experimenting. I took away four combs that contained brood. Three of the brood-combs were built since Aug. 3d. One of these was built half way down. The other two new combs were each two-thirds of a full comb. I now reduced this space to five L. frames. One of the frames was empty, with

a one-inch starter. I put the empty frame in the middle, between the other four combs. Aug. 28th I put in another empty frame with a one-inch starter of foundation. Sept. 10th I looked at the bees again. They are a fair working colony yet. The frame put in Aug. 24th is two-thirds full of comb, and the empty frame put in Aug. 28th is half built, and both new combs are nearly filled with brood as far as they are built. They have now been working steadily for three months, secreting wax and building combs 90 days—just double Mr. Doolittle's time, and I am not sure but they would pass the winter if allowed to hatch the crop of brood that is now coming on. They don't dwindle away very fast. What kind of bees are they? Very near pure Carniolans, from a queen that I bought of John Andrews, Pattens Mills, N. Y. I don't know whether the kind of bees has made any difference; but it is the kind of stock that I have in my home yard. But, one thing I do know—my home yard has stored double the amount of surplus honey of any other yard we have.

Now, what have I proved by this experiment? Just nothing, positively. Here it is 90 days since this swarm was hived. There is quite a lot of bees there yet building combs and raising brood. But, are the bees that are there now a part of those that were hived there the 10th of June? If they are, they are 90 days old at least. I do know that there has not a bee hatched in the swarm since they were hived. But I do not know but that young bees from other hives near them may have joined them in sufficient numbers to keep up the stock to its present working condition.

Now, if I have not proved any thing I have learned how to prove the point that I was driving at; and if I live until another year I will try it again. I propose to hive a swarm as early as I can get a good one, and then place it 20 rods at least from any other bees, so as to be sure that no other bees would join them; then take their brood away often enough so they can not get recruits, and then see how long they will live. I hope others will try some experiments of this kind

If any one has any suggestions to make I should be glad to get them. Prove all things yourself. E. FRANCE.

Platteville, Wis., Sept. 14.

[See editorials.]

RECORD-BOOKS AND MEMORANDUM PAPERS.

THEIR CONVENIENCE AS VIEWED BY A CALIFORNIAN.

I was much interested in what Miss Emma Wilson had to say about record-books. She gets away with Mr. Root's argument in good shape. I will add that I have depended entirely on record-books for seven years, and have not lost one yet. It would be a serious matter if the book should get lost; but the advantages are so great that it pays to take the chances. I indorse all Emma says in their favor, and wish she had said more. I wish she had given us a page from the book, so we could get the plan, and see how much space is devoted to each colony. And wouldn't it be interesting to see one of the memorandums which Dr. Miller makes from the book, while going to the out-apiary—of work to do when he gets there? Just think of having to run all over the apiary to see which colonies need attention, when you can do it in one-fourth the time sitting in the shade or in a buggy! Cards and slates might do for a very active man; but for one who wishes to take things a little easy, and still get there on time, the book is indispensable.

Mr. Root comes out ahead in Aug. 15th GLEANINGS: and the question is now like the one in the Question-box on the same page, with regard to buying books or going to the convention. It is more economical to buy the books; but you really need both. I have often felt the need of some memorandum on the hive to tell whether the colony has filled several supers, or has been all the season filling one super. A colony that has been all the season filling up should not be extracted late, for it would surely starve if not fed; and how are we to tell which are the best colonies to breed from unless we know how many supers each colony has filled? I think I should want a slate about as large as a postal card, tacked on top of the hive so I could read it, and write on it without holding it. You are obliged to visit each hive in the apiary once a week or oftener to see if it is full of honey, and you might just as well have your honey memorandum on the hive; but other conditions are irregular, and it is not necessary to go to every hive in the apiary because twenty colonies are queenless; better have a memorandum of the twenty colonies, and go directly to each one and attend to it. I have dispensed with queen registers on each nucleus, because I could not see the whole at once, as it were, and know just where to go for what I wanted, and adopted a system of memorandum which I carry in a light paper clip with a pasteboard back. I give below a memorandum of 20 nuclei for one month, so you will see how it is done. You will

AUGUST.

No.	Cell.	Strain.	Virgin.	Laying.	Removed.	Cell.	Strain.	Virgin.	Laying.	Removed.	Cell.	Strain.	Virgin.	Laying.	Removed.
1	3	S	5	15	17	19	A	21	31						
2		H		3	5	8	I	10	20	20	22	S	24		
3		F	3	12	13	15	S	17	27	31				31	
4	3	S	*5			5	A	7	17	18	20	I	22		
5	3	A	5	†15		15	I	17	27	29					
6	5	I	7	17	19	21	S	24	†27		27	S	29		
7		H		3	5	7	H	10	19	20	22	H	24		
8		I	3	8	8	11	H	13	22	22	25	S	27		
9	5	I	7	†17		17	A	19	29	31					
10	3	A	5	15	17	19	A	21	31						
11	1	I	3	15	15	17	A	*19			21	H	24		
12		I	1	8	10	12	S	14	24	26	28	S	30		
13	3	H	5	15	19	21	H	24							
14	5	A	7	17	17	20	A	22	31						
15	1	I	3	15	17	19	I	21	31						
16		H		1	3	5	S	7	17	19	21	S	24		
17		S	1	8	10	13	I	15	25	27	29	H	31		
18		H	1	10	10	12	H	*15			17	H	19	29	31
19	3	S	*5			7	A	9	19	20	22	S	24		
20	1	F	3	13	15	17	A	*19			20	I	22	31	

* Torn down. † Lost.

see that the plan is to write the number of nucleus down the side, and the condition along the top of the page, and the day of the month where the two lines come together. It requires three sets of names to run a whole month; and one sheet of letter paper is plenty large enough to keep the record of 20 nuclei for 31 days. Now, suppose I want some laying queens. Instead of running all over the apiary and reading all the slates and cards, I run my eye down the two last laying columns, and find that numbers 1, 4, 9, 14, 15, and 18, contain laying queens, and I go straight to the hive for them. You will understand that all the figures except the first column, which is the number of the hive, are the days of the month on which the hive was examined; and I claim that it is easier and quicker to put down one or two figures, in the column which represents the condition of the hive, than to manipulate the pins of a queen register on the hive. Now, suppose I go over 100 nuclei with queen registers, and mark the condition of each nuclei on the registering card; when I get through I have forgotten which hives have laying queens and which are queenless, and must run over the apiary again to find them. With this system you have the

condition of every hive in your hand in the most condensed form, and can go straight to a hive having a laying queen, if you want one, or to a queenless hive, if you have a cell to put in, and no false moves are made, and no unnecessary steps taken. I rear all my queens now by placing the Doolittle prepared cells in the brood-chamber of colonies that are superseding their queens; and the young queens bred from the best in the apiary are so large and fine it makes me feel happy. J. F. McINTYRE.

Fillmore, Cal., Sept. 1.

[You have scored some good points for the record-book. The system as you use it may be much better than ordinary records made on the hive where the position of the slate does not indicate any thing; but where the *position* of the slate, tablet, or card on the hive-cover indicates whether the colony is queenless, or possessed of a cell, virgin queen, laying or tested, I think I should still prefer the slates. The system which we use is a written record on slates, and the same indicated by the position of the slate on the hive-cover. From any part of the apiary I can tell at a glance which colonies are queenless, which ones have cells, which ones have virgin, laying, or tested queens. There are advantages in both systems. With the record-book it is possible to say which colonies need attention, even though they may be miles away.] E. R.

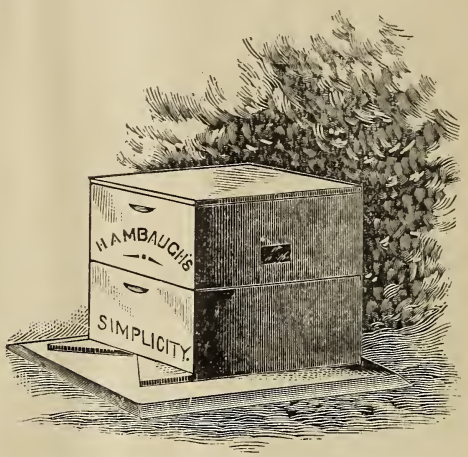
A VISIT TO "SUNNYSIDE."

WHERE SPANISH-NEEDLE HONEY IS PRODUCED.

Having just returned from a visit to the Sunnyside apiaries of Hon. J. M. Hambaugh, one mile north of Spring, Brown Co., Ill., I thought perhaps a few lines relative to what I saw and learned while there might be of interest to some of the readers of GLEANINGS.

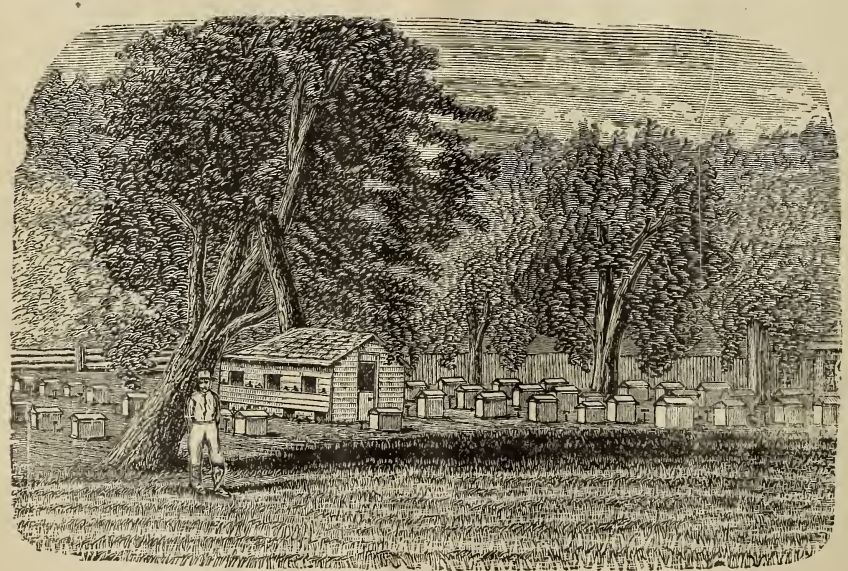
THE HIVE.

Mr. H. uses two styles of hive—the Quinby, eleven-frame, and Langstroth-Simplicity, ten-frame, but rather prefers the Quinby with a seven-inch super, for extracting. Both hives take the hanging frame, and each hive has a spacing-wire, *a la* Dadant, in the bottom, which spaces the frames about right below, and greatly assists in keeping them in place while the hives are being hauled from one place to another.



HAMBAUGH'S SIMPLICITY.

This is a good representation of his Simplicity hive, except that it does not show the sloping alighting-board. This hive Mr. H. recommends above all others for the average bee-keeper; and his advice seems to be heeded, for he manufactures more of this style of hive than of all others put together.



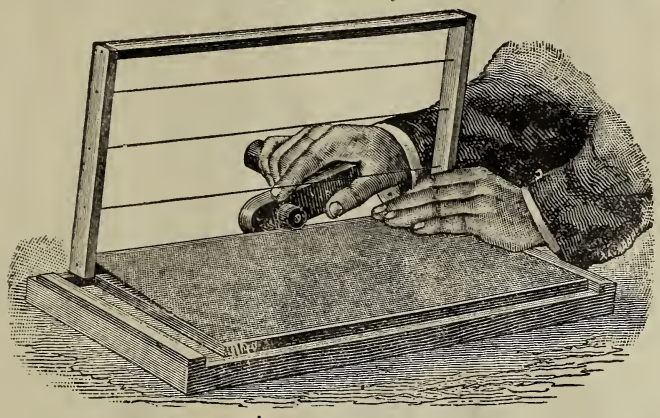
HOME APIARY IN 1885.

This engraving was made in 1885, and shows the home apiary as it looked then. A house-apiary is shown in the engraving, which Mr. H. used at first, but afterward abandoned, setting his hives in rows upon the ground.

HIVE-FACTORY.

Mr. H. owns and operates quite an extensive

hive-factory, and turns out annually a large number of hives, feeders, and other apiarian appliances for the trade.



HAMBAUGH'S FOUNDATION-FASTENER.

He also makes and sells the celebrated Hambaugh foundation-roller, as shown in the engraving, for fastening foundation in brood-frames—a very useful tool of his own invention.

OUT-APIARIES.

Mr. H. has, at present, about 250 colonies of bees, and has them divided into four lots, making three out-apiaries, and one at home, all of which are run for extracting. As a great many of his neighbors keep bees, he considers 75 colonies the largest number that should be kept in one place, and thinks a less number would do better. By thus dividing them up he thinks he is amply repaid for the extra labor it entails. He also practices

MIGRATORY BEE-KEEPING;

and each year, about the first of August, he moves all the bees, except a portion of the home apiary, further out in the great Illinois River bottom, where they have access to thousands of acres of Spanish needle, goldenrod, August flower, heart's-ease, etc., in consequence of which his fall crop of honey is generally abundant. The home apiary, and out-apiaries as well, are situated on the extreme western edge of the bottom lands, and hence the necessity of moving in order to get the best results from the fall bloom.

MOVING THE BEES.

Before moving the bees from their stands, a ventilator is placed on the top of each hive. This consists of a rim 2½ inches deep, with an opening one inch wide, and nearly full length of the sides and ends, and covered with wire screen. A piece of lath is placed upright on each side of a hive, and nailed midway to the lid and bottom-board. A strip, 1½ inches wide, and three inches longer than the entrance, with an opening cut on one side to match the entrance to the hive, and a strip of wire screen tacked over this opening, is used to close the entrances. As soon as the bees cease flying, one of these is tacked over the entrance of each hive with two small nails, when the same is ready to be placed upon the wagon. The wagons used in hauling have racks made for the purpose, holding 16 hives each. All the hives are loaded on the wagons the same evening they are prepared, and on the following morning before five o'clock are on their way to "pastures new."

IN THE LEGISLATURE.

Last fall Mr. Hambaugh was elected to represent his district in the State legislature; and, be it said to his credit, he improved the opportunity to render valuable service to the bee-keepers of his State. He originated, among others, two important bills for the benefit of bee-keepers, one of which became a law, and was published at length in Aug. 1st GLEANINGS; namely, the bill appropriating $500 for publishing the annual report of the Illinois Bee-keepers' Association. The other is entitled "Spraying Bill," which passed the House but was tabled in the Senate. The bill was published in GLEANINGS for April 15, page 326.

Quincy, Ill., Sept. 2. W. J. CULLINAN.

[We are very glad to give this sketch of Mr. Hambaugh and of his business. It is indeed fortunate that the Illinois bee-keepers have in the House of Representatives so able a champion. It would be very pleasant to have an appropriation in a similar way for the National Bee-keepers' Association. We may never have it, but we entertain the hope that we shall have some time.

In our trip through Illinois we had a very pleasant chat with Mr. Hambaugh, and in between sessions at the Keokuk convention. He is a very modest man, and we were very much surprised when the news came, a few months ago, that he had been elected as a member of the House of Representatives for the State of Illinois. We are glad that he is not only a good member in his official capacity for the State, but an excellent bee-keeper. There is many another successful bee-keeper who is also fit for the halls of our legislatures.]

THE ALLEY AUTOMATIC SWARMER.

HOW SOME SIXTY OF THEM WERE TRIED AND FOUND WANTING.

In response to your call for reports concerning the Alley automatic hiver, I submit the following:

In the year 1889 I purchased a number of the queen and drone traps, and found them useful in hiving new swarms. In 1890 the automatic hiver seemed to promise so well that I purchased 50 as a trial venture. That year being an extremely poor one in this locality, though a few purchased them, no one had a chance to give them a trial. I could not try them myself that season, as I had not a single new swarm.

This spring, after selling the rest of the fifty,

I sent for 25 more, about half of which have been sold, so that there are now in use between fifty and sixty among my customers.

I have not from this number had one really favorable report, but a number have reported unfavorably. A common complaint is, that the hiver becomes so clogged with drones as to interfere with the passage of the field workers.

Early in the season I placed three on the three strongest out of ten strong colonies belonging to a neighbor. Those colonies cast no swarms, though all the others did so. While most bee-keepers have had a fair amount of swarming, it has not been an old-fashioned swarming season, or I should be inclined to recommend the hiver as a non-swarming device. I have noticed the same effect in my own yard, where hivers were early placed on colonies showing strong signs of swarming. Days went by before the swarms issued, and then the bees went back instead of into the new hive prepared for them. It was ten days before they came out again, probably with a new queen. That time the hiver was off, so they were gathered off a tree. The next time a weak swarm was caught, the most of the bees returned to the old hive. At another time, with an after-swarm, several young queens got through the hiver, rendering it of no use in that case.

The later form of the hiver may be made to serve an important purpose, aside from its main object. The two small sections, with perforated zinc in the front, may be used in retaining swarms after they have been hived.

I am very sorry that I am not able to make a favorable report on the hiver. A device that will effect its purpose every time will be eagerly purchased by the farmer members of the bee-keeping fraternity, especially as it will enable them to keep bees without interruption to other work in swarming time, and consequent loss of time demanded by other interests.

I hope Mr. Alley may yet give us a really practical hiver; but this one, at least with me so far, does not fill the bill. M. S. West.

Flint, Mich., Aug. 24.

[This report may be exceptionally bad, but it rather strikes us that these automatic swarmers were boomed pretty heavily before they were even tested. If the majority of the others who have tried them have had similar failures, it means a big disappointment.]

ENEMIES OF THE HONEY-BEE.

READ IN WASHINGTON BEFORE THE A. A. A. S.

The foes of the honey-bee are more numerous than would be supposed. We find them among the highest class of animals, and also among the lowest of all organisms. Three classes of vertebrates contribute to the group; many insects are included, while one of the most deadly of the microbes finds a rich pabulum in the brood of the honey-bee.

Among mammalia, bears, except that man has so nearly exterminated the species, would be counted among the honey-bee's worst foes. Bruin braves the anger and attack of the bees, impelled by an exceeding fondness for honey. The dense hair and thick epidermis serve well to fortify for the most part against the stings. In some experiments with a tame bear it was found that she would never hesitate to satisfy her taste for honey though the latter were guarded by scores of bees. The bear would close her eyes and rush to the feast. The shutting of the eyes was not simply an expression of satisfaction, but, rather, to protect them, as she never closed her eyes when given a bottle of honey to suck. In taking the honey from the hive, the frequent head-shakes proved that she had to take the bitter with the sweet.

The shrews and mice are serious enemies. These, however, make their attack in winter, when the semi-stupor of the bees prevents any considerable resistance. Owing to their minute size these little mammals, especially the shrews, are able in almost every case to gain access to the hive. Whether or not these animals eat the live bees, I am unable to say; but they certainly eat the dead ones, and so gnaw away at the combs, in their search for the pollen at the base of the cells, that they often fall in one shapeless mass at the bottom of the hive. Very likely the irritation consequent upon such disturbance kills the bees, which are afterward devoured.

The king-bird, one of our most rapacious fly-catchers, is a very serious enemy of the honey-bee. This bird, I dare say, would not refuse a large sleek drone; but that it confines its attack to these is certainly not true. I have taken worker bees from the stomachs of these birds several times, after watching it capture the bees. The bird flies from some convenient perch near the apiary, snaps up a bee, returns to its perch, works a moment with the bee, when the latter is swallowed and the whole operation repeated. I have wondered whether the manipulation to which the bird subjects the bee just prior to swallowing it renders the latter unable to sting, or whether, as in the case with the toad, the bird receives a sting for every bee swallowed. The fact that a bee will sting, with opportunity, for hours after the head is removed, or even the abdomen cut in two at the middle, makes it seem impossible that the king-bird could handle the bee so dextrously, except that it were wise enough to extract the sting, so that the bee could not sting; and yet the motions always observed just before the swallowing act are significant. Why is not the bee swallowed at once? Of course, this interesting question could be easily settled by a careful examination of bird and victimized bees—a thing which I shall surely do upon the first opportunity.

The toad is no mean enemy of the bee. As evening approaches, or even on dark cloudy days, this rough-skinned batrachian sets himself near the entrance of the hive, and, by aid of its long viscid tongue, will catch and swallow a dozen bees in a very brief time. I have often seen this interesting performance. Once, after a toad had taken five bees in succession, I took the toad, examined its stomach, and found therein five stingless worker bees. I then examined the toad's throat, and found all the five stings sticking in this vital cushion. Is the toad callous to these venomed pricks, or is he a sort of martyr to his love for the bee and its load of sweet? As I could never see any scowl or wince, I have imagined that the toad, unlike the bear, was not very sensitive to such venomed stabs.

The insect enemies of bees are quite numerous. Among the bees, a species of *andrena* often enter the hives in the spring as pilferers. Often the bees pay no attention to them, though a honey-bee from another hive enters at its peril. I have wondered whether these *andrenæ* could have a protective scent, or whether they are regarded by the bees as too insignificant to excite either alarm or apprehension. Species of bombus also enter the hives—usually, however, only when the hive is opened, as the entrance is commonly too small to permit ingress. Once in, and the hive closed, the bumble-bee receives rough treatment. The bees attack it and soon rob it of life and its hairy covering.

They attempt to drag its great carcass from the hive, but, unable to do this, they show their respect for size by proceeding at once to give it decent burial. This is effected by covering it with propolis, or bee-glue. Often I have seen the dead body of a mouse similarly sealed within the hive. Is not this a kind of sanitation?

A species of apathus, which also enters the hive of the honey-bee without any resistance, is, as I have reason to believe, a worse foe than is *andrena*, as there is considerable evidence that these bees breed in the hive. I have received specimens of these bees from a very intelligent bee-keeper of Indiana, who reports that this cuckoo-bee certainly breeds in the hive. If this is correct, it is a very interesting case. I hope soon to have positive evidence on this point. The fact that many of the cuckoo-bees were seen in the hive, and acted entirely at home, seemed to confirm this theory as the correct one.

In America, wasps are not serious enemies of the honey-bee. I have received from the South the large handsome *Stizus speciosus*, Drury, with the report that it had caught and killed a honey-bee. I think such depredations, even in the south of the United States, are much less frequent than in Europe and Asia. Of the family *Mutilidæ*, the cow-killer of the South, *Sphæro-aphthalmus occidentalis*, Linn., is no mean enemy of the bee. This beautiful insect has no apparent fear of bees, and is very free to attack them. Probably its densely chitinous body and very powerful sting make it an overmatch for the honey-bee. I have this very hairy ant-like insect from Kansas, Mississippi, and Florida, in all of which States it has been seen to attack and kill bees. It is a very predaceous insect, and doubtless is more our friend than enemy.

