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**GLEANINGS IN**  
**BEE CULTURE**

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.

ILLUSTRATED SEMI-MONTHLY

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No. 2.

**STRAY STRAWS**  
 FROM DR. C. C. MILLER.

311 MEMBERS in the Bee-keepers' Union.

POPPLETON'S pineapples, page 15, are peculiarly tantalizing to those of us who can't afford the luxury.

SPHAGNUM, or nurserymen's moss, is highly commended in *Le Progres Apicole* for absorbent material.

ERNEST'S visit to the Frances reminds me that, years ago, I visited the place but hadn't the courage to introduce myself.

THOSE WHO INJURE larvæ, as mentioned p. 21, by using a quill toothpick, would do well to try a joint of grass cut toothpick fashion.

I CAN WAIT till February for the new catalog; but when's the seed catalog coming? A horticulturally crazy brother-in-law has been asking me.

C. W. LEARNED, in *A. B. J.*, says a five-banded queen carries more safely in the mail than a common one—"the more hoops, or bands, the less danger of bursting up!"

STRAW-COLORED sugar (*sucre candi jaune-paille*) is recommended in *L'Apiculteur* for feeding bees. No water; just put the dry crystals over the frames and cover up.

EXPERIMENTER TAYLOR fed back to get sections filled, feeding 1.61 lbs. extracted honey to get 1 lb. stored. That is, he had filled in sections more than  $\frac{2}{3}$  as much as he fed.

COMPLAINT is made in *Le Progres Apicole* of a law that imposes a fine of \$1 to \$3 upon any one who places bees less than 4 rods from a dwelling or a public highway. No wonder!

CAPITAL IDEA that, of sending the right kind and amount of nails with goods in flat. I never can tell for sure the right nails for a new thing, and sometimes I can't get them.

BEE-KEEPERS at the Rockford convention, who, perhaps, had no better pasturage than I, got more honey. Perhaps the reason was their

maller number of colonies. If I had had only one-tenth as many bees, I feel confident I should have had ten times as much surplus.

A DANGEROUS RIVAL to A. I. Root has turned up in no less a person than our quaint friend B. Taylor, who proposes to get his living out of an acre of ground, just for the fun of it. See *Review*.

QUITE AN ARRAY of exposes on pages 26 to 29. Keep at it, friend Root—makes good reading; and although some people are never happy without being humbugged, the hard-earned dollars of others may be saved.

R. MCKNIGHT, in his St. Joe paper, says the Ontario Bee-keepers' Association "is the best and solidest organization of its kind on this continent." The worst of it is, that what he says is true. Yankees can't come up to Kankucks in that sort of thing.

FRIEND ROOT, sorry to see you, on p. 26, give currency to that hoary error that "the forest leaves are decorated by the first frosts of autumn." We often have beautiful autumn foliage before frost, and the tendency of the frost is to stop the coloring.

SAY, BARNEY, what's the row in the printing-office? Four mistakes in three consecutive lines on p. 27. Form not locked tight enough, eh? [Type will sometimes pull out in spite of anything we can do. It was all right when it went down to the press.—Ed.]

THE VERY INTELLIGENT set of York State bee-keepers of the present day are not likely to be succeeded by a set of ignoramuses. The new law requires that every child between 6 and 14 years of age shall attend continuously during the school year some recognized institution.

"THE OLD RELIABLE" celebrates the new year by putting on a new dress, and shedding with the old dress the editorial "we." It also prints its own name the same as any proper name. There's an example for you to follow, Mr. GLEANINGS. [That's a matter of taste, Mr. Doctor.—Ed.]

CARBONYLE, used to paint hives, according to J. Chardin in *Le Rucher*, makes them last sev-

eral times the ordinary length of time, and costs only 3c a hive. But who will tell us what is carbonyl? Perhaps some hideously smelling preparation of coal oil, for it must be dried six weeks before bees will stand it.

G. W. HOLE, in *B. B. J.*, says, "With regard to clipping of queens' wings, there are hundreds of otherwise good bee-keepers who can not pick her out from among her sisters, even if willing to mutilate her." Seems a bit queer to speak of a good bee-keeper who can't tell a queen from a worker.

THAT 19 TONS of foundation you made in 1894 was a lot. Let's figure. Made 6 ft. to the pound, it would cover more than 5 acres, and fill 256,750 L. frames. Made 10 to the pound, and  $3\frac{3}{4}$  in. wide, it would make a strip 230 miles long, and fill sections for 1945 tons honey. [Thanks. Figures are not always intelligible except by comparison.—ED.]

B. TAYLOR, in *Review*, mentions a bee-keeper whom a bee-journal held up approvingly, saying that he "wasted no time fooling with experiments, but just adopted the Quinby hive and system, and went right along making big crops of honey." Then Mr. Taylor shrewdly asks, "But suppose Mr. Quinby had been like this excellent man."

SWEET CLOVER seems to be feared with an insane fear, as a bad weed. Perhaps this comes from the fact that it will hold its own where nothing else will grow. But will it run out a field of red clover or timothy? A few years ago I had a piece occupied with sweet and red clover. First the red came up and hid the sweet, then the sweet shot up in June and hid the red. But since that year the red has gained the ground.

CEMENT-COATED NAILS must be a good thing; but please tell us whether they are any better than rusted nails. [Rusty nails are good, but they don't hold like the new cement-coated, for I've just been trying the experiment. Had a hard time to find some rusty nails around our establishment. The cement is always uniform, while the rusty chaps are apt to be pitted or rusted too much for their real strength. Say, are your nails rusty from choice or because they happen to be so?—ED.]

A FLORIDA PAPER has an appeal for beekeepers to contribute a pound of honey for each hive to father Langstroth, on the ground that his hive was never patented. That's a mistake. The hive was patented, but it was pirated in such a way that he never got the profit to which he was fairly entitled, and it would be a graceful thing for bee-keepers to contribute to the fund being raised by the editor of the *American Bee Journal*. [That's a move in the right direction: but how are the pounds of honey to be collected together without a large expense? A better way is to send the value of one section for every hive to the editor of the

*American Bee Journal*. The money can be conveyed with no danger of breakage or leakage, and for only two or three cents.—ED.]



### SEALED COVERS.

ARRANGEMENT OF OUT-YARDS, ETC.

By E. France.

Who says sealed covers are no good? Others are afraid of them, I suppose, because they have never tried them. We cover all our bees with a solid board, made out of inch lumber, dressed on both sides, cleated at the ends to keep from warping. Over this board we put into the chamber some straw four to six inches deep. The top chamber is made deep enough to hold that much. On some of our hives we have cushions to lay on top of the honey-board—cushions filled with chaff six inches deep. I like the straw just as well. The farmers where we keep the bees furnish the straw. About May 1st to the middle of the month we take the straw out and throw it in piles out of the way. If we use the cushions they are in the way all summer, as we have no place to store them away. We have been using those sealed covers—honey-boards we call them—over 30 years, and have always wintered outdoors on the summer stands. I think we have averaged as good luck as most bee-keepers. Our winter losses are usually light.

I have tried covering bees with cloth cushions, stuffed with chaff, straw, and leaves. I find no better way than putting the solid honey-board right on next to the bees, and covering with straw. We prefer to winter out of doors. I have tried cellar wintering, and did not do as well as out of doors. Now, this brings me to another