Various species of the family *Formicidæ* attack bees. In the North, ants do no harm, except to gather on the top of the inner cover of the bees, seemingly for warmth. Occasionally they annoy or irritate the bees to some slight extent. In the South, ants often kill the worker bees, and occasionally the queens; at least, it is so reported.

Ants are easily poisoned, and may be killed at wholesale by applying bisulphide of carbon to their ant-hills.

Among dipterous insects we find bee-enemies in three families. Without doubt the robber-flies, *Asilidæ*, are the chiefest offenders. These terribly predaceous insects are well denominated bee-killers. They are most destructive in the South. There are several species that are known to kill bees. These belong chiefly to the following genera: *Erax*, *Promachus*, *Asilus*, and *Mallophora*. These often do serious damage—so much so that, in some parts of the South, boys are employed to kill them, which they do by the dextrous use of the whip. The habit of these flies reminds us of the king-bird. They pounce upon the bee, grasp it while on the wing, by use of their feet, and repair to some resting-place, where they deliberately suck their victim's blood. Scores of bees may be destroyed in a day by one of these rapacious flies.

The bee-louse, *Braula cœca*, of the family *Braulinidæ*, has been frequently introduced into this country from Italy and Cyprus, on queen-bees; but from the fact that it has given no trouble—indeed, is rarely seen in the United States—it would seem that our climate must be inimical to its well-being. It can hardly be called an enemy of bees on this side of the water.

Among lepidopterous insects, the well-known bee-moth, *Galleria cereana*, Fabr., is a generally recognized enemy of the honey-bee; yet it is usually powerless to injure any but weak colonies, especially of the yellow races of bees. Though called the wax-moth, it really feeds mostly on pollen, though it cuts the comb in a ruinous fashion, as it tunnels through and through it in search of its real food. It is not considered a serious enemy by any well-informed bee-keeper, but will often do serious mischief to weak colonies of bees by matting, soiling, and tunneling the combs, and in this way exciting and dispiriting the bees. It is also ruinous to exposed combs, and thus makes caution on the part of the bee-keeper an imperative necessity to success. A. J. Cook.

Ag'l College, Mich.

To be continued.

ARIZONA.

SOME QUESTIONS ANSWERED—SEE P. 628, AUG. 1.

Notwithstanding my request that all questions relating to my communication on Arizona be sent to GLEANINGS, I have been fairly deluged with letters from all parts of the Union—from Maine to California, and from Oregon to Florida, demonstrating the extensive reach of your publication, and its consequent value as an advertising medium. It also shows the enterprising character of its readers, and, what is better than either, the sterling worth of the paper itself; for, as I understand, your circulation is not maintained by the offer of premiums, but rests entirely on the merits of its contents. I think this is due largely to the fact that you do not confine yourself to bees alone (for this one subject, with the lapse of time, necessarily becomes "hashy"), but, on the contrary, you embrace many live subjects of practical importance to men and women of all stations and callings in life.

Some of the letters received I have turned over to editors and real-estate agents who have promised to mail papers and pamphlets fully answering the questions propounded; others I have answered by letter, and the rest to date I will endeavor to answer in this letter.

Right here permit me to suggest, to all who contemplate emigrating, the wisdom of visiting this country and seeing for themselves before breaking up their homes. If your means will not permit this, and you enjoy good health and reasonable prosperity, it is often wise to stay where you are.

To the question, "Which pays the better, bees or fruit?" we unhesitatingly answer, fruit pays better than any thing else; but honey, vegetables, etc., pay well enough to maintain you while waiting for your orchards to come into bearing. An orange-grove in full bearing is worth from $1000 to $2500 per acre, for the net proceeds from the sale of the fruit will pay 10 per cent interest on those sums, and this is the general rule in determining the true value of a grove. I have now before me a letter from a nephew residing at Riverside, Cal., who reports an orange-grove of ten acres just sold for the sum of $25,000 cash. I have known ten acres of grapes to yield a net profit of $2400. Ten acres well cared for is amply sufficient for the maintenance of a family of ordinary size. For paying crops of oranges one must wait four or five years after setting out the trees, the time of waiting depending much on the size of the trees when taken from the nursery, and the care bestowed on them afterward. Figs, apricots, peaches, nectarines, and other fruits of that class, require about three years to yield really paying crops. Grapes pay well in a year and a half after setting out the *rooted* vines;

but where cuttings are used it will require about two years for the same result.

There are no fleas or bedbugs here, and very few mosquitoes; but at certain seasons the flies and ants are rather bad. The former we screen against, and the latter are most effectually destroyed by flooding and drowning. Lizards and horned toads abound, but are perfectly harmless; and, besides, they are useful in destroying insects. Scorpions are very scarce, and I have not yet seen a tarantula here. We occasionally meet with the large yellow rattlesnake; but as "every man's hand is against them," they are fast disappearing. The abundance of jack-rabbits renders it desirable to fence orchards and vineyards with poultry-netting, from the ground upward for from 2½ to 3 feet. This, with a barbed wire above, makes a fence which is durable, and proof against every thing that can not fly. The posts are usually cottonwood-trees, which grow rapidly, and soon afford a fine shade, and make the best kind of windbreaks.

Quails, doves, blackbirds, and, indeed, nearly all species of the feathered tribe, abound in this valley, and occasionally do considerable damage to fruit crops; but by destroying all nests, and by the general use of shotguns, they will gradually disappear.

The Indian question is hardly worth considering. I have not yet seen an Apache. The Maricopas and Pimas are small tribes whose reservations are from twelve to twenty miles away. They are self-supporting, very friendly, and it is their boast that they have never yet killed a white man; but they are the mortal enemies of the Apaches.

As to fish, they are plentiful in the river and canals; but any one having a little land can easily and inexpensively have his own carp-pond.

There is no government land left in this valley. Town lots in Phœnix are 50 by 150 feet, and vary in price from $150 to $1200, according to location. Unimproved land, from two to ten miles from Phœnix, sells at from $100 down to $25 per acre, water included, the price varying with its distance from town. Very fine land can now be obtained within from five to six miles of Phœnix at from $40 to $75 per acre.

Our school system is of the best, being modeled after California's. School year is eight months, compensation $75 per month. The examination of teachers occupies three days; is critical, and the standard high. The applications always greatly exceed the numbers employed. The cost of living here is, on the whole, about the same as in the Northern States.

Do not bring bees, as the cost of transportation would equal or exceed their price here. Our home market for honey and other productions is limited, and large producers ship their overplus to other localities. We have as yet but one railroad, the Phœnix & Maricopa, which intersects the Southern Pacific Railroad 30 miles south. The necessary papers are already signed by the Santa Fé company for the construction of a north and south road from the Central Pacific to this point, which will probably be completed within the next two years; and as it will pass near the second largest pine forest in America, lumber, which is now worth from $25 to $45 per 1000, will drop to reasonable prices; and the enormous freight charges now demanded by the Southern Pacific will drop off a half, and at the same time real estate will surely advance to probably three times the prices now asked. Why not? Ours is a still milder climate than that of Southern California. We produce all that they do. Our fruits ripen from three to six weeks earlier, and we are 500 miles nearer the eastern market. Lawyers and doctors will not find this an inviting field; but to energetic men and women who desire to build up prosperous and happy homes, I know of no country offering better inducements.

Phœnix, Ariz. A. J. King.

[Friend King, we are glad of this second letter of yours, as it modifies somewhat some of the encouraging things you said in your other one. Permit me to add a word here in regard to those orange-groves worth $2500 per acre. I saw just such groves while at Riverside; and I saw some that had recently been sold for large sums of money. Now, I think I am right when I say there is only occasionally a man who has enough energy, and love for the business, to manage successfully an orange-grove *after* he owns it. It is exactly like the fruit-farms of the Eastern States, that yield great results. It is the result of hard work and brains; and right in Riverside—or, at least, not many miles away—there are hundreds of orange-groves going to ruin and decay because their owners hadn't energy or interest enough in the business to give it the necessary care. Great sums of money have been made from single acres of strawberries; and almost every locality can furnish one or more examples of what may be done by an enterprising man; but it takes the man to do it, after the locality has been found. In the article following this we have a very truthful statement from a resident, in regard to the state of bee-keeping in Arizona at the present time.]

A. I. R.

ARIZONA AS A HONEY COUNTRY.

SOME CORRECTIONS.

In the August 1st number of Gleanings, Mr. A. J. King, of this valley, has an article in regard to this country and its honey-producing capacity. Mr. King is a comparatively new comer, and, like all such, seems to see only the advantageous points of the valley, and to have them magnified in his mind. This valley has many good points, and, like all places on the globe, some poor ones; but I wish to write of it only from the honey-producer's standpoint. Mr. King's article would lead one who is unacquainted with our valley to overestimate its honey resources, both as to yield and the extent of our range.

There is no doubt that Dr. Gregg extracted an average of 480 lbs. of honey per colony from 12 colonies in one year; but that was years ago, before the land around his place was cleared of mesquite, and made mostly from that tree. There were no bees but his 12 stands in his vicinity, and it was an extra good year. Now there are very few localities where mesquite is found in any quantities near alfalfa-fields, and the country is full of bees. In the neighborhood where my apiary is situated, a circle five miles in diameter, with my apiary as the center, would contain fully 1000 colonies of bees; and the land within the circle, although only part in alfalfa, would contain the majority of that plant growing in the vicinity of Tempe. On the north side of the river, in the neighborhood of Phœnix, the range is nearly as thickly populated with bees. There are nearly, if not quite, 4000 colonies of bees in the valley now; and, as I said before, there is very little mesquite now, except on the desert, beyond range of cultivated ground, so that alfalfa is almost our sole dependence for surplus. The other honey-producing plants mentioned by Mr. King grow mostly out on the desert, away from the alfalfa, and so can not be utilized.

Of alfalfa there are from 18,000 to 25,000 acres growing in the valley; but of this a large num-

ber, probably the majority, of acres are kept pastured by stock the entire time, so that there is no bloom on it, and very little is being planted, owing to lack of markets for hay, so that the bee-range is not increasing as fast as the bees are.

In regard to yield, I can speak with some authority, and not from hearsay, as Mr. King evidently does, as I have been connected with our association, which ships nearly all the honey produced in the valley, and I know the number of colonies owned and amount of honey produced by nearly every bee-keeper of the valley. Dr. Gregg's yield last year averaged, according to his report, 90 lbs. of extracted honey, and it is less this year, owing to his range having been closely pastured.

The best average yield, both last year and this, was secured by W. L. Osborn, who reported about 160 lbs. extracted per colony, from nearly 200 colonies last year, and about the same so far this year. He has the best range in the valley. Mr. Osborn is a bee-keeper of many years' experience, and is up with the times, and I think he makes his bees yield as much as any one could.

The average yield of extracted honey per colony reported by our members varied from 75 to 160 lbs. Of comb honey, 50 lbs. per colony is considered a good yield.

The past two years which I quote were fully up to the average, if not better; so you see that Mr. King's 200 to 300 lbs. per colony fails to materialize when put to the test. In regard to the quality, I do not think he has overdrawn a particle, except in the case of a little mixed spring honey. Mr. Broomell, upon his return from Chicago recently, brought samples of clover and basswood honey, both comb and extracted; and while it is some lighter than ours in color, all who have tested both, side by side, pronounce our alfalfa or mesquite very much superior in flavor. J. WEBSTER JOHNSON.

Tempe, Ariz.

CHIPS.

BY WOODCHOPPER.

Dr. Miller, please tell Miles Long that he is wrong, for bees don't swarm because it's s'warm, but because it's nature's way of increase and propagation; and if it is warm when they get ready, all right; but, on the other side, they often swarm when it's s'cool that they nearly starve, and the brood in the old hive has a narrow escape from chilling.

Queens of second swarms are no better than the one left in the old hive, and there is no better chance for a choice, for not once in 900 times do over half the cells hatch with the second swarm, or third either.

The Porter escape is not a success with me. It takes three days to get about two-thirds of the bees out, and the rest come out only after carrying to the honey-house. I can beat that by two and three-fourths days, and get the bees out five times as clean, on the average, without any escape.

NOT A SURE SIGN OF SWARMING.

The backward and forward movement on the alighting-board is no sign of swarming. Bees do it all the time some years during August, when they are not working at all. They do it sometimes, too, at swarming time; but they do it much more when they don't swarm at all.

WIDTH OF TOP-BARS.

You need not be afraid to reinforce your top-bars to 1⅛. It's only what they should have been at first. Just try a few hives; and when you know, tell us how they work spaced $\frac{5}{16}$ to $\frac{3}{8}$ apart.

DRONE COMB IN HIVES.

J. A. Green says it is practically impossible to keep all drone comb out of hives. I agree with him so far; but when he says he doesn't want any drone comb I disagree. Bees work better with a fair amount of drone comb than without. I have had hives with one-fourth drone comb, and they outstripped those with but little. This season I have had drone-cells built under the bottom and between the end-bars of frames where there was only room for one or two rows of cells, and lots of drones raised there.

PROPER PLACE FOR DRONE COMB.

I have always thought it should be in the outside frame or in the lower corners, so as to be as far away from where the queen was laying as I could get it, so she would be later in getting to it; but this summer I have made a discovery. It may be old, but was new to me. It is this: If three or four of the center combs have an inch strip of drone comb right close up to the top-bar it will be kept full of brood all the season, and no honey can be stored between the brood-nest and sections; so if they store any above it will have to be in pound sections.

FIXED FRAMES.

These are all right some of the year, especially for new swarms; but after the first year they are entirely unnecessary, at least for my bees, for they fix the distances so that there is no danger of their getting loose in wiring in handling. I formerly used the Durant hive, having closed-end frames, without any outer case except sides, and over 100 of them, for 10 years or more, but finally I fixed them all over to hanging or swinging frames; and as I now use them I don't want any thing more fixed than they are after the bees have had them a year; and if that is not sufficient for new swarms, a very simple arrangement can be made with two small strips the length of the hive crosswise and the thickness of the top-bar of frames. It is made by nailing one on the other, like a rabbet. To use, just as I want it I tack it down over the ends of the frames at each end, and they are ready for moving any distance by rail or wagon that bees ever ought to go; and to loosen them will not take over two seconds after the hive is opened. But please don't take this as an argument against fixed frames. Let anybody try some if they want to; but they will be like a new broom, and sweep clean for a time; but I very much doubt whether they will have much of a hearing five years from now. The same care that is necessary to get those closed ends together without killing bees will save more bees without the closed ends or fixed distances.

DON'T KILL THE KING-BIRDS.

J. W. Porter says they are an enemy of bees. Well, they do eat lots of drones, and I used to shoot them; but after opening many of their gizzards, and never finding a single worker, but some drones and a great many more bugs and beetles than drones, I came to the conclusion that they are one of our best friends—that is, of those that wear feathers, although they are not as showily dressed as some of them. In the instance of the bees stinging them, which he gives, I will say that any other bird would have fared about the same in the same place. There has been a king-bird's nest close to my bees every year for a long time; and as soon as the young ones were large enough to fly they would take up their position on a wire about eight feet high, which ran the whole length of the apiary, and stay there as long as drones were plentiful, the old ones catching them and feed-

ing the young. I have seen the bees after the old one very often when they were flying; but they will chase robins or any other birds just as quick if they fly across the apiary; but the flight of the king-bird is of such a dilatory, part stand-still kind of movement, that the bees can follow them much better than swifter-flying birds like the robin, which will very quickly distance a bee's flight.

COOKED NUBBINS.

No, Prof. C., there is no connection between the cool weather and the small honey-flow. Some of the best yields I ever saw have been in cool seasons when there was almost no hot weather; but it must be moderately dry, any year, wet or dry, to get the best, although we see it every few days something like that. The weather is hot and rains abundant; the air is damp, full of electricity, just right for the secretion of nectar; but, friends, how many of you get much honey during such seasons? or if you do it will be thin and smarty, especially clover, which will almost strangle a person to eat it clear, while that gathered in dry weather will be smooth and rich, and much more palatable than the other, usually much more abundant, although the flow may be short if it gets too dry.

Now, Prof. C., do quit urging every farmer or fruit-grower to keep a few hives of bees, for all it will amount to will be to spoil the market for others who have no other business, or not much, and of very doubtful benefit to the farmer, who, if he has much of a farm, will have no time to fuss with or take decent care of a few hives of bees without costing him, in one way or another, more than it will come to. One specialist in any community will furnish bees enough to fertilize all the fruit free of charge, and get curses enough to satisfy any man who is satisfied with any thing reasonable in amount. One would think that the field of bee-keeping could not be enlarged enough, by the many suggestions made, that everybody should keep a few hives; and it does not look consistent, at least, to see it, and then hear the cry about glutted honey-markets and low prices which we are sure to have again just as soon as there is any thing like a full crop of honey.

THAT STRAIN OF ROOTING BEES

which J. H. Markley suggests, would not suit me; for, instead of spilling the honey, I should want to have them gather it up without spilling. It might be clearer, you know.

HONEY-DEW NOT GOOD FOR WINTER.

Several are inquiring about honey-dew for winter, and some of the replies are that it is good if of certain kinds; and another says it is not good if it is on beech-trees. I will tell here it is just as bad on oak or chestnut or hickory as on beech. I have had experience with it four years at different times, with always bad to much worse than bad luck every time. I lost 100 out of 200 one winter. The dew that time was on beech-trees about half a mile west of my bees; and a man living a mile east of me had 30 swarms, and his bees were not affected. He laughed at me when I told him it was dew that ailed mine. Well, next fall it was on beech timber in the same place, and also on some close to his, and I lost 120 out of 125, and he lost every one of his, and gave it up, and has not kept bees since.

WOODCHOPPER.

Blue Mounds, Wis., Sept. 10.

[Yes, but king-birds *do* eat workers. I watched one one day catching workers on the wing. Before he had fully satisfied himself, he had snapped up something over a dozen bees. That they were workers was evidenced by the fact that they were coming in from the fields heavily laden with honey, and they were so close that I could readily recognize the difference between them and drones. That they are very fond of drones is quite true; but they are also fond of workers. See what Prof. Cook says elsewhere in this issue and the preceding one.] E. R.

BEE-GLUE IN CUBA.

ITS EFFECT ON FLAT COVERS, SUPERS, AND FIXED FRAMES.

As the merits and demerits of the Hoffman frame seem to be the main topic of discussion at present, I can say the same as others say about the frame in Cuba; viz., it is not a practical frame to use here on account of the propolis, which abounds in a superlative degree; and for sticking qualities it is second to none. To give you some idea of its adhesive properties, I have time and again placed supers on a one-story hive, and let them remain some time; and when I would want to remove them, by placing my foot on the bottom-board, with all my strength I was not able to remove the super. Now, mind you, they neither had bees in them, nor stood in the sun. You know that, to do a good job of gluing, you must have a space big enough for a good quantity of glue to adhere to the surface, to be successful. Now, the bees seem to realize this in the Hoffman frame, and I assure you they put it into practice.

I notice on page 473, of June 1, that one of our friends says he can handle the Hoffman frame about twice as fast as he can the loose hanging frame. We must always have a cause before an effect, and I fail to see how it is, that, by causing the top and end bars to be made a little bit wider, it will affect their handling enough to admit of their being handled twice as fast as the common loose frame. Of course, a person may get used to handling a frame, even if it is a little odd shaped and inconvenient at first, so that he can handle it with ease and rapidity; but not twice as fast as the loose frame. Now, the Hoffman frame might do if every one is put back in the same place it was taken from, so the glue would not accumulate on the edges so as to prevent them from going close together; but that would be too much like walking up hill backward, especially where one has to go over large apiaries weekly the year round. I believe the frame will do in a colder climate where less propolis abounds; and the advantage of moving the hives is quite an item in its favor.

FLAT COVERS AND THEIR DISADVANTAGES.

Flat covers are a nuisance here. They are hard to remove, for the bees keep them glued down so tight it makes them unhandy to be removed, besides there being no air-space, which makes the bees rather warm. A hive adapted to this climate should have a space above the frames of about two inches, and also an enamel cloth, which allows the air to circulate freely through the tops, and the bees don't get so hot —that is the main kind of hive in use here.

San Miguel, Cuba. T. O. SOMERFORD.

[From the evidence that has come in, we shall have to admit that bee-glue in Cuba, and perhaps in other hot climates, is superlative in quality and quantity; and it is quite probable that, in such climates, it would forbid the use of fixed frames and flat covers, or covers under which no cloth or enamel sheet is used. When Mr. Hoffman and others said they could handle the Hoffman frame twice as fast as the loose frame, they meant for northern localities, or where bee-glue is no worse than it is with them.

Our own manipulations with this frame justify their statements. Where they gain in speed rests in the possibility of handling three or four frames at a time; and propolis, after these frames have been in use for years, cuts no figure, but it probably would in your locality. As we have explained before, in order to remove a loose or open-end frame, it is necessary to *finger* over *several* frames before it can be drawn out, otherwise the bees will be rolled over and some killed. With the Hoffman, when we crowd one we crowd over all next to it at once, and then we can remove the frame we want, and yet really handle only one frame. Then, too, there is a great gain in closing up a hive with these frames. All that is necessary is to crowd on the outside frame, and they are all simultaneously spaced, and the hive can be closed. There are several other points where we gain in speed of handling; but as I have before explained them, it will not be necessary to go over the ground again.]

THE INTRODUCTION OF VIRGIN AND LAYING QUEENS.

TAKING AWAY THE OLD BEES.

I have been reading an answer by G. M. Doolittle on introducing virgin queens, and I have been thinking of writing something on the introduction of queens in general, as, at this season of the year, to many it is not an easy undertaking to introduce a queen safely. There have probably been almost hundreds of suggestions as to how to introduce queens, and I find almost every method will at times fail, and almost every method, on the other hand, will succeed. The introduction of virgin queens I find so difficult and uncertain that I avoid doing so, whenever I can; by holding the queen-cell between my eye and the light, I can generally see if she is about ready to come out. She can be seen distinctly, moving slightly in the cell, perhaps only a leg, but the movement is almost continuous; then if the larva is at the right stage when given to the queenless colony there need not be much doubt about the time the cell is ready to hatch; and whenever there is room I introduce the cell directly into the nucleus. When a colony or nucleus has capped cells it is not a difficult matter to introduce a virgin queen; or if there has been a virgin queen immediately before, it is not a difficult matter to introduce a virgin queen. The bees want just what they had before; if before, a laying queen, then a laying queen; if a virgin, a virgin and so on. During a heavy flow of honey we all know the conditions are favorable to the introduction of queens.

I will give a method which has been given to me, of introducing a valuable queen. Take one comb of uncapped brood; place it in a hive with perhaps one or two empty combs; remove the old colony, the one you wish to introduce the queen into, to a new stand, leaving the hive having the comb with brood, etc., on the old stand. The bees old enough to have marked their location will leave the old colony, and fly back to the old stand, when the valuable queen may be introduced with safety, as the younger bees will not molest her. Of course, time enough must be allowed for the old bees to fly out from the hive, which, in good weather, should be not more than one day. After the queen has been introduced, the old hive may be placed on the old stand again, the hive having one frame of brood anywhere. The old bees, as they fly out, will return to the old hive one by one, and not molest the queen.

The other day we were examining a nucleus having a virgin queen when she flew from the comb and immediately went into another nucleus having no queen at all. Upon examining it a day or two later we found her all right; they had accepted her at once. I think an Italian virgin queen is more easily introduced than a hybrid or black, as they are quieter in their movements. R. F. HOLTERMANN.

Brantford, Ont., Can., Aug. 17.

A NON-SWARMING RACE OF BEES.

THEY ARE A SNARE AND A DELUSION, ACCORDING TO ONE WHO HAS BEEN EXPERIMENTING ALONG THIS LINE.

After reading T. W. Livingston's letter, and your foot-note, page 587, July 15, I could not help smiling; and whenever I see an advertisement of non-swarming bees I think it is the most misleading thing that could be put into a bee-journal. I have been working at this non-swarming business for six years, and I had the non-swarming bees to my entire satisfaction. I would build my bees up for the honey harvest till the hive was running over with bees, 11 frames to the hive, frames 14⅛x10, then I would reduce it to 8 frames, put on my cases, and get from two to three cases of honey, 27 sections in each case, and not a swarm. I was so sure I had the non-swarming bee that I was going to advertise queens for sale last spring; but the spring was so favorable, and the bees built up so fast, I concluded to wait another year, and see the result before I said any thing about non-swarming bees. Now for the result. A large number of colonies were marked for honey, and the rest for queen-rearing in the home yard. The honey-flow commenced; and so great was the flow that the ground would be full of bees dropping down, unable to reach the hive. The second case was put on. No bees hanging out, all at work. I told my better half that, if this honey-flow continued as long as other years, the way they are rolling it in we should get over 100 lbs. per colony.

"Why," says she, "look up there at those bees."

Out was coming a swarm, and it continued on from day to day till every colony swarmed that was in the yard, that was marked for comb honey, and my non-swarming race of bees was gone!

I think that, as long as the honey-flow is not too great, and the bees can build comb and store it out of the brood-nest, you can control swarming; but whenever the flow comes with a rush as it did this year (and it may be ten years before it comes that way again), and every cell in the brood-nest is filled with honey, eggs, or brood, and they can't build comb fast enough to receive it in the sections, they will swarm, I don't care what kind of bees they are. It's nature, and they are going to follow it. Lots of colonies hadn't a queen-cell started when they came out, and plenty of room in the sections. C. M. HICKS.

Fairview, Md., Aug. 15.

[Yes; but, friend H., it is worth something to have a race of bees that swarms but once in ten years. When this tenth year comes along with its tremendous rush of honey we can afford to let 'em swarm. A race that is not *inclined* to swarm, during *ordinary* seasons, and, with proper care, won't swarm, is much desired. We agree with you, that we shall probably never be able to develop, by careful selection, a race that is *absolutely* non-swarming, even in a rush of honey. Some bees are greatly given to swarming, and others go much toward the other ex-

treme. It is these latter that we should try to single out.]

EXTRACTING HONEY BY THE AID OF A STEAM-ENGINE.

A. W. OSBURN, OF CUBA, TELLS US ABOUT HIS MAMMOTH EXTRACTOR, AND HIS PLANS FOR DOING EXTRACTING ON AN IMMENSE SCALE. AN EXTRACTOR THAT WEIGHS 1730 LBS.

Friend Root:—I am happy to say to you and the readers of GLEANINGS that my 21-frame extractor, and engine to run it, are both in their respective rooms, and we are now busy putting them in position for business, which, by the looks of our 600 colonies, will not be long in coming. This has been no unusually good year for honey. It has been too dry. From Jan. 1 to Aug. 15 we had only 5½ inches of rain: yet for all that, 600 colonies here in this one apiary have done well. We have not fed one pound of extracted honey this summer; and now at this date many of them need extracting, and will have their honey taken away as soon as we can get the machinery in position to do it.

Now, friend Root, you know in years gone by you have heard me speak several times of extractors; and I once gave you my ideas of what I thought an extractor should be for business. You made fun of it (but I forgive you, as you are sorry for it now). Well, I have got now the only extractor I ever saw. The others have been but toys, playthings to be broken and smashed every time a man got the least bit in a hurry. But it will be a cold day and a slippery afternoon when the operator smashes this one. To give you a little idea of its strength and dimensions, I will say that the reel is 7 ft. 3 in. across; the upright shaft is of 3-inch round steel, and weighs (the naked shaft) 127 lbs. The horizontal shaft is 2½-inch round steel. The arms that support the combs are ¾ square steel, and the whole machine complete weighs 1730 lbs.; so you can see it is no toy or plaything. It is all built of steel, and is the very best workmanship. It was built by E. R. Newcomb, Pleasant Valley, N. Y., after plans I sent him. The engine is a Bookwalter, built by James Leffel & Co., Springfield, Ohio, and is first class in every respect.

Now, will it pay? Well, let's see. I calculate to be my own fireman and engineer, and to extract all the honey two men can bring to me with two comb-carts that carry 80 combs each. Now, how many men would it take to throw out what honey these two carts can bring in in a day? Well, I can tell you pretty nearly. It would take about six. The engine I can run for 75 cts. a day for fuel; oil, 15 cts., all told, 90 cts. Now, which would be the cheaper, do you think? I will take the steam extracting-plant, and let those extract by hand who like it better than I do.

Now, I know I have told you before that no man knows what the honey resources of this country are. I have been trying to find out something about it, but as yet I have not been in position to judge, for I have not had colonies enough to test it. Does not this summer's experience prove that the resources are entirely unknown? for, with all the dry weather, my 600 colonies have done well. Why have they done better than last year? I will tell you. Last year I put in 450 young queens, and made 300 new colonies, so you can see that all the colonies were weak, and you need not be told that weak colonies gather little or no honey to store. This year I had but few colonies to make, and but few queens to put in, so the colonies have been strong all summer, and their hives well supplied with honey. So I tell you for a fact, that I do not know what the resources of this range are. I shall put 100 more colonies next spring in this apiary, and try the range with 700 colonies.

By the way, I want to tell you I took 3400 lbs. more honey last spring after I sent in my report, making 73,400 lbs. for last winter's crop. To resume, I look at it like this: Suppose I get more bees in this one apiary than can get a good living all summer long; will it not pay to feed a little in the summer? for, as I have told you before, it is practically impossible to overstock in the winter. Well, I have the machinery for throwing out an almost unlimited amount of honey, and it is all under the same roof, with the same set of hands, and the same management. It is worth the trial, anyhow.

A. W. OSBURN.

Punta Brava, Cuba, W. I., Sept. 5.

[No, friend O., we did not mean to make fun of your extractor; we only desired, in a pleasant way, to warn small bee-keepers of this country against investing too much in appliances for extracting. In your case we must certainly consider the matter of locality. There are very few places indeed that will support so large a number; and where so many are in one place, it is possible that you might use to advantage steam power, providing you have other uses for the engine outside of the extracting season. An engine and boiler are expensive, and, if not kept in use, will deteriorate, unless a great deal of care is exercised. We should also consider first cost, and interest on the money. After all it is a question whether you can extract the honey as cheap by means of these extra appliances as you could by the use of more small extractors and more men. Labor is cheap in Cuba, we understand. Your enthusiasm is commendable; and if any man will make it succeed, you probably will. We shall read with interest your further reports, and we hope you will keep us posted right along.] E. R.

PROGRAMS FOR CONVENTIONS.

DR. MILLER TELLS HOW HE WOULD HAVE THEM.

Well, about that program. What's a program for? When you attend a concert, a program is placed in your hands that you may better understand what is going on. You hardly need one for that purpose at a bee-convention. Even if the program is not placed in your hand at the concert, the performers need one in order to have a plan to go by. So a plan is needed at a bee-convention. And yet some excellent conventions which I have attended had no program made out beforehand. The fact is, you do not know beforehand who will be in attendance, and it is too often the case that a name is put on a program when the man does not come at all. So I would make a point right there, that no one's name should be put on a program unless he had positively agreed to be present.

Another object of a program is to advertise the convention—that is, where the program is published in advance. Indeed, is not that the most important use? And an entirely legitimate use it is. Get up a fine program, having on it a number of topics in which I am deeply interested, and will not the reading of that program make me anxious to attend? Suppose I find on the program the two following items:

"The successful prevention of the desire to swarm when working for comb honey.—*Theodore Stull.*

Nailing hives together. — *G. M. Doolittle.*"

Now, how will those two items affect me? The first topic just stirs me all up, the second I don't care any thing about. But the first topic is discussed by a young man of scarcely any experience, and withal somewhat visionary, and I doubt whether it will be worth hearing. The second topic—I know how to nail hives well enough, and I don't care a great deal about it any way; but Doolittle will be sure to give some bright hints, no matter what he talks about, so I should really like to hear it. After all, that doesn't get to the bottom of it. I care more to know the names of the men who will be there than the topics. If the right men are there, I'm pretty sure the right topics will come up, and I'm very sure the discussions will be interesting and useful, whatever the topics. So if a program were to be gotten up to make me almost crazy to go, it would read something like this: "Among the topics to be discussed are, Closed-end frames; Spring management: Cultivated honey-plants, etc. The following persons have notified the secretary that they intend to be present: Adams, John; Baker, Mrs. B. F.; Cook, Prof. A. J.," and so on through the alphabet, giving a full list of all to be there, so far as known. Some have already acted on this plan, so far as to mention the names of one or more prominent men expected; but a full list would be better on more than one account. Such an entire innovation as I have suggested might not do, but I merely give it as a hint in the right direction.

From what I said in a former article, it may easily be inferred that I would give the question-box a prominent place, mentioning on the program that all were requested to contribute to it. Indeed, this box might very easily furnish material to occupy the whole time. Lately I saw in the *Stockman and Farmer* the advice to avoid having too many topics on the program of a farmers' institute, and it will apply with equal force here. Always leave room for plenty of time to discuss live topics that will be pretty sure to present themselves, and which may not have occurred to you. A president's address, giving, tersely, suggestions as to things needed, new things to be considered, etc., is a good thing. I've known a few such. But a "Again, brother bee-keepers, the seasons have rolled around, bringing their usual allotment of successes and failures," and so on through a quarter of an hour of platitudes, without a single new idea—such an address is better left unspoken. Let the seasons roll if they want to, and you get down to business. For the same reason I would have no essay on any subject that requires no discussion. The proper place for such essays is in the columns of the bee-journals. About the only use for an essay at a convention is to *introduce* a subject, and you ought to do all in your power to keep those essays from going beyond five to eight minutes. An exception should be made in case some special subject needing something in the line of illustration that could not so well be given in the bee-journals. Prof. Cook once gave us such a talk at Chicago on the bee's leg.

Neither is it a good plan to have time taken up with an address of welcome from the postmaster or mayor, with a reply thereto. What matters it to us to be told of the many natural advantages of the growing city of Podunk, with a detailed statement of the number of pounds of cheese shipped from that port during the last twelve months ending Feb. 31? We come there to talk about bees. Nor should a place be left on the program for a visit to the principal point of interest in Podunk, unless it be a visit to a foundation-factory or something in which we *all* have an interest. If any want to visit the slaughter-houses or the rolling-mill, they can stay and do so after the convention is over. A. I. Root will be sure to find a big cabbage a mile and a half away; and if he finds a greenhouse full of roses he may coax me to go with him; but let him go between times, and not break in on the sessions. There should be a recess of ten or fifteen minutes in each session; and as there is danger of this very important matter being forgotten, it ought by all means to be down on the program.

Marengo, Ill. C. C. MILLER.

[I am glad, doctor, you would leave out the address of welcome from the mayor or some other important functionary. When bee-keepers go a good many miles to attend a convention, they go to get acquainted with bee-keepers and not with mayors, and to get down to solid business as soon as possible. The address of welcome and the reply take up a great deal of time; and after all with the majority of them what is there of real value for bee-keepers to carry home? There is one thing, however, that you have omitted, and I am a little surprised at it; and that is, a place for music on the program. Whenever we have good music we always agree that it helps to enliven us and to relieve the tedium that follows on prolonged sessions; and surely who is there who is more capable of giving us really good music of the enlivening kind than Dr. Miller himself? The doctor need not read this last sentence.] E. R.

A MODEL CALIFORNIA APIARY.

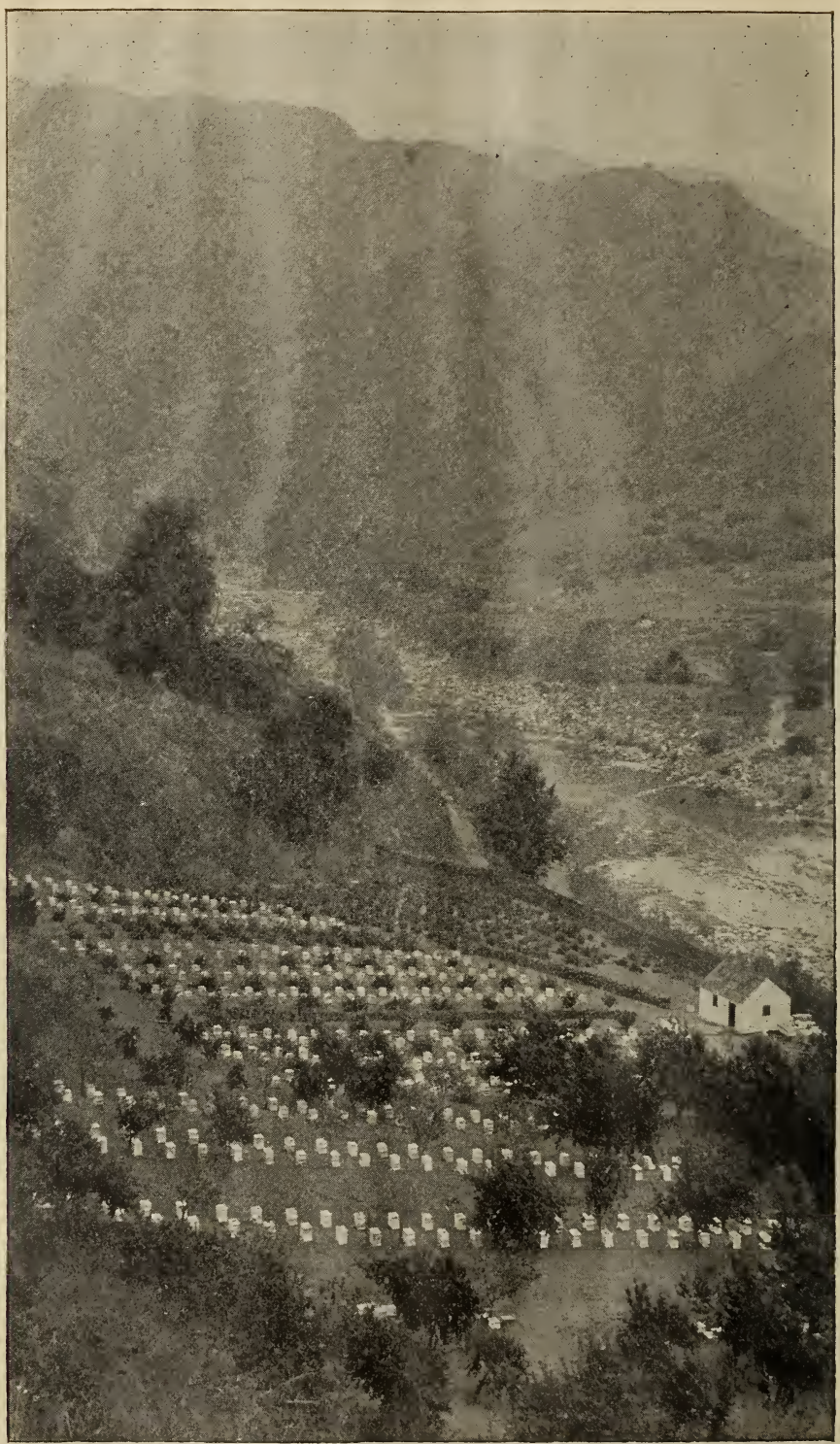
THE SESPE APIARY; SOME OF THE MODERN CONVENIENCES OF A WELL-REGULATED APIARY.

My first glimpse of the Sespe apiary was in the A B C book years ago, when yet an A B C scholar. Mr. Wilkin's reports of the wonderful honey yields, and the hundreds of colonies of bees comprising single apiaries, to me at that time seemed incomprehensible. We sometimes change with time, so with place; thus the past four years on this coast have passed as pleasantly as one season here glides into the other. It has been my good fortune during this time to form the acquaintance of J. F. McIntyre, the present owner of the famous Sespe apiary.

To an oft-longed-for and pleasantly consummated visit, your readers are indebted for a few facts and some untold history of this apiary. It is located three miles from Fillmore, Ventura Co., on the Big Sespe River, and at present contains 500 colonies, arranged as you see above, in parallel rows, one row fronting one way and one the other, and so on to the end. This method permits a passageway for the comb-cart, and, as you will notice, the growing of grape-vines for shade.

In numbering for his record-book, Mr. M. begins with the first row, calling that A; the second row B, the third C, and so on to the end. Beginning at A he has a stake number for each colony from one to the number composing it, repeating the same with every row. While this method is not new, it undoubtedly is a very simple method of keeping a record of each colony and location, and this reminds me that Mr. M. relies entirely on his record-book, consequently makes use of no unsightly stones as signs to indicate the condition of things. Every hive is painted white, and spaced, so that in appearance the apiary is a miniature city.

In the background, to the left, are some large orange-trees under which are nuclei for queen-rearing. Four 4¼x4¼x1⅜ sections compose the brood-frames for each nucleus. The loose bottom-board has rabbeted strips to hold frames



J. F. M'INTYRE'S APIARY, FILLMORE, CAL., LOOKING EASTWARD.

J. F. M'INTYRE'S APIARY, FILLMORE, CAL., LOOKING WESTWARD.

¼ inch from sides and bottom. The miniature hive is of ¼-inch lumber, and made just like a box without any bottom. There are 100 of these in use at present, and, with the Doolittle method of securing queen-cells, have proved quite a success.

It is necessary to keep these nuclei well supplied with honey to prevent swarming out; and as soon as the queen is laying, a single strip of queen-excluding zinc over the entrance prevents her loss.

At the left of picture is the honey-house. The uncapping-can, which was of so much interest, has been described in a previous number. Adjoining the extractor is a Pelton water-motor, which is intended to supply the place of hand labor. The water to run the motor is piped from a reservoir located at the right of the apiary on the side hill about 50 feet higher than the honey-house. Mr. M. has a perpetual water-right, and, by connecting the reservoir with the water-ditch, if necessary he has a continuous flow of water to run the motor. He at present contemplates attaching a dynamo to his power, using electricity for lighting his residence.

At the left of the honey-house are three large tanks, holding 4 tons each; and with a 12-ton tank near his residence, this gives storage for 24 tons of honey. As we too often read only the bright side of bee-keeping, I herewith append a record of this apiary for the following years:

Years.	In. Rain.	No. Colonies.	General Average.
1876	21¼	150	200 pounds.
1877	4½	300	No honey; half bees dying.
1878	20½	150	275 pounds.
1879	12¾	300	No honey; half bees dying.
1880	22 7-16	200	175 pounds.
1881	13⅝	400	20 pounds.
1882	11 1-16	120	15 pounds.
1883	11¾	150	40 pounds.
1884	41¼	160	100 pounds.
1885	8¾	200	No honey: half bees dying.
1886	28¾	240	175 pounds.
1887	16⅜	330	10 pounds.
1888	20	400	50 pounds.
1889	24¾	420	36 pounds.
1890	39½	430	60 pounds.
1891	19⅜	450	21 pounds.

You will notice a small honey yield some years, when there was plenty of rain. This was due to the greater portion of rain falling early in the season and but little after. The rains here often begin in November; and as the honey-flow months are May, June, and July, unless the rain is pretty evenly distributed, and continued late in the season, the honey crop is in proportion.

The range for bee-pasturage adjacent to this apiary is truly wonderful. On both sides the mountains is one dense growth of the various sages; and a mile up the Sespe you find yourself in a region so wild and weird that it seems as though it were never destined to be inhabited. The mountains tower above you so as to almost exclude the sunlight on all sides, clear to the mountain-top; and as far as the eye can see is one vast rank growth of California bee-forage, making it a veritable paradise for the honey-bee.

I do not wish to infringe too much on your valuable space, yet it seems I have not told the half. To close, I wish to say that such bee-keepers as Mr. McIntyre are a credit to this industry. His good wife, no doubt, has been a great incentive and helper toward his present standard; and I doubt not but that the Sespe apiary is destined to prove some wonderful things as to the honey production of California.

Los Angeles, Aug. 21. Geo. W. Brodbeck.

In addition to the above we solicited something from the pen of Mr. McIntyre, and here it is:

One of the greatest drawbacks in trying to keep about 500 colonies in one apiary is that the bees are bound to get more or less confused, and to enter the wrong hive. I think this is the chief reason why young queens are so often balled at mating time; and in laying off an apiary I always try to avoid this as much as possible, and still have the apiary convenient to work. When Mr. Wilkin had 500 colonies on the space occupied by the six double rows in the middle, directly above the honey-house, this confusion was sometimes quite serious. When a swarm would come out in the middle of the day, the lost bees would go with the swarm until it was large enough to fill four hives, when they would ball and kill the queen, and in a few days scatter with other swarms and thus keep the owner in trouble all the time.

That part of the apiary in the orchard pleases me better than any other arrangement of hives I ever tried. It is much better than the grape-vines. The trees were originally 18 feet apart each way; but I cut out every other row running up and down the hill, to give the bees a better chance to fly in and out. This gives 36 feet to each double row. The two hives take four feet, and there is a five-foot space between the backs, to run up and down with the honey-carts, and 27 feet between the fronts, hives six feet from center to center in the rows. The bees keep their own hives, and do not work out to the ends of the rows in this orchard part. Queens are not balled, and it is a treat to get into the shade occasionally when taking out honey. That patch in the corner by the board fence shows how a California vineyard looks. They do not trellis the vines here, but cut them back to mere stumps every winter, so the plow and cultivator can run between them.

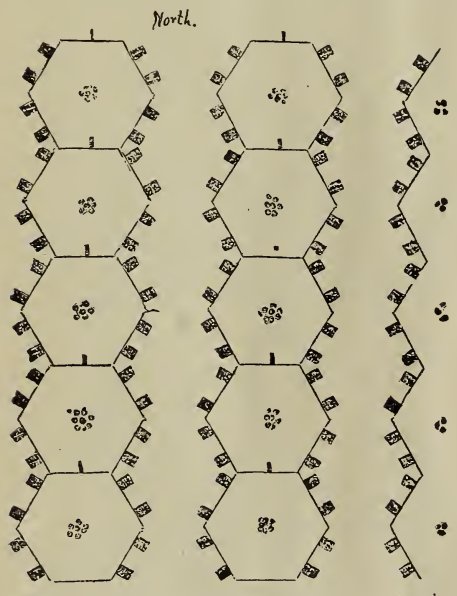
The high board fence is not designed to keep out thieves, but to protect teams and people from the bees. The water over the honey-house is the Sespe creek, from which the apiary took its name. It is all pure spring water from the mountains in the background. The rain falling on the mountains in the winter passes down through them and runs out at the base all through the long dry summer, and thus the mountains act as reservoirs on a gigantic scale. I wanted to take friend Root up into the mountains when he was here; but his time was so limited I knew it would be only a disappointment to start. But when he comes again, with Mrs. Root, if he will give himself at least 36 hours here I will engage to travel with him all over the mountains if he wishes. These mountains produce petroleum, brownstone, honey, and some pasture. The bushes shown in the picture are mostly live-oak and sumac.

Fillmore, Cal., Aug. 17. J. F. McIntyre.

[The pictures above possess a special interest to all bee-keepers; for with the descriptions following we have some facts regarding a place where bees are kept with as many as from 300 to 500 colonies in a single apiary. The table we are favored with seems to indicate a larger yield per colony where 200 or less are kept in one place at one time. In 1881, with 400 colonies, the yield was only 20 lbs. per colony. This, of course, may have been owing largely to the season. In 1888, with 400 colonies, he had 50 lbs. per colony; and in 1890, with 450, 60 lbs. per colony. It seems to me that it would be better to scatter the bees around in different apiaries; yet when we consider the advantage of having all the bees in one place, right under the proprietor's eye the year round, it may be that friend M. is not so much out of the way after all. I think the best description I can give to our readers, of this beautiful place when I visited it in December, 1888, will be by quoting what I wrote at that time:

Those great mountains before and behind your pretty little ranch kept me staring so much of the time with open mouth that I am afraid I did not look at the apiary as much as I might have done otherwise. Perhaps not all the readers may be as fortunate as you are in having access to stones of any particular size you may happen to need. I want to explain to the friends, that right in front of his house a big block of granite about the size of a meeting-house stands as tranquilly and unconcerned as if it had a perfect right there; but friend M. told me, when I looked at it in a questioning way, that it came down the canyon one night in a *flood*, and stopped right there. In my innocence I spoke about following the path up to the summit of a mountain right across the stream, while waiting for the buggy. They said I would not have time, and asked me if I noticed some animals away up on the summit of the mountain. I told him I saw some little black pigs, if that was what he meant; but after looking carefully the little black pigs seemed to have *horns* on their heads. When told they were cows, the mountain seemed to spring up a quarter of a mile all at once, and I concluded I would not go up where those little cows were, especially as we hadn't more than an hour to spare.

Do you want to know something more about the apiary? Well, Sespe apiary, as they call it, is one of the prettiest I ever saw. The honey-house is at



PLAN OF SESPE APIARY, BELONGING TO J. F. M'INTYRE, FILLMORE, CAL.

the foot of the incline, just below the bee-hives, so that a cartload of honey goes down through those open lanes without much labor. Between the honey-house and the road is a great iron tank. These iron tanks are to be seen near every honey-house in California. An iron pipe runs from the extractor into the tank; then a gate at the bottom of the tank lets the honey into the square cans, standing on a platform just right to load into a wagon. There is no need of building any roof over the tank, for it never rains in California during the honey-flow. You will find a photograph of some of the mountains back of Sespe apiary, in our A B C book. Right back of the apiary, on the western slope, is an irrigating canal that pleased me greatly. It is a sort of wooden flume; and the sight of the pure babbling brook that glides down over the sandy and gravelly bottom, as if it were in a big hurry to get somewhere, was to me a fascination. These streams of water mean business—market-gardening, fruit-raising, etc. The picture of R. Wilkin's apiary, in the A B C book, does not begin to do justice to the spot. The trees seen scattered about are orange and fig trees, and the oranges and figs are good too.

Do you want to know what our young friend McIntyre is doing with R. Wilkin's apiary? Why, he married friend Wilkin's youngest daughter—that is how it comes about. Oh, yes! I want to tell you one thing more about young McIntyre: He is a young Canadian, like "our John;" and I tell you, friends, when you find better boys to work than these young "Canucks" you will have to fly around lively. When friend Wilkin was putting up his shipload of honey to take to Europe there was a great demand for tinners, to solder up cans. The best tinner in San Buenaventura succeeded in soldering only about 1100 cans in a day; but friend McIntyre, after a couple of weeks' practice, soldered up *1400*.

You know I am greatly interested in irrigation ditches; and the one above the apiary on the side of the mountain attracted my attention at once. The mountain-side was so steep, however, that I was pretty well tired out when I reached the edge of the canal; and when I attempted to stand up straight, the sight of the apiary away below down the very steep mountain-side made me so dizzy that I was forced to grasp hold of some little bushes that grew along its bank; and even then I greatly feared I should lose my footing and roll down in an undignified way among the hives. Besides, I was puffing and blowing because of the effort required to climb the mountain-side. Just then, whom should I see right behind me but friend M.'s little girl? She had followed unobserved, at least by myself. I was so sure she would fall and endanger her life that I was going to make haste to catch her in my fright. As her father manifested no uneasiness, however, I turned to him questioningly. "Why, Mr. Root," said he, "you need not be worried at all. She and her younger sister come up here almost every day." And then I discovered that she had not only kept up with us great stout men, but had lugged along a pretty good-sized dollie, and seemed none the worse for the exertion. You see, they had been brought up among the mountains, and had learned to climb them, even in their infancy.

Many thanks, good friend M., for your kind invitation; and I assure you that, Providence permitting, I will some time give myself the pleasure of going over those great mountains. In fact, ever since my visit I have felt a little troubled because I was in such haste to get home when there were such wonders to be seen. I wish to say to our readers, that the picture showing the mountains on the east and north is the most perfect and life-like of any view of the mountains I have ever seen.] A. I. R.

BACILLUS DEPILIS—WHAT CAUSES IT?

SEE DOOLITTLE'S ARTICLE, PAGE 692, SEPT. 1.

From my observations in three States—Indiana, Texas, and California—I am convinced that writers have confounded two distinct and radically different diseases under the name of "nameless disease." Bacillus depilis is a very appropriate name for the one wherein the bees afflicted become hairless, shiny black, and tremulous before death, which, so far as I know, was first described by A. I. Root, under the nomenclature of "nameless" disease. Bro. Doolittle, the disease you encountered is not bacillus depilis, but a much graver malady, and the ants had nothing to do with it, only when they dug up the germs of the disease where you had buried it; and changing queens is utterly useless as a remedial measure.

This disease often plays havoc in the spring, especially where brood-rearing is progressing rapidly in cold or chilly weather, and in hives without sufficient protection. In an apiary so situated, let the microbe (or bacillus, if you

prefer) find a lodgment with a hive crowded close together, if you want to see bees die and the apiarist get the blues.

The disease which friend D. encountered, and which I have met in Indiana, Texas, and badly in California, is, in my judgment—

1. Of bacillic origin.
2. Contagious.
3. Does not attack the young bees before they emerge from the cell.
4. Rarely if ever attacks bees after they have been in the fields for a week or ten days.
5. Primarily attacks the nurse-bees in the second week after hatching, and is communicated by them to the young field-bees, to younger nurse-bees, to the drones, and, lastly, to the queen, in the order above mentioned. The queen and drones generally escape the malady, and the old field-bees always escape. When the queen dies the bees will rear another, sometimes two or three from the eggs or larvæ in the hive. The symptoms are:
1. Lassitude.
2. Enfeebled power of motion.
3. Inability or unwillingness to sting.*
4. Paralysis—first, hind legs; second, of wings and abdominal muscles; third, of the second pair of legs, death being simultaneous with the complete paralysis of forelegs and antennæ. Paralysis of the muscles used to work the sting is, I think, the reason they can not be made to sting. Dissection shows the alimentary canal to be loaded with thick but not dry feculent matter, revealing that either paralysis or constipation had occurred at the outset of the disease.

A bee afflicted as above described rarely lives for two days, frequently dying in a few hours. I have seen them fall by the wayside after getting a load in the field. Others would reach the alighting-board with their pollen-baskets full, and be unable to enter, and thus die, as it were, on the doorstep. The odor emanating from bees dead with this disease is almost identical with that from the dissecting-room of a medical college. Bees with this malady do not become bald or hairless, nor have the trembling motion. This disease never attacks queenless or broodless colonies. Next in order of escape are those with very little brood, and therefore few bees under 20 days old.

In my apiary of 130 colonies last spring, 125 had the disease; 5 were queenless, and so escaped; 2 other queenless stocks to which I had given brood escaped until the young bees were about ten days old. Stocks that were preparing to swarm lost fully two-thirds of their bees in two or three weeks. It was interesting to watch these colonies two or three weeks after the appearance of the malady, and see that three-fourths of the field-bees were old, gray, and bald-headed fellows.

The malady lasted for about two months from its first appearance until it was of no appreciable consequence, although it was over three months before it took its final leave. I lost only two colonies, but it effectually prevented swarming. It is the best non-swarming device of any; but don't try it if you can help yourself.

I have no doubt but that the real cause is of microbic origin, assisted by cold and damp, especially damp chilling winds; therefore give good protection, especially in the spring. The malady showed itself in my apiary this spring in two days after a cold northwest wind that kept the bees at home for most of two days; but it had made its appearance in Mr. Cheadle's apiary, only about a mile distant, some time before, but also after a cold chilly wind. I think the bacillus was present; and when the cold winds came, the bees, in trying to protect the brood, gorged themselves with honey and pollen to increase the heat, and did not gather in a compact cluster as broodless stock would do, and so were chilled and enfeebled, and thus furnished a fruitful field for the propagation of the bacteria. That it is not caused by cold alone is proven by its not appearing every spring after cold spells when the bees are in like condition as to brood. That they have consumed much pollen is demonstrated by the composition of the contents of their intestinal tube.

When you see a few bees moving sluggishly over the alighting-board, or lying as if they were sunning themselves, and, when disturbed, move their hind legs with difficulty, take a few of them between your fingers and thumb, and, if they will not attempt to sting, be sure you have a colony that is afflicted with a very grave malady. Bees thus afflicted do not curl up like those that have been stung, although a bee that has received the barbed javelin of his enemy never tries to sting, but uses his strength to get away from the swarm to die.

I fancy the disease above spoken of is produced in the bees by a cause somewhat similar to that which produces the grip in the "human insect," and would therefore suggest *Apis la grippe* as a name, although *Apis paralyticus* would be more appropriate.

Perhaps spirits of turpentine, rubbed up with sugar, one part to 10, or mixed with honey, one part to 30 or 40, will be found of value; but remember that any remedy for a disease that often eventuates in recovery may be overestimated. Remember, too, that a bee that is once afflicted with this malady never recovers, although the colony generally survives it.

Los Berros, Cal., Sept. 11. E. S. Arwine.

*I have never been able to induce a bee so afflicted to attempt to sting by pinching, rolling between my thumb and finger, or taking a few in my hand and gently squeezing them.

ARE WE DRIFTING FROM OUR MOORINGS?

FEW OR MANY COLONIES—WHICH?

Under the above heading, in the last issue of Gleanings I spoke of what seemed to me to be a mistake that was creeping in among the brethren of to-day in regard to "handling hives instead of frames," and spoke of the matter along the line of the necessary change in hives which must be brought about, according to the notions of those advocating this theory of handling hives to accomplish the looked-for results. In this I will speak of the bearing "the field" will have in this matter; for if the handling of hives instead of frames means any thing, it means that the apiarist is to gain time in this handling of hives, so that he can keep more colonies of bees, and thus secure a larger crop of honey from this increased number of bees than he did before with a less number and more time spent in the manipulation of frames. In this matter of increasing the number of colonies, the field, or location, plays a very important part; and it seems to me that here is an item which those pushing this matter of handling hives have overlooked. It is well for all of us to look any matter over carefully; and if we are on the wrong track, get right. If any of the readers think I am on the wrong track, I wish they would speak right out; for by a *friendly* talk over these matters we shall all be benefited, and no retarded growth of Gleanings will result.

After carefully looking the matter over I believe that there is one item, and that item is the one hinted at above, which is great enough

to more than pay for all the extra work of manipulating frames which is required, so that the investing of capital in more hives in which to put more colonies, so that "hives can be handled instead of frames," is worse than thrown away. Each of the extra colonies put into the field in order to secure the honey secretion from a given area with less work, or manipulation of frames, costs at least 60 lbs. of honey each year to support. So the question which we must answer will be, Which is the cheaper—a little extra manipulation of frames, or the extra colonies, hives, etc., and the honey that they consume? Suppose that 100 colonies produce an average of 50 lbs. each, and by so doing secure all the nectar in a given field, year by year. This will make 5000 lbs. of surplus as our share of the field, while each of the 100 colonies will use 60 lbs., or 6000 lbs. as a whole, as their share to carry them through the year. Some contend that it takes at least 100 lbs. to the colony to carry them from May first to May first again, as far more honey is used during the summer than the winter months; but as I have no means, except my own observation, of saying just how much is consumed, I am willing to err on the side that will be of the most advantage to my opponents. It will be seen, by taking even the low estimation given above, that we fail to get half of the honey from our field by employing an extra number of colonies. On the other hand, if we employ the "manipulation" (or economy) plan which our English friends do of securing the same amount of produce from an acre of land (just the plan A. I. Root has been telling us about in his gardening papers during the past) that we Americans do from three or four, we shall find our statement thus: 11,000 lbs. is the product of our field; 50 colonies are all that are needed, with good management, to secure the whole amount. Then 50 colonies must use 3000 lbs. of this for their support, leaving 8000 lbs. for the manager. It will be seen that the apiarist gets 3000 lbs. of honey for his manipulation, and uses but little if any more time on the 50 than he would on the 100 worked on the other plan of "handling hives more and frames less:" hence from the standpoint of overstocking a field, the former plan is 3000 lbs. ahead of the one which is now being agitated through the columns of our bee-papers; and as I said in my former article, this matter of supporting a greater number of colonies in our field is a matter which is against the "handling of hives instead of frames" for "all time." I firmly believe that it is no fancy of mine in thinking that it is just as easy to care for half the number of colonies in the way we have been formerly doing as to care for double the number on the plan now being pushed; and this same half will give the apiarist as good results in dollars and cents as will the whole in the "new" way, and save the extra honey consumed by the extra half of the number of bees as clear gain to the bee-keeper. Friend A. I. Root should be able to tell us by this time whether he has been right in recommending the high-pressure plan of gardening. Without waiting for him to answer, I will reply for him by saying, "*He knows he is right.*" If his plan of getting the greatest possible yield from an acre of ground is right, I am equally confident that the same plan is the *right one* when applied to bees. A larger yield from each colony, and a fewer number of colonies, is more preferable, to my way of thinking, than more colonies with a less yield per colony; and this latter must always be the case where we "handle hives more and frames less."

Now, readers of GLEANINGS, the thing is before you. If I am wrong, show wherein I am so, and I will make my best bow, and say "thank you." In conclusion I will say that *no hive* compels the handling of frames, for the frames need not be handled at all if the apiarist does not wish to. It is in the handling of the frames, if handled judiciously, that the profit comes. Where there is no profit, *don't handle;* and it is for each individual to know whether profitable to him or not. G. M. DOOLITTLE.

Borodino, N. Y., Sept. 21.

[I am sure, friend Doolittle, that I do not disagree with you unless it be on one point; your argument, as stated above, is directed a great deal more against the *overstocking* of any one locality than against the handling of hives more and frames less. It is a big piece of folly to have too many colonies for the locality. If 50 stocks will gather all the nectar there is in the place, it is a great waste to keep and maintain in strength 50 colonies more that would not increase the product of the apiary. Now, your argument, friend D., applies just as much to out-apiaries. Instead of overstocking, the thing to do is to take the surplus of colonies and put them in a new location from three to five miles distant; then when we get two or three out-apiaries we certainly do need to handle the frames less, or to diagnose colonies a great deal more in the line I pointed out editorially in our issue for Sept. 15.] E. R.

REMEMBER THE SABBATH DAY, ETC.

OUR VENERABLE FRIEND CHARLES DADANT TELLS US SOMETHING OF THE CUSTOMS OF KEEPING THE SABBATH DAY IN FRANCE.

Friend Root:—You are mistaken when you say that people who do not act as you do on Sunday are dishonest. Do you want us to believe that it is impossible to be a good Christian without being intolerant? As far as my memory goes back in my boyhood, I see the old men of my village seated under the trees of the large square, on Sunday afternoons, playing at cards with one or two farthings at stake; while the younger played at nine-pins, and the girls adorned themselves with garlands of flowers gathered from the prairies, or danced on the square. I see our old parson walking around with a smile for every one. He used to say mass at four o'clock on Sunday mornings, during harvest time, not to interfere with the work of the scythe. Do you conclude that these people were dishonest, or robbed, or were bad? A little later, when living in the city, I saw the museum and the city library, of 25,000 volumes, open especially on Sundays; for the poor were more numerous than the wealthy, who could visit them on work days. I received my first lessons in physiology and chemistry from a professor paid by the city to give, on Sundays, free lessons in the city hall, for the benefit of the workingmen.

From their beginning, every railroad in France and in most European nations have had Sunday trains at half price. The French International Exposition was not only open on Sundays, but the admittance was reduced to half price, to help the poor. Yet the Eiffel Tower was not thunderstruck. Then the success of this exposition seems to show that God, far from being angry, smiled from above and said: "To work is to pray; you poor workmen have prayed enough during your six days of toil; now enjoy the life that I gave you, and be happy; for the God of to-day is no longer the God of Moses, who ordered the Jews to smite the other nations (Deut. 7:2, etc.), but the God who asked, "Is it lawful on the sabbath,

to do good?" (Luke 6:9). Friend Root, would you dare say that, to help the toilers to have some pleasure, or to get some instruction on Sundays is not to do good? CHAS. DADANT.
Hamilton, Ill., Aug. 10.

[God forbid, my good friend D., that I should cause Christianity to appear intolerant of any thing but evil, or that I should judge my brother. No doubt the people of your native village who used to spend Sunday afternoons playing cards and nine-pins on the village green may have been perfectly honest, and never thought of robbing any one; and yet it remains true that any man who uses the time of Sunday for his own pleasure, while *he believes* that it should be devoted to God, is violating his conscience in thus robbing God, and is in a fit state of heart to rob his brother also, if circumstances and motives should conspire to tempt him. Yes, the God who is "the same yesterday, to-day, and for ever," instituted the sabbath — the "rest" day — long before Moses' time, for the *good* of man. Now, the question is, How shall we keep it holy, sacred, set apart for man's greatest and highest good? How shall his body get rest, his mind relief from care and worry, and his soul freedom and opportunity to feed itself upon the glorious works and character of its Creator, and take a lookout above and beyond its narrow work-day horizon? Whatever contributes most largely to this end is what we want, is it not? and what God wants for us in giving the command, "Remember the sabbath day, to keep it holy."]

LADIES' CONVERSAZIONE.

WEAK COLONIES.

THE ADVANTAGE OF HAVING GOOD QUEENS.

Mrs. Axtell's article, page 469, prompts me to ask whether we might not have fewer *weak* stocks by timely and proper attention to queens. If a good queen can and does bring a colony through in a flourishing condition for two or three successive seasons, under the same conditions that other stocks in the same yard have barely survived, why not endeavor to have more of these worthy queens and fewer of those whose families require so much nursing?

This has been a discouraging season with us, not realizing more than 20 lbs. (average) to the colony, to date, in our yard. But while some stocks have produced much more than this, others have stored only the brood-chamber. I blame the queens, for *all* had the same stimulative feeding in early spring. The weak were reinforced by the strong until I was tired of it; and what have I now from these for all this work? Not even a swarm. So, now, while we have a few sunny days and a little honey coming in, I am busy taking the heads off these unprofitable mothers, and introducing new blood: and as soon as I am convinced that any of these successors are unworthy their house and home, aliens from right principles of duty and fidelity, they shall be beheaded, as any unfaithful queen should be. This decree is established in the dominion of our apiary.

We had one colony with a fertile worker, or workers, (which is it?) which became almost depopulated of working bees. I gave them some brood and embryo queen-cells three different times. The last time they concluded to rear a queen, and the result is astonishing. Their hive is already running over with bees and honey, and they are now at work in the super—a good queen, you see.

I want to tell you, Bro. Root, of some new-fashioned sections which I saw the other day, and which you will have to compete with—at least, we know we have to compete with the honey in them. They are pieces of unplaned lath nailed together, forming a frame about 7x9 inches. Some of them were bulged on one side, and an extra tapering slice or comb built in on the other side. They were broken and mussy looking, and put on the market here to sell at 10 cts. Honey is honey here—no difference what grade, and we have much of just such competition, so that I almost heartily wish that everybody would let bees alone who does not, can not, and will not do the business up right. MRS. MILTON CONE.
Chillicothe, Mo., Aug. 4.

THE RECORD-BOOK.

SOME QUESTIONS FOR MISS WILSON TO ANSWER.

Miss Wilson:—This record-book subject is a very interesting one to me; but I wish you would tell us whether you carry your book with you from hive to hive all day and how you manage when you and Dr. Miller are both at work in different parts of the apiary. Do you keep the book and does he call out to you what to write, or the reverse? Do you not sometimes forget to make a record of some hives? I know we do. We have a board nailed against the bee-house, about two feet wide and three feet long, drawn off in squares like a checker-board, representing our apiary. Our hives stand three on a stand, seven stands in a row, and seven rows in the apiary. The squares represent the hives, and in the squares is where we keep our record. We abbreviate about as you do, having copied from "A Year among the Bees," by Dr. Miller. We plane the board off every spring. We have used it three seasons, but I do not like it a bit: and about every year, especially in swarming time, the board, or we, would get all mixed up. It took much time in running back and forth to make a record, or else we had to use a piece of section until we filled it and then we had to take it to the board and copy it off. I discarded the board altogether this summer; but Mr. Tittsworth sticks to the board, and I use the hive-cover. One glance at the cover tells what was done last without having to walk back to the record-board.

Bricks or stones are very useful sometimes. We found them so this season, in requeening. We place a brick in the center of the cover, to mark it queenless; then when our queen is hatched in the nursery, one glance told where she was wanted. Then after we gave the virgin queen we moved the brick to the front of the cover and took it away when she was laying, and clipped her.

That reminds me of your once saying in GLEANINGS, that sometimes you carried a queen to Dr. Miller to clip. You just try clipping a queen without catching her at all. There is not so much danger of injuring her that way as there is by catching them. I have never injured one yet, and I have clipped over a hundred this summer. I use a small pair of embroidery scissors. You just try it once; and if you are not a nervous person (which I don't think you are, for it takes some nerve to work with bees as you do) you will never carry a queen to Dr. Miller again, and you will also find fewer queens killed after being clipped, as I used to when I caught them.

This has been a very poor season in this neighborhood—no surplus honey at all, and we shall be thankful if we don't have to feed our

bees before winter. It looks very discouraging to see about 6000 sections all put up with full sheets of foundation standing empty when we expected them to be full; but such is the will of Providence. MRS. W. G. TITTSWORTH.

Avoca, Ia., Aug. 25.

REPORT FROM MRS. AXTELL.

SOMETHING IN DEFENSE OF HONEY-DEW.

This has been another year of failure of the honey crop, except of honey-dew. We should have had to feed largely this summer, except for this honey-dew. The bees filled their brood-combs very full, and sealed it up, so that much of their winter stores will be honey-dew. It is not nearly so thick and heavy and waxy as linn or white-clover honey. When a comb is cut it all readily runs out. For this reason I fear the bees may not winter well upon it, not so much because it is dew honey, but because it is thin and watery, even when sealed up.

In this locality there was honey-dew only upon hickory-trees, which for a few days nearly dripped with it. I notice that nearly every writer in the journals, who speaks of the dew honey, speaks disparagingly of it; but we are very thankful for it. If it does not kill our bees this winter, it has saved us from feeding largely this summer, as our bees seemed to get scarcely any other honey.

The hickory-trees could be seen glistening in the sun a long distance with it on the leaves; and all shrubs that were underneath were covered with the same sweet substance, and swarming with bees. The very topmost leaves were just as wet with it as the lower ones, and no leaves were dry on vigorous young trees. The smaller and younger the tree, the more honey-dew. Old and large trees had not nearly so much upon them. If that all came from aphides, I should think the trees would have had to be swarming with them, but they were not. There were a good many, or several, under each leaf, but more upon the top of the leaf. Why do we so spleen to eat such honey? Is it not just as clean as the milk of a cow or goat, and much cleaner than to eat oysters? In this case we eat only the product of the insect; but in the other case we eat the whole animal. If we could get only honey-dew in the future, I believe nearly every one would use it, and like it too. At first I could scarcely bear the taste of it; but now I rather like it. We have sold it only in our home market, and people call for it nearly as much as for good honey. We tell them it is honey-dew, and to return it if they don't want it. If they wish to buy it we can see no harm in selling it; and as to its being poisonous, as some have asserted, I am sure they are mistaken.

These honey-dearths will kill the suspicion of manufactured honey more than all our denying it. Last year we fed several barrels of dark sorghum molasses, and all the honey we got was nice white honey. This year, as sugar was so cheap we fed only granulated, and all our honey is as black as sorghum molasses, and so is all our neighbors' honey.

We have several hundred pounds of this dark honey, nicely sealed over, and it looks quite well, as the cappings are very white; and if not looked through toward the light, it looks much like fall honey, and not so dark as some white-clover honey I have seen that has remained upon the hives all summer. If it does not kill our bees in winter, as brother Heddon thinks it will not if well sealed up, surely we should be thankful for it; but if it does kill them, what then? Is not the promise, that all things shall work together for good to them that love God? Our loving God will make it for our good. If we don't love him, and are not submissive to his will, I suppose it will not be for our good; for we shall feel like finding fault with God. Job says, "Shall we receive good at the hand of God, and shall we not receive evil?"

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

[Perhaps it should be remarked that there are some kinds of honey-dew that are quite palatable, while others are almost nauseating. A good deal depends, also, upon the likes and dislikes of the individual. It is perfectly legitimate to sell honey-dew when you can sell it as such; and if the bees will winter on it, as I think they will do in the generality of cases, it is not so great a calamity after all, when there is no nectar to be had from other sources. But it does work havoc when the bees bring it in along with clover and basswood, and mix it in with the nice white sections—sections that would bring a fair price otherwise.] E. R.

UNFINISHED SECTIONS.

WHAT TO DO WITH THEM.

What is best in all cases to do with unfinished sections is a problem not easily solved. During the early and main part of the harvest we have been in the habit of taking them out of the super as soon as removed from the hive—that is, the supers that are taken off to-day are taken to the honey-room, and to-morrow each super is emptied, the unfinished sections put into a fresh super, and given back to the bees as soon as possible. Taking out the unfinished sections is not as much work as you might imagine. The supers are inverted, and by means of a push-board the sections are all removed at once, or, rather, the sections are all held down by the push-board, and the super lifted off. Generally only the corner sections, at this part of the season, are unfinished, and these can be picked off without disturbing the T tins. After the unfinished sections are all taken, the super is inverted over the sections, pushed down in place, and the finished sections are back in the super all right. To avoid such a catastrophe as the sections tumbling out while the super is being inverted, it is necessary to have a board under the super to be inverted with it. If desirable, the vacancies can be filled with finished sections, a whole super of such being occasionally emptied for that purpose.

So far we could probably do better. But later in the season comes the difficulty. The sections are not finished as quickly; in fact, you are not sure whether they will be finished or emptied out. You hardly know whether to give them a whole super, only half a super, or whether it is best to clear every thing off when the harvest begins to lag.

If we leave any thing on, I think we have generally the best success in giving only twelve sections at a time. They finish them more quickly if they work at all, and the honey is not darkened as it is apt to be when they work slowly and too much is given at a time. If they don't finish them your sections are better off than on; and by using 12 instead of 24 you are likely to have only half as many unfinished sections at the end of the season.

Of course, this will not apply to localities where there is a good crop of fall honey, unless it be toward the close of the fall harvest. Still, it is an open question whether it is best to put on 12 sections, or to clear every thing off as soon as the harvest begins to lag, and trust to extracting if the brood-chamber becomes too

crowded. Different seasons require different management. This year we put on 12's and had our labor for our pains, or nearly so, as very few sections have been finished. Although a few colonies have stored a little, the most of them have left the sections just as they were when we put them on, and a very few colonies have done some emptying out.

When it is decided that the bees can not be induced to do any further finishing, what then? Is it best to extract, or to sell at a sufficiently low price to find ready sale? I suspect it is pretty safe to say that sections having only a small amount of honey in them are best fed back to the bees. EMMA WILSON.

Marengo, Ill., Sept. 19.

HOW A LADY MANAGES SWARMS WHILE HER HUSBAND IS ABSENT.

The editor wishes to know how the lady bee-keeper manages in swarming time when her husband is absent. My husband works out by the day, and we use chaff hives. The queens are clipped. When a swarm issues I cage the queen, swing the hive around on one corner backward, turning the entrance in the opposite direction to what it was formerly, and put an empty hive with frames on the old stand. When the swarm returns I let the queen run in. Sometimes I have to cover the old hive or the bees would find their way back again. Then when my husband comes home we put the old hive where it is to stand. We are not troubled with second swarms. MRS. WM. D. KRATZ.

Lawndale, Pa., Aug. 20.

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

QUESTION 193. *How can I keep honey, that was extracted in the summer, from souring? How can I keep comb honey from souring?*

By evaporating it. By curing it in a warm room.

Vermont. N. W. A. E. MANUM.

If you keep honey of any kind in a dry, warm place it will never sour.

Ohio. S. W. C. F. MUTH.

1. Ripen it by evaporation. 2. Put it into a dry, airy place as soon as taken from the hive.

Ohio. N. W. H. R. BOARDMAN.

No trouble from any kind of honey souring if kept in a temperature of from 75 to 95°, where the atmosphere is dry.

New York. C. G. M. DOOLITTLE.

Ripen your honey before putting it away. Use an evaporator, or expose it to the sun in shallow vessels until ripe.

Louisiana. E. C. P. L. VIALLON.

By evaporating thoroughly. If necessary, keep it in the sun extractor until it is thick and ropy. About comb honey, I do not know.

California. S. R. WILKIN.

Be sure that the extracted honey is thick. If not so, keep it in a very warm room in open vessels till it is. All honey should be kept in a dry room, and, if possible, in a warm one. Never keep in a damp room.

Michigan. C. A. J. COOK.

Well-ripened comb or extracted honey will not sour if kept in a dry place, and both are better, and will keep well, if kept in a dry and *warm* place, where they should *always* be kept. Extracted honey that will sour in such a place should be called sweetened water.

Ohio. N. W. A. B. MASON.

Honey that has been properly ripened, either before or after being taken from the hive, and then kept where it will not absorb moisture from the atmosphere, will never sour. This applies to both comb and extracted honey. Keep honey where it is always dry and warm.

Illinois. N. C. J. A. GREEN.

It will not sour if fully ripe when extracted. There is sometimes a slight alcoholic fermentation in the upper layer that causes expansion, but this is readily evaporated by melting *au bain-marie*. If we had unripe honey we would evaporate it in this way also, and it would not ferment.

Illinois. N. W. DADANT & SON.

If good honey is stored in a warm dry room there will be no danger from souring. In my early days in bee-keeping, if I put comb honey into the cellar it would gather dampness, and ooze from the cells; and in a close closet it would do the same. Since I keep honey, either comb or extracted, in a warm ventilated room, I've forgotten such a thing ever happens.

Illinois. N. W. C. MRS. L. HARRISON.

If the honey was properly ripened there would be no danger of its souring. I would store in a warm dry room, in half-barrels standing on end, with the cork out of the hole in the end. The sour honey will rise to the top and can be turned off, leaving good honey under it. Comb honey should also be kept in a mild dry room. You must have a very sour country up your way.

New York. E. RAMBLER.

Keep it anywhere but in a damp place: and if it sours, then the trouble is in the bee-keeper. Honey should not be extracted until properly ripened; and comb honey should not be taken from the hives until sealed. Honey is deliquescent, and this affinity for water is why honey becomes thin when kept in a damp place. This is also the trouble with the barrels shrinking—the honey takes the water out of the wood.

New York. C. P. H. ELWOOD.

The way to keep honey from souring is to put it in a dry place. The cooler the better, of course; but the trouble is, cool places are not dry. I put mine in air-tight tin cans as soon as settled, and put them into a cool cellar. Then I get a low temperature without moisture, for moisture can not get through tin. I guess the trouble is, your comb and extracted honey is too thin when you take it from the bees.

Michigan. S. W. JAMES HEDDON.

Don't extract it till it is ripe enough, then it will not sour; but if it is necessary to take some thin honey, to be ready for a better quality, you can improve it somewhat by setting it in wide-mouthed vessels in a room kept hot and ventilated, or put in the sun. Comb honey can be improved by keeping it in a warm room. How long it would improve, I can hardly tell. Some that I have tried two or three years seems to be still improving.

Wisconsin. S. W. S. I. FREEBORN.

Keep it in a warm and dry place; then if the honey was ripe and thick it won't sour. Honey sours because there is too much water in it. But how to get the water out of thin honey is a question I should like to see answered. I have

thought of a greenhouse. Can it be evaporated in a greenhouse before it would sour? I have seen cream-separators at work taking the cream out of milk. Won't the same thing take the water out of thin honey? I should like to see it tried.

Wisconsin. S. W. E. FRANCE.

Well, now, seein' it's you I'll tell you just what I'd do if I wanted to make the very best kind of a job of it. In the first place, you must understand that it takes heat and water for fermentation. I'd make all effort possible to get all the water I could out of the honey. I'm not sure that I'd make any difference between comb and extracted. I'd keep it in a place where it would have the full benefit of the sun —up near the roof, or in a building with thin walls of dark color. Give plenty of ventilation, so the evaporation from the honey can escape. Wire cloth, of course. If nights are cold, or a cold wet time comes, I'd close up, and perhaps build a fire. If you've been thorough about it, it will take care of itself in winter; but be sure not to have it where steam will settle on it from a warmer room.

Illinois. N. C. C. MILLER.

Some of our funny fellows will probably tell you to eat it up before it sours. As to extracted, be careful and not extract it too green. Then take immediate care to have its surface exposed to a warm drying atmosphere, that it may ripen up instead of deteriorating. As to sections, there are three things you can do. You can see to it that they go speedily into the hands of customers who will eat them up. You can ripen them in a hot airy room. You can do as I do—leave them on the hive until they are ripe enough to be safe for keeping. Your honey will not look quite as well if you follow the latter method; but if you sell steadily to the same customers, the fact that your honey does not spoil will count in your favor. I have in mind one grocer who sometimes goes without honey when he can not get a supply from me, just because he has learned that extra-white honey sometimes spoils on his hands.

Ohio. N. W. E. E. HASTY.

[There seems to be a uniformity of agreement on this question; namely, keeping honey in a warm dry room, and having it thoroughly ripened before taking it from the hive. Mr. Elwood makes a point, perhaps, that has not been observed by many before. Honey is certainly deliquescent—that is, it seems to have the property of taking up any moisture there may be in the air. For that reason it should be put as near as possible where there is no moisture.]

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

FROM COLORADO: ALFALFA HONEY, ETC.

Having been a great lover of bees for several years, I concluded to start in this year for the profit there is in the business, not for pleasure alone. So when starting out I concluded to keep a record (which I think every one ought to). On the 17th day of June, at noon I had my first swarm in a hive ready for business, and in nine weeks I had taken from that hive 36 one-pound sections of the finest alfalfa honey that was ever put up. Besides this they had made 12 frames (odd size) full for brood-nest. I took out three frames, and weighed them, and found they weighed just 4½ lbs. each, making 52 lbs. of brood comb, and 36 of surplus. I find it to be just 88 lbs., or a fraction less than 9 lbs. per week. The rest of my apiary is in Wisconsin. 1½-story eight-frame hives, but I don't think I shall like them, on account of the bees propolizing too much on them, and also making a great deal of burr and brace combs, which I find very inconvenient in handling the supers. I think I shall try the Dovetailed hive next season.

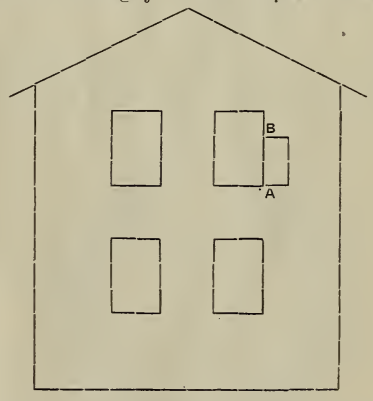
I occasionally see something in GLEANINGS protesting lightly against alfalfa honey. But I come boldly to its defense, and ask such persons to just call around to my Platte Valley apiary and taste some of the most delicious, most beautiful, soul-satisfying nectar ever gathered by the busy little bee. For my part, I can't see any thing wrong with it whatever.

I was very much interested with Bro. King's communication from Arizona, in August 1st GLEANINGS, and in his description of that lovely valley. I would ask him if he was ever through the Platte (or Nebraska) Valley. It very much reminds me of his description of that one, insomuch that we irrigate, and raise immense fields of alfalfa; yet the fruit he spoke of is not produced here, yet we far surpass any other country for potatoes. The writer and brother have in only thirty acres this year, while a great many have in twice as many, and some three times. THEO. V. JESSUP.

Greeley, Col., Aug. 21.

HOW TO GET A COLONY OF BEES OFF THE SPACE BETWEEN THE SIDINGS OF A HOUSE.

I have a colony of bees in the north end of a house. They are between the plastering and outside boarding. They have been there since about the 6th of July last. Below is a rough diagram showing just how they are situated.



A is the point of entering, which is about ½ inch square. It is about 10 or 12 feet from the ground. *B* is where they have made their comb. Distance between plastering and outside boarding is 4 inches. They are pure Italians, and I wish to save them. How shall I go at it to transfer them into an L. hive?

O. C. BENEDICT.

Atlantic, Iowa, Aug. 30, 1891.

[It is desirable not to mar the house, and therefore I would suggest that, after removing both window-sash, you cut out carefully that part of the casing that is opposite the bees. With a small bit, so as to make a small hole, and a key-hole saw, you can do the job so as not to mutilate the woodwork. After smoking the bees a little, proceed to cut out the combs with a long knife (a bread-knife, say), and then brush out and smoke out the bees. You prob-

ably can not get out *all;* and to save these we would put on a bee-escape at the entrance, so as to shut them out as they come forth. Replace the piece cut out of the casing, and the sash will conceal the saw-marks. In sawing out the piece, the saw should be made to cut on a bevel, in such a way that, when the piece cut out is put back, it will rest against the bevel, or shoulder, and there nailed. It would be better, after fitting the combs of brood into the frames, to move bees, hive, and combs, to a location about two miles away, so that they will stay in their new location. Where the colony is located between the two walls remote from any sash, you could trap out the most or all of the bees, with a bee-escape; but then, how about the combs and brood? There is no way to get this out except by making an opening.] E. R.

HONEY EXHIBITS.

Honey exhibits should now be more magnificent than ever. The new honey medals are now ready for delivery, and two of them will be

sent to each affiliated society, by Secretary Dadant, at the earliest possible moment. They are furnished without cost to the local societies affiliated to the North American Bee-Keepers'

Association, and will be awarded by the local officers, one for the best exhibit of comb honey, and the other for the best exhibit of extracted honey. Now for good-natured rivalry! Let the best win.—*American Bee Journal.*

THE NEW MEDALS READY FOR DISTRIBUTION.

The secretaries of the affiliated societies are requested to forward their present address to C. P. Dadant, Hamilton, Ill., Secretary of the North American Bee-keepers' Association, so that the medals furnished by the North American, to each affiliated association, may be sent to them. They will be forwarded by mail, in registered packages. C. P. Dadant.

Hamilton, Ill., Sept. 22.

YELLOW CARNIOLANS NEVER PURE.

A lady bee-keeper has just written us, asking which we prefer, dark or yellow Carniolans. We know of no pure Carniolan bees which are yellow. Mr. Frank Benton, who has been among the Carniolans, in their home in Carniola, and examined them, should be undoubted authority on that point. He says there are no yellow Carniolans. We have bred them for years on our isolated islands in the Georgian Bay, and there were no traces of yellow, so long as they were kept isolated; but when bred in our own apiary, or in the most isolated places we could find on land, we were unable to breed pure ones, and traces of the yellow race could frequently be found, proving that they were hybrids. While some of our Carniolans give considerable promise, we do not think that they in their purity are equal in all points to our best Italians, or the best yellow races, as there has been so much Cyprian and Syrian blood scattered through our country, also through Italy, the home of the Italians, that we believe there are very few pure Italians, although called pure Italians from their general appearance. It is easily seen how difficnlt it is to keep a race of bees pure, when there are unquestionable cases of mating between different races, for ten and fifteen miles apart; but the crossing is no detriment so far as honey-gathering and dollars and cents are concerned. Hybrid bees of the best strains give as good or better results than the pure bees of any strain.—*Canadian Bee Journal.*

[It was some seven years ago that we visited Mr. D. A. Jones's islands in the Georgian Bay, where he was rearing Carniolans. We will vouch for Mr. Jones's statement, that the Carniolans then on the islands were black. The fact that they could be kept so while isolated is rather significant, and is a pretty good argument to show that the real Carniolans are black and not yellow.]

A GRAND SUCCESS FOR A BEGINNER; HE BUYS 100 COLONIES AND SECURES 12,000 LBS. OF HONEY.

This is my first experience with bees. Last spring I purchased 100 colonies; and besides "learning the ropes" I have taken 12,000 lbs. of extracted honey, thanks be to the bee-publications, and glorious climate, and the kindly suggestions of neighbor apiarists.

H. E. Wilder.

San Bernardino, Cal., Aug. 10.

[Well, well, friend Wilder, you have indeed done well. We usually expect that, when beginners go in so heavy on bees for the first year, they will lose one-half their bees in less than six months, and be a good deal sadder but wiser. We are glad you are not only wiser but happier, and we extend our congratulations.]

RED-CLOVER BEES AHEAD.

Red-clover Italian bees, 100 lbs. comb honey in sections per colony, Yellow Carniolans, per colony, 80 lbs. in section honey. Italians, per colony, 60 lbs. comb honey. Blacks, per colony, 28 lbs. comb honey. The bees are booming at present. Thomas Oberlitner.

Deshler, Ohio, Sept. 15.

BASSWOOD HONEY IN TEXAS.

You ask where we get linden honey so far south. Why, friend R., there is a section of linn hummock, about a hundred miles from the coast here, that is as fine, I suppose, as any you ever saw. Some trees are 3½ feet in diameter.

W. W. Somerford.

Navasota, Texas, July 15.

QUEEN-REARING A LA DOOLITTLE A SUCCESS.

You ask for the experience of those who have tried the Doolittle plan of rearing queens; and as I have reared a considerable number that way this summer I will report. When I first read Mr. D.'s description of his method I was not favorably impressed, but concluded to try it, and now use no other. It certainly gets fine queens.

At first I was not very successful in getting a good per cent of the prepared cells started and completed by the bees; but I have experimented carefully, and now succeed in getting from 40 to 90 per cent started, and that in the upper story of a strong colony having a queen below, using a queen-excluding honey-board of course.

I tried giving the cells to a queenless hive to start, also putting the queen above the honey-board and cells in brood-chamber to be built, but found that, if the hive was properly prepared, just as many would be started in the upper story, and the cells almost invariably contain dried lumps of royal jelly after the young queens hatch, showing that the brood-supply is abundant. The preparation I have found necessary is, to put a couple of frames of brood, one hatching and one unsealed larvæ, above the queen-excluder the day before introducing the cells. I find that a colony will seldom start as many of the second lot of cells as of the first.

I give twelve cells to a colony, believing that a small number will be better fed than more. When honey is coming in freely, and the bees get crowded for room, they sometimes build comb over and around the cells, if they are left until ten days old. J. WEBSTER JOHNSON.

Tempe, Arizona, Sept. 8.

IMBEDDING FOUNDATION WIRES WITH LAMP HEAT; GEO. E. FRADENBURG TELLS HOW HE DOES IT.

Shortly after Miss Wilson gave her plan in GLEANINGS, of imbedding wires in foundation by means of lamp or gasoline-stove heat, Geo. E. Fradenburg, Kansas City, wrote us that he had previously sent us a letter on the subject. Although we have not yet made the plan a success, we are glad to publish his letter on the subject under date of Jan. 18, 1891:

I do it with a lamp with a piece of tin over the top; the tin has a slot cut in the center, which directs the heat on to the wire. I use a Rochester lamp, turned down quite low, and a scalloped chimney, which gives a good circulation with the tin on the chimney. When the frame is passed moderately fast over the lamp, only the foundation along the wire is slightly melted, and runs down on the wire.

GEO. E. FRADENBURG.

Kansas City, Mo., Jan. 18.

HOFFMAN FRAMES; TESTIMONY FROM ONE WHO HAS USED THEM 15 YEARS, AND LIKES THEM.

I have used a frame similar to the Hoffman, for fifteen years. I like the spaced frames better than loose ones, especially in moving from place to place. The top of the frame I use is similar to the American frame. The frame makes the honey-board. As to the ends of frames, I don't see any particular need. The top, if made true, will hold the frame to its place. The outside combs that Dr. Miller speaks about can be obviated by placing a ¼-inch strip against the side of the hive; then the outside combs will be right. As to handling combs with fixed distances, it can be done much quicker if bees are on the edge of the frame. Pinch the bees, and then let them have time to crawl away, and there need be very few mashed. There is no gumming where the end rests on the rabbet. The whole set of frames can be shoved at once, or any number. I am satisfied the Hoffman frame, or some frame with fixed distance, is the coming one.

GEORGE BRIGGS.

New Sharon, Ia., Aug. 24.

BEE COUNTRY UP IN THE MOUNTAINS OF CALIFORNIA.

The honey season here in the mountains (elevation 2500 feet) is practically closed, as the bees will not gather more this season than they will need to winter on. The crop was not equal to that of last season, per stand, but the increase in apiaries and stands in this community more than made up for the short crop. The black buckwheat, upon which they mainly depend for summer and fall pasture, has ceased blooming earlier than usual. Our nearest neighbor, H. G. Bovee, extracted 5 tons from 100 stands. A. L. Hubbard, an enterprising young man, is starting in the business, and took 1¾ tons from 30 stands. This is quite a honey region, and there are already a dozen bee-keepers in this community. They depend solely upon wild flowers for their pasture.

Ravenna, Cal., Sept. 8. W. S. DEVOL.

CLOSED-END FRAMES PERFECTION.

Dr. Miller was thinking it time for reports of closed-end frames, and he is right. With me they are perfection, as made and used by myself; but I bought 100 of a dealer, and they are 100 too many. The ends of mine are ten inches long, and reach from the bottom-board to the cover, and can not be glued tight. I have no trouble with their killing bees, as I handle them mostly two or three at a time, or by whole hives. J. C. LILLIBRIDGE.

Port Allegany, Pa., Sept. 5.

HOW MUCH CLEAR WAX CAN BE OBTAINED FROM A POUND OF COMB?

Please tell me about how many pounds of old combs that are clean make a pound of wax.

Oneonta, N. Y., Sept. 7. C. E. GIFFORD.

[Much depends upon the age of the comb or combs to be rendered. You would get more wax from combs built from foundation than from those natural built. From the average combs you would probably get from 60 to 80 per cent pure wax.]

TWO QUEENS IN ONE CELL.

I found a queen-cell with two queens in it a short time ago; they were perfectly formed, but had got so crowded in the cell that they could not eat their way out, and died.

The honey crop in this vicinity is not large. Ours is only fair, and we have allowed no swarms. M. H. HUNT.

Bell Branch, Mich.

A VISIT TO THE LEININGER BROS., AT FORT JENNINGS, OHIO.

They have the best-looking five-banded bees I ever saw. I got six queens, and we did not use smoke nor did we get a sting. They are the best-natured bees I ever handled, and I have kept bees 16 years. E. S. HARVEY.

Cavett, Ohio.

SUGAR VS. HONEY FOR WINTER FEED.

Which is the safer to feed for winter stores—good honey, or syrup from granulated sugar? Is there any choice? MRS. J. R. FISHER.

Rushville, N. Y., Aug. 18.

[Feed sugar syrup, every time.]

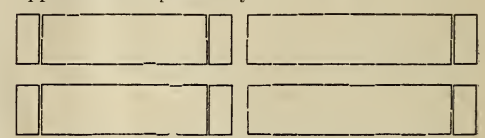
SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LIKE TO RAISE CROPS.

Although the weather is almost like summer, it behooves us to think of the frost that is sure to come sooner or later. Two weeks ago we feared we should not get any tomatoes for canning; but at this date, Sept. 23, our tomatoes are ripening as rapidly as I ever knew them to, and our canners are at work full blast. Cucumber pickles are growing so rapidly that, before I knew it, the boys had several bushels too large for pickles, and they were cutting them open and feeding them to the chickens. They told me they had offered them for 25 cts. a hundred, but they could not sell them all, and there was not any use in picking them. These are from seeds that were planted about the middle of July. At one time we thought we should not get a pickle; but here we are with our market overstocked. Some way I rather enjoy taking risks in planting late; for when we have beautiful mild weather without frosts it is such fun to get a crop when the croakers said I was wasting my time. Talking about pickles and cucumbers reminds me that a friend* who visited us a short time ago made the remark that he had sold *sixty dollars' worth* of cucumbers from *three hot-beds* each 30 feet long.

WHAT SHALL WE DO WITH OUR SASHES WHEN OUR HOT-BEDS ARE UNCOVERED?

And this brings to mind a problem that has been before me for some time. I presume by far the larger part of us who make gardens will have to depend upon hot-beds and cold-frames rather than greenhouses; and even where we have greenhouses, the movable sash often plays a very prominent part in our work. We have now six large beds, from 100 to 150 feet long, arranged to hold sash. There are plank walks each side of the beds, so that even in muddy weather two men—one on each side of the bed—can strip off the sash very rapidly. Now comes the question, "Where shall we put them?" Last spring we piled them up in a heap, one on top of the other; but during a big wind, some way the top sash on the piles perhaps three feet high were blown off and carried some distance, of course being ruined. Where the piles were not more than two feet high, or, say, as high as the boards to the hot-bed, the wind did not disturb them. Well, where shall we have these piles of sash? If the hot-beds are not very long, we can easily pile them up at each end. The friend mentioned above had his three beds each 30 feet long. As the orthodox dimensions of movable sash seem to be 6 feet long by 3 feet 4 inches wide, it would take about nine sash to cover a 30-foot bed. To make the number even, suppose we say 10 sash for a bed 33 feet long. This would let the sash lap over the ends of the beds so as to make all tight. In stripping off the sash, five of them would be carried to one end and the other five to the other end; and the men who move the sash would have to carry the center ones only 16 feet each way. A couple of good stout fellows would pile the sash right up, and finally take the whole five in a heap, and set them down at the end of the bed. Perhaps cutting our beds up into lengths of 33 feet each is wasting considerable ground, especially where land is high and expensive, as it frequently is where hot-beds are worked. In that case a bed can be made to hold 12 sash, 14, or even 20, providing it is better to carry the sash a little further than to have so much waste room in order to make a place to pile them up.

One reason why I have gone over this is because I should like to have our readers who are using hot-beds and cold-frames say what length they would choose for each bed, and also to tell us where they are in the habit of placing the sash when off from the beds. It is very handy to have a few light shutters made just the size of the sash. These can be placed over the sash in very severe weather, to protect cucumbers and tender things; and when the sash are off and piled up, a shutter on the top of each pile of sashes protects them from hail, stones thrown by children, base balls, and last, but not least, big dogs. Another thing: Every little while our small boys, when they want to get across the beds, will walk on the soft earth. The temptation to do this is much greater when the beds are long. Now, the openings cut through the beds in order to get a place to pile the sash should also give room enough for one to get through, say leaving a path a foot wide between the sash and the next bed. If we make our beds 33 feet long we shall have ten sash in a pile. If they are made of two-inch lumber they will be less than two feet high, even with a shutter on top. To protect them from dampness I should prefer to have the bottom one raised three or four inches from the ground. When arranged in this way the part of the garden devoted to hot-beds and cold-frames may look tidy, neat, and attractive, whether the sash are either off or on the beds; and I confess than hot-beds and cold-frames often present any thing but a tidy and pleasant appearance to passersby.



ARRANGEMENT OF HOT-BEDS, WITH PLACES TO PILE UP THE SASH.

Let the diagram above represent four hot-beds 33 feet long. At each end of the beds the locality of the piles of sash is shown. If it takes ten sash to cover each bed, there will be a pile of five sash at the outside ends, while the two middle piles will have ten sash each, five from the bed on the right hand, and five from the bed on the left hand. The walks should be either plank, cinders, gravel, or some material easy to walk on while carrying heavy burdens. This is important, because the sash frequently need to be moved during a rainy time, and sometimes when the paths are full of slush and snow, especially to get the best results from hardy vegetables. The width of the walk can be arranged according to the expense of the ground. We find 16 inches a very comfortable width to work. On the diagram we figured only 12 inches at the sides of the piles of sash in the center. In regard to damage from wind, I have never had a sash blown off when the whole bed was covered entire. If, however, the sash were tilted or spread so the wind gets under, they are apt to be moved. In very severe weather the paths may be filled with coarse straw and manure as an additional protection against frost. I hardly need add, that we must have perfect drainage for our beds as well as for our paths. The manure for hot-beds costs too much money to permit its good qualities to be washed out by rain or standing water. After the plants have had rain enough we often put on the sash to keep off the surplus. Where every thing is arranged so as to work handy, I think this arrangement will be cheaper than any form of machinery. In fact, I wish our greenhouse could be covered and uncovered as cheaply and quickly as our hot-beds with the arrangement above. There is a drawback

* Emery Ransom, Amboy, O.

about hot-beds, I know—we can not, as with a greenhouse, get inside to regulate the temperature; neither can we work inside during stormy weather. Notwithstanding this, the benefit of having the sash stripped clear off when the weather will permit seems to me to overbalance the other. Perhaps, however, in many cases it would be profitable to have both the greenhouses and a proper number of hot-beds and cold-frames to go with them.

THOSE GREAT BIG ONIONS.

Our friends who have secured a crop by the "new onion culture" will need to be a little careful about getting them cured properly or they may be troubled with rot. Some of our Prize-takers have utterly refused to be cured dry and hard, even during this beautiful drouth we are having, unless we first peeled off the damp outside covering. The rot seems to commence on the outside; but if you peel off all that is wet and then lay them in the sun, being careful they do not get rained on, they will make hard dry onions. It is only occasionally that we find such a one; but during a spell of damp weather I can readily imagine there will be great trouble in curing the crop. Once get them dry and hard, and then keep them in a cool dry place, and we think you will have no trouble in keeping them for at least a reasonable length of time. Onions of all kinds seem to require a tremendous amount of drying. We spread our onion-sets out in the sun on shallow trays, and carry them in when the barometer gives the least indication of rain. After they are once dried and hard, you will not have much trouble. We need to be very careful about storing onions or onion-sets in any bulk so they may get damp or heat. We have been very successful by using some frames made of lath. These are put into a cool dry room, about six inches from the floor. Now put on, say, six inches of onions; then another frame of laths; more onions, and so on. This arrangement allows the air to get through them in every direction constantly, and they seldom get damp enough to start to grow. Our Ohio experiment station gives the preference to White Victoria and Spanish King, or Prize-taker, for starting in greenhouses or cold-frames. The White Victoria seems to be about the handsomest onion in the world; but I suspect it is not a first-rate keeper, unless cured as directed in the way I have indicated. Better sell your onions off as fast as they can be cured in good order, unless you have had some experience in keeping them. An unused greenhouse is just the nicest place in the world to cure onions, providing you have plenty of doors and ventilators so you can let the air circulate freely. You can arrange your trays of onions so they will have all the benefit of the sun, and still be secure from rain. The sash from a hot-bed or cold-frame can be used to cover them with in the same way; but if you want them to dry they must have lots of air, as well as heat from the rays of the sun.

TOBACCO DUST FOR MELON-VINES, ETC.

I have good reason to think that, while this failed in our hands last season, it was because we did not put on enough of it. Our Ohio experiment station says, "Put a shovelful on a single hill of melons or cucumbers." If you cover the young plants all up it will not hurt them. The bugs will not be likely to dig down through the tobacco as they do through the mellow soil. If a rain comes and washes it away, or takes the strength from it, put on another shovelful. They call the tobacco worth $25 a ton as a fertilizer, to say nothing of its qualities for repelling insect-enemies. From what experiments I have been able to make, I am inclined to think they are right about it.

MYSELF AND MY NEIGHBORS.

Cast thy burden upon the Lord, and he shall sustain thee. He shall never suffer the righteous to be moved.—Ps. 55:22.

I have for years supposed that I understood the admonitions of the beautiful little text at the head of this; and I supposed my faith was strong enough to bring all my burdens to Christ Jesus and cast them at his feet, and—*leave them there.* But my recent experience has taught me something in this line. When the doctor absolutely forbade all thoughts of business, I promised obedience; and when he gave directions to the people of the factory that I was not to be troubled nor even consulted, I assented. Of course, he did not forbid their answering any questions that I might ask, nor was any attempt made to deceive me. I was simply to be ignored unless I inquired after certain things; but with this he insisted over and over again that I was to give up business entirely, not to worry nor question, and to stop thinking, so far as it was possible for such a restless creature as myself to do so. I promised obedience; but very soon I began to repeat over and over again my brief old familiar prayer, "Lord, help!" My fever was a nervous fever, brought on somewhat, perhaps, by weeks of too much care and responsibility; therefore absolute quietness and rest were the things to be most desired. The doctor is an old friend of mine. In fact, I have been more or less intimately acquainted with him for thirty years; so we good-naturedly joked together, and he talked to me sometimes quite plainly. You have had experience, no doubt, with people who could not be taught any thing, because they "*knew it all*" *already.* Well, as I look back at the experience of the past few weeks I feel ashamed to be obliged to admit that, in many respects, I was one of those very chaps who "knew it all." While I thought I was a perfect pattern of docility and obedience to the doctor's directions, the real truth was, there was a great deal of self-conceit that had to be got out of the way before the doctor could give me any real help or aid. One reason why I want to tell you this is, that I fear there are many others who sadly err in this way. In fact, here on these pages we have been discussing doctors and medicines pretty freely. I for one hereby humbly *beg pardon* of the many physicians who are friends and readers and contributors of GLEANINGS. One of my first experiences was with this same fever thermometer that so delighted me when I first saw it. Of course, it is desirable to break a fever when it can be done; and accordingly I was given anti-fever remedies. The doctor's instructions were, that the powders should be given only when the fever thermometer ran up to or above a certain temperature. When I volunteered to manage it myself, he rather objected to it. He said the nurse had better have it in charge. But I was so sure I could manage it to "a dot" that he reluctantly gave way. Well, the first thing I did was to make a blunder in reading the scale on the instrument, and to take three powders when they should not have been taken at all. As a consequence, it threw me into a drenching sweat, and weakened me somewhat. When the doctor came he looked a little bit cross, and said that the nurse should give the medicine, and not the patient. I suggested:

"I suppose, doctor, because they are less liable to make blunders?"

"Yes, and there are some other reasons."

"What other reasons, doctor?"

"Well, for one thing, a person who is sick is naturally inclined to be nervous, and to worry:

and if symptoms are bad, and his fever runs away up, both experience and good sense indicate that he should not be told of it."

"On the same principle, doctor, if there were a probability that the patient would never get well, it would not be best, as a rule, to tell him so?"

He assented. As I recollect about it, I rather think he was quite anxious that I should stop talking. I remember that, at about that time, he forbade my seeing visitors, except my own relatives. Well, I had not been real sick at that time, so I replied something like this:

"Well, doctor, you need not be at all afraid to tell *me* the whole truth when the time comes, if such a time should come, that it looks doubtful whether I ever get well. I am ready to go, and have been for years, when God sees fit to call me from my labors here on earth."

He did not make any reply, or, if he did, a very brief one, so I asked him if he did not believe that it was safe to trust me to know my exact condition at any time. As nearly as I can remember, his answer was something like this:

"Mr. Root, I believe every word you say—at least, I believe you are perfectly honest and sincere in what you say; nevertheless, I do not believe it best to tell you every day when your symptoms are unfavorable, especially since the main thing before us just now is perfect quiet and rest. If you can think of any texts of Scripture that will help you to be at peace, to be guided by your friends and physician, they are the texts you need."

I suggested, "Take no thought for the morrow."

"Yes," said he, "that is just it exactly. And that one about the lilies of the field, that toil not, neither do they spin. That is what you want to do just now."

Somebody told me afterward that he said that, if he could get me to stop thinking and talking, there would be some chance of getting the medicines to do their work.

Now, friends, my conscience troubled me a little afterward because I had been so positive that death had no terrors for me; and I remembered the little text, "Let him that thinketh he standeth take heed lest he fall." I thought also of Peter when he said, "Lord, I am ready to go with thee, both into prison, and to death." Not many hours afterward my faith was severely tried. When one thinks of it, the whole matter was so ludicrous that it sounds like a joke to laugh at; but I tell you it was *to me* one of the most serious conflicts, or hand-to-hand fights, with the powers of darkness I ever encountered.

About this time the doctor was somewhat puzzled over a kind of nervous chills that came daily or oftener before the fever. I had been taking rather heavy doses of quinine at frequent intervals; but it seemed to have but little effect on the chills or fever. He tried, banteringly, to convince me that the chills were a good deal the effect of imagination, or of the nervous state of my system. Imagination or not, when they began to come on they made it lively for the women-folks in getting hot bricks and bottles of hot water, besides all the bedclothing that could be scraped up. When I told the doctor that these were always heralded by a peculiar ringing in the ears, on a high key, he said that, inasmuch as large quantities of quinine always produce ringing in the ears, he wished to try the effect of suddenly cutting off the quinine for a time. So he directed me to stop taking it after a certain hour, and left a couple of powders to be taken—one at noon, and the other at supper time. I remember of hearing him say something about some unpleasant "fancies" that would result from cutting off the quinine so suddenly; but he said the powders would quiet my nerves. I wondered what he meant by the word "fancies," but dropped the matter and thought but little more about it. Right here is something I wish to emphasize; therefore you will excuse me if I digress a little. I remember once hearing a father remark that he had just taken his son through a long siege of typhoid fever, and saved his life. In speaking of the medicine the doctor left, this man said he gave a *part* of it to the patient, and the other part he threw out of the window, regulating the matter according to his own judgment. I thought at the time that it was quite a smart thing to refuse to take *all* the stuff that doctors usually prescribe. I am ashamed of this last remark of mine; but nevertheless, for a good many years I have held such notions more or less. After the doctor was gone, my wife prepared a powder. I remember of thinking that it was a pretty-good sized one, and that it looked disagreeable, and smelled disagreeable to my feverish senses, as she brought the cup to me. It was dissolved in perhaps a quarter of a teacup of water. Now, my wife has frequently complimented me by saying that I could take any kind of medicine that was ever prescribed for anybody, without making even a wry face. But this dose was too much for me. After repeated trials I drank about a half of it, and then directed my wife to throw it away, telling her I could not possibly take any more, and I was sure I had had plenty. At night I felt less like taking the "villainous stuff" than I did at noon; and when I told my wife I was not going to try to take it she did not say very much, perhaps relying on my superior (?) wisdom under such circumstances. I remember that I felt very sick and bad that evening; but I concluded that, when I got to sleep, "tired nature's sweet restorer" would take care of it all. To my consternation, however, I found sleep did not come as usual. I can never tell the experiences of that night; but I will give you a little glimpse.

As soon as I closed my eyes I was in a terrible muss with somebody straightway. At first I discovered a lot of good wax thrown out in the grass and weeds back of the factory. I gathered it up and demanded to be shown the hand who had thrown away good wax like that. In my dream—for it was a *sort* of dream—Ernest tried to quiet me by assuring me that it was not good wax at all—it was only dirt. But I insisted that there was a dollar's worth of as good wax as was ever seen. When I got sufficiently worked up to awaken, I would glance at my patient wife and around the room, to assure myself that it *was* only a dream. Then I turned over and tried it again; but it was a constant repetition, only things were growing worse and worse. The doctor had bade me be quiet, and not worry, and here I was *wearing myself out* over purely imaginary evils. Before midnight, worse troubles came trooping along. I was rolling and groaning and tossing in my bed, and I began to fear that I should soon be entirely delirious. While strange sights were passing before me, I remember that my attention was suddenly attracted by a beautiful *blue* snake. The intense shining brightness of this blue riveted my attention. Pretty soon there were *two* blue snakes; then there were *dozens*, then hundreds and thousands. They stretched away in the distance as far as the eye could reach, all crawling toward me. Then came snakes of other colors, and I began to think of delirium tremens. Why should *I. A. I. Root*, be afflicted with *this* terrible malady? Soon evil spirits began to torment me. I call them spirits, because they assumed the garb of my

intimate friends until they roused me to a frenzy, and then they laughed and jeered to think how well they had succeeded. One of them would tell me that it was mail time, and asked me to read a heap of letters; and with commendable patience, sick and weary as I was, I commenced the task. Then I remembered that the doctor had said that I was not to read any letters or any thing else, and turned to reprove the one who brought them, when roars of fiendish laughter met my ears. They vexed me in all sorts of ways until I grew desperate and began to chase them away. At this they laughed and yelled, and seemed to enjoy it more than ever. I was getting highly delirious. My wife insisted on sending for the doctor; but I assured her that doctors could do me no good. They might give me morphine, but I would rather have my senses than to be lulled by any such drug. During the night the chills also came at frequent intervals. They seemed especially to affect my right side, and excruciating neuralgic pains were shooting all through it. It has been for many years peculiarly sensitive. Finally something put it into my head that this side had received a paralytic stroke, and that I was not only crippled in body but in mind, and should be so for all time to come. At this stage of proceedings, somebody who seemed to have authority reproved my imaginary tormentors, saying that it was a shame to have sport over anybody who was afflicted and suffering as I was.

Some time before, I had noticed among the snakes a very handsome light piece of hempen rope. In our work on the grounds we often have use for a bit of chain or a piece of rope; and as I like good tools I have also a liking for pieces of strong rope or cord, especially such as is at the same time soft and pliable, and can be easily knotted. This piece of rope was of such fine quality, and looked so very handy, that it attracted my attention. I wondered what it could be doing among the snakes, but finally thought no more about it. This personage who seemed to have power to banish even the spirits of darkness then commenced talking with me something in this wise:

"Mr. Root, you said, not long ago, that you were ready to die when your time came. Well, I suppose many a man, when he has become worried and worn out with the cares and trials of life, has felt just as you do; but you, perhaps, did not reflect that, instead of dying at once, or perhaps in a few days, you might be called upon to live months or years—yes, to live, even though life has become a burden to yourself and all your friends. You have already received a stroke of paralysis, and may be you think death is at hand. But, my dear sir, have you considered that you may be called upon to live for months and even years, crippled in mind and body the way you are now? No doctor can help you, for how can he furnish a medicine for only *one side?* In your prayers a while ago—oh, yes! I heard them all—you asked if there were any help or any way out of all this trouble. But you will get angry if I suggest to you that there *is* a very quick and speedy way out of it all, and only just *one* way."

I did not quite know what he meant just then, so I kept on listening to him, and he resumed:

"You believe that God answers prayer; but I want to tell you that God never has and never will answer prayer under circumstances like these. Why, you yourself have known of the most devoted Christians who suffered for years just as you are suffering. Did God hear their prayers for relief? Not at all."

I do not think that, while he talked with me, he looked in the direction of the rope at all; but just then it came to my mind; and on glancing that way I discovered a neat slip-knot at one end, that I had not noticed before. For one brief moment my mind did consider that that bit of rope would cut short all *bodily* torment at least; and it seemed as if it would not take more than a second to tie just the one knot that was needed. Even in my delirium the fearful poison was beginning to get just a little hold on me. I roused up, however, almost instantly, and said, with all the energy I could, "Get thee behind me, Satan." And he was gone. His imps, however, came back and tried me even more sorely. One of them suggested that I dare not pray any more, since, in my anger toward them, I had used fearful oaths; and for a time they almost made me believe it was true; but I kept on praying.

Let me digress a little. For perhaps a year, or may be two years, after my conversion I used to dream of getting into a passion and of going back to the old life, rejecting Christ Jesus, and rejecting every thing. At such times I would frequently awake in great distress of mind; but when I found it was all a dream and only a dream, how I used to thank God it was *only* a dream and that those times were past! In a little time longer, however, I began to pray, even in my dreams, when temptation came; and pretty soon dreams of blasphemy toward God vanished for ever. The adversary seemed to say to himself, "Well, there isn't very much use in hanging around a man who begins to pray, even while he is asleep." And let me say to you, my dear Christian friend, that, if you are in the habit of being troubled with similar dreams, it indicates, or at least it seems so to me, that your heart is not yet quite right in the sight of God. Dreams are but a shadow or reflection, as it were, of our daily lives. Of course, our physical health has something to do with this, and this part of it I am coming to presently. In my delirum I kept praying. My mind ran over the passages in the Psalms where David urges God to *make haste* to deliver him; and I remembered how plaintively David many times plead with God to hide not his face from him, and not to turn away on account of his many iniquities. So far in my experience as a Christian, prayer for deliverance from bodily pain, when it gets to be more than I could bear, has always been answered; that is, either the pain has been lessened or grace has been given me to bear it; and I remember, during that night of suffering, of praying earnestly something like this:

"O God, to thee I come. Thou who hast delivered me in times past from all trials and troubles, be thou my stay. Save me from the snares of the evil one. In thee I trust, and to thee I come."

After this, grace seemed to be given me; and notwithstanding the evil spirits that still seemed to hover around, trying to tempt me, another presence seemed near; and when I was worried and anxious for fear that rebellious thoughts *had* come into my mind, when I was sorely tempted, a voice full of comfort and assurance seemed to say to me, "No, child; no blasphemy toward God has ever passed your lips since the time you chose Christ Jesus for your Savior." This seemed to satisfy me, and I mentally repeated, "Thank God, thank God for that." About this time, in response to the urgent solicitations of my wife, I consented to have the doctor sent for. I think it was just getting daylight when he arrived. Under the clear light of day I felt somewhat ashamed of the fuss I had been making; but still I knew something was wrong, and I told him I thought I had received a paralytic stroke during the night. He asked me where I was paralyzed, and I told him it was my right side.

"But," said he, "you can raise your right arm and your right foot, can you not?"

"Oh, yes!" said I; "but still there is something the matter of my whole right side. My right eye seems twisted, and I can not see straight with it, and it is affecting my brain, I am sure."

At this he began to laugh.

"My good friend, let us start out in another direction. How about the soothing-powders which I left for you yesterday? Of course, you have taken them according to directions?"

I was reluctantly obliged to confess the truth. He replied something like this:

"Look here, Mr. Root; if you have not been pretty well punished already, I should be tempted to give you a pretty sound lecture; and I believe I will give you a short one, followed by a practical demonstration, even as it is. You are a pretty smart man, and know a great deal; but, my dear sir, there are several things you *do not* know; and there are several things, too, that we doctors know that *you* have not yet discovered. This 'menagerie' you have had during the night that is past, all came by neglecting those little powders that you decided were too 'nasty' to take."

I begged pardon, and promised full obedience in future if he would forgive me.

"But, doctor, you do not mean to say that just those powders, taken according to direction, would have spared me this terrible night of anguish and suffering?"

"Yes, sir; that is just what I do mean. And now if you are thoroughly convinced that your doctor knows what he is about, give us a *proof* of your sincere penitence."

He had laughed me out of some of my troubles, and I was considerably interested in what he was going to do. But I ventured to tell him some of my troubles about there not being any such thing as a "one-sided medicine;" but I was careful not to tell him who *gave* me the idea. He laughed, and said in due time we would take up that part of it also. I remember that, at this time, my wife and Ernest were standing by, full of anxiety. They had been consulting together, so it seemed. Then the doctor spoke:

"Now, Mr. Root, you want to be real sure that it is not a freak of the imagination that is the matter with you. Look at the figures on the wall paper. Are they quiet and still?"

I looked, and the whole of them seemed very much disposed to dance a jig. Something like a moss rose was near to my bed, on the gilded wall paper. As I looked at it, the petals began moving as if they were about to unfold, and glimpses of a lurid light shot out from under the petals, as if they inclosed glowing coals. Some figures, so near by that I could put my finger on them, were so surely wriggling about that I did touch them. When I touched them they stood still, until my finger was removed. I told the doctor what I saw.

"Very well," said he. "Now witness one of the triumphs of medicine. Sit up a little. Now take this glass, which contains the powder you should have taken last night. Don't sip a little and then stop, but pour it all right down *without* tasting."

I do not know but they feared I was going to say I couldn't; for Ernest, who stood by with a dipper of pure water, added some exhortations. But I began to be thoroughly ashamed of myself. I took the glass as directed, and poured down the whole of the bad-tasting stuff at a single swallow. Then I grabbed for the dipper.

"Well, what do you think about it now?" said the doctor.

"Why, I think the water in that dipper is a little the nicest I ever tasted in my life."

"Now," said the doctor, "you can shut your eyes and go to sleep. You can watch the hobgoblins as they hunt their holes, if you choose. But they won't trouble you very long. I will be around about the time you wake up."

Would you believe it, dear reader? I dropped to sleep at once, and did not wake up till toward noon. When I opened my eyes every thing was natural and straight. The figures on the wall paper behaved themselves as all such steady and staid figures ought to do in a Christian family. More than all, I could not remember that, during my sleep of several hours, I had had a single dream of *any* kind. When the doctor came in I was full of enthusiasm, wonder, and surprise in regard to the *new* medicine.

"Why, Mr. Root, it is not any thing *new* at all. Bromide of potassium is as old as the hills, and is in common use for quieting disordered nerves. This remedy is what you need more than any thing else; and very likely it is at the bottom of those chills that have been baffling us. One thing is certain, however—if you ever get out of this nervous state, you have got to stop investigating and exploring and studying into every thing that comes along. Why, I hardly dare to tell you the name of the medicine you are taking, for fear you will ask so many questions about it, and won't let the subject drop until you know all that the books have to say in regard to it."

"But, look here, doctor. Do you mean to say that this bromide of potassium will absolutely stop all unpleasant dreams and nervous wakefulness?"

"Well, I do not know that I have ever seen it fail under such circumstances. But there you go again with your questions."

"But, doctor, if there is a medicine known that will stop bad dreams, it certainly ought to be made known to a suffering world. And you say, too, that it is not an opiate, a narcotic, nor any thing of that sort, and that it will not start one in a bad habit?"

"Yes, sir, I mean to say all this. If you take it in the day time, when you are well, or comparatively well, it will not produce sleep at all. It puts people to sleep only as it did you, when they have been kept awake by disordered nerves. Another thing: If you are put to sleep with opium you can not be awakened very easily; but with the bromide one can be aroused just as easily as from any natural sleep. Now, you really *must stop talking;* and I think that, for the present, everybody had better stay away."

Somebody suggested that the various *ministers* of our town be allowed to see me; but the doctor said that he preferred I should wait until I got better, and then they might call; and I tell you, my friends, the doctor *was right.*

Before I leave this subject, let me touch upon one point. Wouldn't this harmless medicine oftentimes save people from temporary insanity? I feel sure it would. Not many years ago *my own mother's brother*, under the influence of delirum produced by typhoid fever, during the temporary absence of his nurse found means to *take his own life.* One dose of this bromide of potassium would very likely have saved him. I was so much interested that the doctor mentioned, a few days later, he saw a query in one of the medical journals where the question was asked, "Is there a remedy for dreaming?" The editor answered, "Why, to be sure there is—bromide of potassium."

I have now given you some illustrations of the way in which people may make terrible mischief by omitting to take the medicine just because "it tastes bad." By the way, the doctor, a few days after, brought me two other preparations

of bromide, made expressly to cover up or conceal the nauseating taste of the drug, and I felt encouraged to think that I was not the only one who pronounced it nasty. One trouble in making it easier to take is, that a sufficient dose, to produce a desired effect, makes nearly half a teacupful, with water enough to dissolve it. Let me now suggest a way in which you can work in *harmony* with your physician. Night after night I slept with such unusual soundness that my wife said it almost frightened her to see me lie so still and hear me "snore," as the latter was very unusual for me; and as it was still quite a punishment to take the medicine, I begged to try half a dose.

"All right," said the doctor; "try half a dose; and then, if you wake up and can't sleep, take the other half."

This I did; and when I found that *half* a dose answered every purpose, then we tried a *quarter* of a dose. This answered generally; but once in a while I had to have the other quarter before morning. Sure enough, the chills began to let go. Quieting the nerves, keeping away visitors, in connection with the other treatment, was beginning to tell favorably. Soon the chills came only twice a day—at about 11 o'clock in the forenoon, and between 4 and 5 in the afternoon. Now, a *good* doctor is constantly hard at work, like a detective. He began searching and questioning as to why these chills should come at these queer hours of the day. My wife was finally called in.

"Mrs. Root, at what hour during the forenoon has your husband been in the habit of getting most used up by nervous prostration?"

"Why, he always comes over to get his forenoon nap at about 11 o'clock."

The doctor's eyes twinkled.

"Now, then, when in the *afternoon* does he get most used up in the same way?"

My wife responded, "Why, he has been for some time insisting on his supper at half-past four, so he would not be so used up in reading the mails that must be put on the train at a quarter after five."

"There we have it," said the doctor. "And your feverish excitement and talk about the 'piles of letters' to read gives us another clew. That letter-reading must be given up. If no one else can do it as well as you do, somebody else must do it as well as he can."

Before long I had the good news to tell the doctor, when he came at night, that I had got through that *one whole day* and "nary a chill." For a while they came every other day; and then they, with the fever, skipped entirely.

Now, my friends, haven't I given you reason enough for the employment of a family physician when one is needed—a physician whom you can respect and trust as you do the rest of your *neighbors?* and why, having once employed him, you should not hamper nor hinder nor thwart his faithful work for your best good by thinking *you* know as much or more than *he* does, about his own legitimate business?

Mind you, I do not mean to recommend any special school or line of practice among physicians. Our medical men, like our bee-keepers, have different ways of working, but they are often quite successful in their different ways. Faith in God includes faith in our "neighbors:" and, if you choose, a physician from among your neighbors—a man whom you can respect and trust, and feel sure he will serve you well and faithfully.

And now, friends, a word in conclusion in regard to our text—especially the latter part of it, where we read, "He shall never suffer the righteous to be moved." When sickness, fever, and delirium come, how far are we responsible? I suppose there is, of course, a limit to human responsibility. A point comes in diseases of the mind and diseases of the body, where the individual is responsible no further. Now, then, how far or to what extent does God permit the prince of darkness to tempt and try his children? Our text answers it—"Cast thy burden upon the Lord, and he shall sustain thee." If you do this, the matter is in God's hands. And during my recent sickness, once or twice I came to a point where I felt like saying, "It is God's affair and not my own. I am perfectly willing to trust the outcome *all* to him." Then came help. Then my overstrained nerves began to get quiet and I began to mend. I thought I had learned the lesson—"Thy will, not mine, be done." But I found there was still more to learn in that line. Some of you may think I am a little visionary in believing that the adversary follows one, even to a sick-bed. Alexander McClaren says, in a recent number of the *Sunday-school Times*, "There are whole packs of wolves snuffing at every fold." This he said in discussing the lesson about the good shepherd. Do you think it is overdrawn? Well, let us turn to God's own word. In the first place, we find, in I. Peter 5:7, something remarkably like our text—"Casting all your care upon him, for he careth for you." The verse following is as follows: "Be sober, be diligent; for your adversary the devil as a roaring lion walketh about seeking whom he may devour."

Now, is it not likely that this same adversary should follow us, even when we are sorely tried by sickness, suffering, and pain? But, may the Lord be praised, we have the plain promise *still* in the words of our text.

TOBACCO COLUMN.

CONDITIONS UNDER WHICH WE GIVE SMOKERS TO PERSONS WHO STOP USING TOBACCO.

First, the candidate must be one of those who have given up tobacco in consequence of what he has seen and read in this department. Second, he promises to pay for the smoker should he ever resume the use of tobacco in any form, after receiving the smoker. Third, he must be a subscriber to GLEANINGS. Any subscriber may, however, have smokers sent to neighbors or personal acquaintances whom he has labored with on the matter of tobacco-using, providing he give us his pledge that, if the one who receives the smoker ever uses tobacco again, he (the subscriber) will pay for the smoker. The one who receives the smoker in this case need not be a subscriber to GLEANINGS, though we greatly prefer that he be one, because we think he would be strengthened by reading the testimonials from time to time in regard to this matter. The full name and address of every one who makes the promise must be furnished for publication.

Since reading GLEANINGS I have quit using tobacco. Please send a smoker; and if I ever use tobacco again I will pay for the same.

Bradford, Pa., June 4. E. M. MILLER.

My brother has quit the use of tobacco; and I promise, if you will send him a smoker, to pay for it if he ever uses tobacco again.

Eupora, Miss., June 25. W. B. ENOCH.

You may send a smoker to Jos. Stull, North Webster, Ind. If he uses tobacco again I will see you get your pay. I. R. GOOD.

Vawter Park, Ind., May 27.

Send Mr. W. F. Howard, Lovelace, N. C., a smoker for quitting tobacco; and if he ever uses any more I will pay the 70 cts. myself.

Lovelace, N. C., June 9. D. C. JARVIS.

A friend of mine has given up the use of tobacco, and says if you will send him a smoker he will pay for it in case he ever uses tobacco again. I will go his security.

Altona, Col., June 12. ELLEN STEWART.

Mr. J. E. Dickerson, of Ozan, Ark., has quit; and if you will send a smoker, and he ever uses tobacco any more, I will pay for the smoker.
Ozan, Ark., May 25. J. D. Barrow.

I am sorry to say that the writer has already broken his pledge. I inclose one dollar, as agreed, to pay for the smoker he got.
Wyoming, Ont., May 26. Arch. Duncan.

Please send Mr. U. G. Ballard, of Clermont, Ind., one of your smokers. Seeing your offer in Gleanings he offered me his pipe, and resolved never to use tobacco again. If he does I will pay you for the smoker. Tinsley Tansel.
Clermont, Ind., June 12.

Mr. Virgil McManus has quit using tobacco; and if you will send him a smoker I will pay you for it if he ever uses tobacco again. He has used tobacco a good many years, but he has quit, and quit for good. Chas. D. Farnham.
Fleetville, Pa., June 13.

I am glad to say that I have given up smoking for the last six months, after using tobacco for twenty years at least. I intend to use it no more; and as I see you present a smoker to all who do so, I hope you will be able to send me one. Rob. Dunn.
Fillmore, Cal., June 24.

My husband, O. D. Draper, has been a subscriber to Gleanings for about three years, and has quit using tobacco. I have no fear he will ever use it again. If he should, I will pay for a smoker which I shall be thankful to receive. Mrs. Jane Draper.
Ortonville, Mich., June 17.

I received Gleanings, and am well pleased with it. It gives me much pleasure to read it. I see you still keep up the Tobacco Column. I believe I am entitled to a smoker, as I have quit the use of tobacco for ever. It is one of the filthiest habits; it is *worse* than whisky.
Canton, O., June 12. Wm. A. Rohn.

Mr. Richard Reeder is very thankful for the smoker, and I don't believe I ever saw him better pleased. He tells his friends how he got it, and they look at him wonderingly. He says he sometimes wants tobacco so bad that he takes a stick in his mouth to chew, and the strong desire leaves him. D. W. Rouse.
San Jacinto, Cal., April 23.

The following young men, having heard me tell how you would give a smoker to all who would pledge themselves never to use tobacco again in any form, quit about a week ago, and request me to go their security: W. A. Callahan, L. A. Callahan. If I ever know either of them to use it again I will pay for smokers.
R. W. J. Stewart.
Sonoraville, Ga., June 4.

Please send a smoker to John M. Ehlert, who has, through the influence of reading your Tobacco Column and Home talks in my Gleanings, concluded that this indulgence in tobacco is a stumbling-block to him or any one else who is trying to live properly and exert a salutary influence over his young comrades who so generally use it. He is much interested in bees; and if he ever uses tobacco again I will be responsible, and pay for the smoker.
New Orleans, La., June 10. J. W. Winder.

Six or seven years ago I commenced to read Gleanings. It was sent to my brother, J. A. Dillashaw, and we bought an A B C book. I have read it, and I claim that Gleanings has been a blessing to me. I love to read it, and the book too. It has broken me from a bad habit—that is, using tobacco. I had used it for 15 years, and it did not do me any good, but it did me harm. I have been converted from a filthy habit, and an expensive one too. I will never use another thimbleful of tobacco while I live, so I claim the smoker, if you will send it to me. W. A. Dillashaw.
Bowman, Ga., May 25.

Mr. J. H. Terrell came to my home to-day to learn something about bees. He is just commencing. I asked him if he was taking any bee-paper. He said no. I referred him to Gleanings, also to the Tobacco Column, as he was smoking all the time. I told him I thought if he would subscribe for Gleanings, and throw away his pipe, you would send him a smoker. He seemed to be in a deep study for a moment, and then took his pipe out of his mouth and threw it on the ground, and said, "That is the last for ever." Please send him a smoker. If he ever uses tobacco again I will pay. F. B. Jones.
Howard Lake, Minn., June 30.

I love Gleanings, especially the Home papers that I always read with great interest and joy, because they always ring of a true love of Jesus. I have lived the most of my life in sin (be it said to my sorrow and shame). I was converted in 1889. I had been a great user of tobacco, especially smoking. It had such a hold on me that I had tried time and again, with all my strength, to quit, only to fall deeper than ever. My doctor told me it would surely kill me if I continued in its use, and that he thought it very doubtful whether my constitution would bear an entire abstinence. You see what a hold it had on me. After I had been converted a few days, and had resolved on living a new life, I told my wife I did not believe I could be a Christian and be such an intemperate user of the vile weed. I prayed God to give me strength to overcome, and I quit from that day to this, with all ease; and to-day I thank God for his grace. M. L. Boxham.
Clinton, Mo., June 17.

[Well, well, friends, this is encouraging. When I first saw the array of names from those who were giving up tobacco I concluded that Ernest must have been saving them up for some months back, and then put them all in at once. But in looking at the dates I see that at least 13 of the 17 who have taken the pledge are dated in June, so it seems this must be a sudden start, and I confess I do not know what has called it out. Another thing, almost all of them have taken the pledge as the result of personal work of some friend who goes security. Now, this is still more encouraging. A man is much more likely to hold out where some friend is watching and praying with and for him, and has an interest in the matter. Why, this is real Endeavor work and nothing else. I wonder whether those who are doing this personal work are not members of the Christian Endeavor Society. May the Lord be praised for the powerful testimony in this Tobacco Column this month: and may he give grace and strength to those who are breaking away from the habit, and new zeal and energy, and faith and love, to those who are doing the work. I am going to pray over this, dear friends, and I expect and believe that we shall have a larger report, as a consequence, than we have ever had yet. This is the kind of fighting that I really enjoy. Who can read over this list of letters and pledges, without feeling that God's spirit is in it? Why, a real live battle is going on against tobacco, and yet it is all being done with the kindest and pleasantest feelings imaginable; but the result in the end is, plainly and clearly, "Get thee behind me, *Satan*."]

GLEANINGS IN BEE CULTURE
A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS
ILLUSTRATED SEMI-MONTHLY
36 PAGES 7×10
$1.00 PER YEAR

Fear not them which kill the body, but are not able to kill the soul; but rather fear him which is able to destroy both body and soul in hell. . . . Fear ye not. . . . . Ye are of more value than many sparrows.—MATT. 10:28, 31.

EIGHT extra pages this issue.

THE weather in our vicinity has been very warm for the last week or ten days, the thermometer in the shade ranging 80 and above. One day we noticed that it registered 87.

A SUBSCRIBER has sent us a copy of the *American Agriculturist* for August, 1881. A glance through it shows a ladder terminating in a single prong, the same as shown on page 695. Dr. Miller explained at the time that it was an old idea; but it is interesting to know how long ago it was illustrated and described. As shown in the *Agriculturist*, it was designed for fruit-picking; such ladders, therefore, have more uses than one.

ON page 707 J. P. Meyers wants to know what has become of A. E. Manum. We have been officially notified by friend M. himself that, on the 16th of Sept., he was married in Bangor, N. Y., to Miss Hattie C. Barnum. This, we think, will justify the temporary break in his interesting articles. A footnote on the wedding-card informs us that the "out-apiary" which friend M. has found in New York will be the "home" apiary after Oct. 1, 1891.

HERE is an item that was sent in by Dr. Miller for Stray Straws, but it came too late for insertion in that department:

The Bee-keeper, Winona, Minn., is the latest. A name that does not apply to *all* bee-journals would be better.

We would add, that the *American Bee Journal* is very often called "*The Bee Journal*," for short. The name of our new cotemporary is unfortunate, and we trust that our new candidate for the field will reconsider and give us some other name.

THE Australian colonies are about to be admitted to the Postal Union. When they are we shall expect the postage on queens to that country to be reduced from 96 cts., the present amount, to about 40 cts. Now that the mailing of queens across the oceans is a possibility, it will be a great boon to our friends on the other side of the globe. By the way, we are notified of the successful mailing of an untested queen to J. Stormonth, Kirkbride, England, with only two dead bees. The queen has now been laying in the hive for some weeks.

MR. A. DETWEILER, of North Middleton, Ky., says, "Your introducing Benton cage is quite a success. I have not lost a queen this year. With the Peet I lost 50 per cent last year." We have just received a similar letter from our large queen-breeder, Mr. J. D. Fooshe, of Catchall, S. C., adding that he has had wonderful success in sending queens to distant parts of the United States. We had supposed that there was nothing better than the Peet for introducing; but from reports like the above, that are coming in, it looks as if the Benton were the better. All we have to do is to pull the cork, and "we (the bees) do the rest," *a la* Kodak.

OUR bees have been working some on goldenrod, but for the most part are inclined to rob. After examining the colony, the robbers would pounce down in full force at the entrance, and before the guards or sentinels would become aware of what was up, many of them would get into the hive. After closing the hive, to give the inmates timely warning we have tried striking or stamping on the cover. This in many cases brought the guards out for investigation, and the result is that they fairly snapped up their intruders while on the wing. It is not always possible to arouse a colony in this way, especially if they have been smoked very much.

WE do not believe much in finding fault with the railroads and their methods; but here is a case in point where they rather get the "bulge" on us. They will carry a carload of boxed square tin cans from St. Louis to San Diego, Cal., for $212.00; but for an inland point 74 miles this side, on the *same* road, they will charge $44.00 extra. In other words, they will charge $44.00 *more* for carrying it to a point 74 miles this side of San Diego, and simply dropping the car off at that point, than they would for hauling it clear to San Diego, so much further. There is a little inconsistency here that the Interstate Commerce Commission should rectify.

WE have just learned a new way to light the Clark smoker, that is ahead of all. We cram it with our excelsior sawdust, then close the door tight. We next strike a match on the sandpaper, work the bellows, and then hold the blaze directly against the perforations *under* the smoker just back of the front legs. The flame will shoot in, ignite the fuel, and the smoker so lighted is almost sure to stay so. Very often when the Clark is lighted at the rear end it will go out in a minute or two; but when lighted at the front end there is no danger. Now, please do not understand us to say that the Clark is in the habit of going out. When once lighted it is quite sure to hold fire as long as there is any fuel to burn.

To illustrate how a business properly carried on will advertise itself, we give the following instance: Some time ago we received a request for an estimate on 30 untested queens. We quoted the price, and the estimate was immediately accepted and returned. They went out by next mail, to a point in northern Ontario, Canada. All went through alive. The parties were so much pleased that they clubbed together again and sent for more. Then again they clubbed together and sent for more. The secret of the success was in prompt mailing, and getting the queens through alive and in good order. We are frequently getting orders now to "send us another lot just like the one you sent us last. Be sure to send in Benton cages."

WE have just enjoyed a visit from a bee-keeper, Mr. J. E. Snider, and friend, of Salt Lake City. Among other interesting things he told us about that part of the country was, that Simplicity-hive covers, 16 inches wide, supposed to have been dry, have been known by him to shrink half an inch. That would make ¾ in a foot. We here in the East have no idea of the dryness of some of these climates. Another thing, it is very difficult, on account of the scorching sun, to make white paint stick. Venetian red is about the only thing that will hold. He further added, that the dovetailed or lock joint on our hives is the only joint that can stand their climate. All other joints, by the action of the weather, will gap.

WE have received a good many photographs of apiaries, the senders giving us the privilege of using the same in GLEANINGS if we should see fit. Most of them are too poor and indis-

tinct to be used for our half-tone work. To get really good landscape pictures, exposures should be made on a cloudy day. When the sun shines bright, the contrast between the shaded and brightly illumined parts of the picture is too great, the former being technically "under exposed," and the latter "over exposed," and in neither case is there good work produced. If the day is clear, have the photograph taken toward evening, when the light is not so glaring. We can use only a small per cent of the pictures sent; but what we do use, we should like to have perfect as to the amount of exposure. Show this editorial to your artist, and he will understand what we mean.

DO OLD BEES SECRETE WAX?

In another column it will be noticed that E. France has contributed an exceedingly valuable and interesting article on wax secretion. Most of us would be satisfied with the almost overwhelming proof that he brings to bear, that old bees can and do secrete wax and build comb when pressed to do so; but with his usual painstaking care and accuracy he is not yet entirely satisfied, but proposes to try the experiment again. We do not know that there is any practical bearing touching this subject, but there has been much discussion, and it is now time that we have a series of facts to prove which side is right. This will be a good experiment for the Michigan Agricultural College. Let them isolate a swarm newly hived, and take the brood away from them every 20 days, each time compelling them to build comb.

QUEENS TO AUSTRALIA.

Well, we have just heard from two of the queens that we sent to Australia. They were 36 days on the road. One cage arrived with all the bees alive, but the *queen* was dead. How provoking! Usually the tables are turned the other way. We often find boxes that have just arrived from Italy with the *bees* dead, but the *queen* alive! We feel sure that, if the queen had not been injured in some way, or weak from some cause or other, she would have gone through alive. The other cage had all the bees and queens dead; but examination showed that they had been dead only a day or two, and that because of the fact they had received a dash of water—possibly sea-water—at an unlucky moment, and this was too much for the candy. We can hardly regard either of these as failures; and the only reason why they were not a perfect success in both cases was due to rather unusual accidents.

THE TOBACCO COLUMN.

Some of our readers may wonder why no testimonies from those who have given up tobacco have appeared since the 15th of July. The reports on pages 747 and '8 will partially explain. But you will need to keep in mind that all these reports should have been published in July; and my footnote at the end of the testimonies was written with the supposition that it would appear in the July 1st issue. While I was sick it was crowded out for more important matter—that is, if there is any more important matter before the American people just now. It does not quite seem to me that there is. Now, please do not think, from the long silence on this subject, that the work has not been going on, for we have another string of testimonies for our next issue. This explanation seemed to be due our readers because of my comments at the closing-up on page 748.

A. I. R.

LUTHER W. GRAY.

In response to my request in our issue for Sept. 15, page 695, a part of those who sent Mr. Gray money have replied, stating how much. Several others have made no response. As it is quite unlikely that Mr. Gray will be able to return the money very soon, we have decided to make good all that our readers have lost by sending money to him, under the following conditions: The one who sent money in answer to Mr. Gray's advertisement must, of course, have been a subscriber to Gleanings at the time. If he borrowed the paper of a neighbor, and saw Gray's advertisement, and then sent him money, I hardly feel that we should pay it, for we decide to protect only our *subscribers*. Second, we ask the privilege of paying the amount in bees or queens instead of cash. But we can not furnish them at the prices Mr. Gray advertised, for he quoted very low figures, with the understanding, I presume, that he was in *Florida*, where it is summer the year round, and so he could afford to raise queens at a low price. If, however, you prefer to take the amount out in Gleanings or A B C books, we will extend your subscription or mail the books, and thus have the matter ended. We shall charge the amount to Mr. Gray, and hope he may some time be able to pay it back to us. Our bookkeeper will mail a memorandum of credit to the different parties.

A. I. R.

THE APIARY AT THE HOME OF THE HONEY-BEES CRITICISED.

During the last three or four days we have had quite a number of visitors here at the Home of the Honey-bees. On going into the apiary they were a little disappointed on seeing that grass had grown some six or seven inches high, and that some of the entrances were somewhat obstructed with grass and weeds. They had read the A B C book, and expected to see nice white sand for dooryards to the hives, and the grass all neatly kept down with a lawn-mower. Perhaps we should explain a little. One of our apiarists left us a month or six weeks ago, leaving only one man to manage the yards with the assistance we were able to render ourselves whenever we could get time from the office. The consequence was, we were obliged to do no more work than was absolutely necessary. The principal thing we aimed to do was to keep the internal condition of the hives in good working trim for queen-rearing. Many of the hives had nuclei. We have found that, while grass and weeds in front of the entrances disconcert robbers to a very great extent, they do not very much trouble the rightful inmates of the hive. While it looks untidy in the fall of the year, there is certainly an advantage in this untidiness. After all, brother bee-keepers, how many of *you* have a model apiary with respect to closely mown grass and neatly arranged dooryards to *every* hive? We have some 300 or 400 colonies or nuclei in the home yard now; and one man has, practically, managed the whole, and he does it largely on the plan we outlined in an editorial on page 749, last issue; that is, diagnosing colonies, and handling hives more and frames less. In our visit to noted apiarists of the country, we rarely found one who kept every thing neat and in apple-pie order, although in many cases our visit had been anticipated, and things were probably in better shape than they would have been if it had not been known that a bee-editor with a criticising eye was soon to be among them. When our colonies are running for honey, and it is the height of the honey season, we keep entrances clear; but during the fall, for the reason above stated, we let the *weaker* ones have their entrances a little bit obstructed with grass.

A. I. ROOT AFTER HE GOT WELL.

At this date, Sept. 30, I am happy to tell you, dear friends, that I am enjoying as good if not better health than I have before at any period of my life, so far as I can remember. Of course, I tire out quickly, and am obliged to make short trips and to rest often; but I am feeling a vigor, energy, and enthusiasm that is filling my heart with thankfulness. I can eat any thing that anybody else does, and have never enjoyed fruits and vegetables more in my life than I do now. I do not need any overcoats nor fur caps, and can stand as much draft as people ordinarily. Music, reading, companionship of friends, and all these wonderful gifts that God has provided for us, come to me with a wonderful new relish; and yet I have been under the care of a doctor who gives medicine I thought at the time without stint. I have also been quite a patron of my neighbor who keeps a drugstore; and yet I have come through all of this "doctoring" and all of these "drugs" like a new man. In dropping the different kinds of medicine that have seemed at the time indispensable. I have experienced no trouble. I feel like saying this, because I fear that many of us have not sufficient respect and confidence in the great organized band of workers for the relief of human suffering. Yes, I feel a new respect and love, not only for the druggists of our land, but for their carefully drilled and intelligent clerks who put up prescriptions.

With the new strength and energy comes back responsibility. A few days ago the responsibility was mercifully lifted from my shoulders. Now I must take it back; and with the responsibility come back old temptations and trials; and a good many times I have been obliged to bow my head in sorrow and shame to feel that, even with the new lease of life, I am but *A. I. Root* still, with the old faults and old infirmities. Dear brothers and sisters, may I ask you to pray for me, and to pray especially that I may have wisdom and judgment given me from on high, in the matter of these Home talks and Neighborly talks which I hope to continue to give you? May I be kept from mistakes, from selfishness, from errors in judgment; and may I be enabled to teach that wondrous love that "thinketh no evil."

CONVENTION NOTICES.

The fifth semi-annual convention of the Missouri State Bee keepers' Association will be held at Sedalia, Mo., Wednesday and Thursday, Oct. 7 and 8. Rates for all those attending are promised at the Sicker and Kaiser Hotels at $1.50 per day each.

J. W. ROUSE, Sec'y, Mexico, Mo.

The Executive Committee have fixed the date of the next session of the North American Bee-keepers' Association, Dec. 8 to 11, at Albany. There will be an informal meeting on the evening of Tuesday, Dec. 8th, for getting acquainted, etc. The real work of the convention will commence Wednesday morning, and extend through two full days ending Friday morning, giving distant delegates time to get home before Sunday. We want all to get there if possible on Tuesday. If they have a few hours of daylight it will give an opportunity to look around the city, view the capitol building etc. Reduced rates have already been secured in all trunk-line territory, and the same is expected over other railroads. The program is now under way, and other arrangements are nearly completed. If you have decided to take a vacation that will, we trust, be profitable, don't fail to attend this convention.

P. H. ELWOOD, Pres., Starkville, N. Y.

C. P DADANT, Sec., Hamilton, Ill.

FRIEND ROOT:—The S. C. B. K. A. meets in this city the 21st of October, and we are making a determined effort to convert it into a State association; and to this end we are sending out the inclosed address to the bee-keepers of California. To aid us in this will you be kind enough to find space for this in your next issue? Also give date of the convention in your regular convention notices.

We expect a very large attendance. "The Rambler" has promised to be present, and a great many of the noted California bee-keepers; and I wish we could add your name to our list. We trust you are rapidly recovering from your illness; and if you desire to recuperate, come to California and remain over winter. GEO. W. BRODBECK.

Los Angeles, Cal., Sept. 19.

TO THE BEE-KEEPERS OF CALIFORNIA.

The Southern California Bee-keepers' Association will hold their second annual session at Los Angeles, in the W. C. T. U. Hall, on Wednesday, Oct. 21st, at 9 A. M. This association has been in existence one year, and has met with such marked success that at present its membership outnumbers some of the Eastern State associations that have been organized for years. The object in forming this association was for "mutual benefit and protection," and with this aim in view we desire to enlist every one in the State of California "who owns and handles bees."

The success of this association proves beyond question that the bee-keepers of the State begin to realize the necessity of building up and fostering the honey industry of California.

During the past few years this interest has seemingly been dormant; and as a result, while other industries have prospered, and by banding together have secured the law's protection by proper legislation, we, as a class, have secured nothing. California is the largest honey-producing State in the Union, consequently ought to rank first in every thing that tends to aid and build it up. Every industry in the State is making a determined effort to secure proper recognition at the World's Fair, and to accomplish this are doing their utmost to secure their portion of the State's and counties' appropriations, and it is high time we were doing likewise.

California's apicultural display at the World's Fair in 1893 will depend entirely upon the concerted action of the bee-keepers of the whole State, and this will never prove a success unless we are represented by a State association. There is a proposition now before this present association to convert it into a State association; so if you possess any pride in the bee keepers' industry, or consider your own interests, the necessity of a strong and permanent organization can not be questioned. We suggest to every county and local bee-keepers' association in the State to send at least one individual to represent their interests at this October meeting. We extend a most hearty invitation to every bee-keeper in the State, both male and female, and have made provisions for the largest assemblage ever held on this coast.

There will be "Ramblers" from all sections; invite your friends to join you; and, if possible, inform us of those who will be present. GEO. W. BRODBECK, Sec'y.

No. 223 South Spring St., Los Angeles, Cal.

THE UNITED STATES HONEY-PRODUCERS' EXCHANGE.

REPORT UP TO SEPT. 15.

The following are the questions that were sent out, and correspond by number to the tabulated replies below:

1. In your locality, how many more colonies will go into winter quarters than a year ago?

2. What per cent of an average crop of fall honey has been secured in your locality?

3. How does the yield for the season compare with last year?

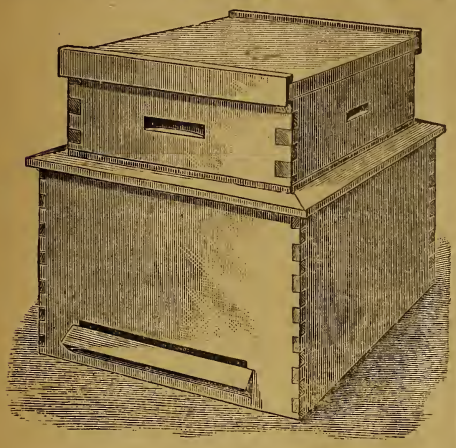
4. Quality of honey as compared with last year's crop?

STATE.	Qu. 1.	Qu. 2.	Question 3.	Qu. 4.
Alabama	About same.	80%	50% better.	Better.
Arizona	10% more.	10%	Not as good.	Better.
Arkansas				
California	About same.	15%	⅛ as much.	Poorer.
Connecticut	10% more.	20%	About same.	Poorer.
Colorado	40% more.	15%	Little less.	Poorer.
Florida	20% more.		Much better.	Better.
Georgia	About same.	40%	50% better.	Better.
Iowa	10% more.	10%	10% better.	Same.
Indiana	15% more.	5%	About same.	Poorer.
Indian Terr'y.				
Illinois	10% more.	10%	About same.	Poorer.
Kansas	20% more.	50%	Better.	Same.
Kentucky	30% more.	20%	Not as good.	Poorer.
Louisiana	50% more.	15%	Much better.	Same.
Maine	25% less.	20%	About same.	Better.
Massachusetts	20% less.	5%	Some better.	Same.
Maryland	25% more.	20%	25% better.	Poorer.
Michigan	5% more.	15%	About same.	Same.
Minnesota	20% more.	25%	25% better.	Same.
Mississippi				
Missouri	10% more.	15%	About same.	Poorer.
Nebraska	12% more.	75%	50% better.	Better.
Nevada	10% more.	60%	Not as good.	Poorer.
New Hampsh'e	15% less.	10%	Much better.	Same.
New Jersey	20% more.	100%	Much better.	Same.
New York	12% more.	65%	50% better.	Better.
North Car'lina	5% more.		About same.	Same.
Ohio	10% more.		Some better.	Poorer.
Pennsylvania	5% more.	50%	Better.	Better.
Rhode Island	Same.	10%	25% less.	Poorer.
South Car'lina	20% more.	10%	50% better.	Better.
Tennessee	25% more.	50%	100% better.	Much better.
Texas	20% more.		Some better.	Same.
Vermont	30% more.	20%	75% better.	Much better.
Virginia	15% more.	5%	About same.	Not as good.
West Virginia	10% more.		Little better.	Not as good.
Washington	15% more.		Much better.	Same.
Wisconsin	10% more.	15%	50% better.	Better.

P. H. ELWOOD, PRES.

G. H. KNICKERBOCKER, SEC.

Dovetailed Chaff Hives.



If you prefer a permanent double-walled hive, the above is a safe one, and you will not find any thing cheaper. Try a few.

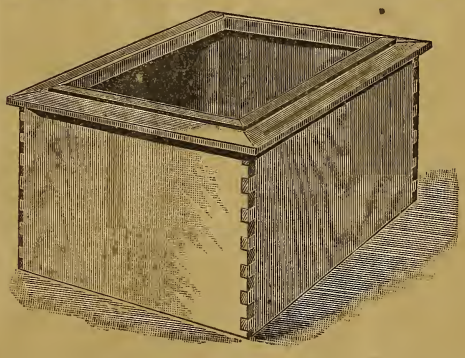
PRICE LIST OF DOVETAILED CHAFF HIVES.

By adding to the winter case a ⅜-inch inside body 8¾ inches deep, with double bottom and tarred paper; you have the material to complete the Dovetailed chaff hive as shown above, where a super and cover are also added. This makes the simplest and cheapest winter hive ever offered for sale. By adding to the price of the regular Dovetailed hive as listed, page 21 of our price list, 75c each nailed, 50c each in flat, or 40c each in lots of five or ten in flat, you get the price of the Dovetailed chaff hive complete, in the same combinations. The price of the separate parts will be as follows:

NAME AND DESCRIPTION.	N'ld and p'd each	In flat each	In flat 5	In flat 10	W'ght of 10
Dovetailed chaff hive, no cover or furniture	1 20	.80	3 50	6 50	150 lbs.
Inside body with bottom, ⅜ inch thick		25	1 10	2 00	40 "
Outside bottom ⅜ inch with tarred paper and supports		.13	55	1 00	30 "
Outside body with sticks, no rims		.30	1 40	2 50	60 "
Rims for dovetailed chaff hive or winter case		.12	55	1 00	20 "

A. I. ROOT, MEDINA, O.

Dovetailed Winter Cases



The time to prepare bees for winter is at hand, and you will make no mistake in using our new winter cases. They are the cheapest, and we think they are the best.

PRICE LIST OF DOVETAILED WINTER CASES.

The winter case as above, includes the four boards forming the body, four pieces forming the rim, and four ⅞-inch-square pieces for the lower edge. The chaff cushion and padding, as shown in Fig. 3, when sent put up, include chaff; but in flat, the cushion is sewed up ready for filling, and the strips of burlap or cotton are included to make the padding, but no chaff is included. For ten-frame hives not over 16 inches wide, outside measure, the same winter case can be used without the sticks and padding on the side.

NAME AND DESCRIPTION.	Nailed and p'nt'd each	In flat each	In flat 10	W'ght of 10
Dovetailed winter case	.50	.40	3.50	80 lbs.
Dovetailed chaff cushion and padding	.25	.20	1.50	5 "
Winter case with cushion and padding complete	.75	.60	5.00	85 "
Dovetailed telescope cover, shown in Fig. 6	.35	.30	2 50	40 "
Rims for winter case		.12	1.00	20 "

To introduce them we allow the usual early order discount, which up to December, is 5 per cent.

A. I. ROOT, MEDINA, O.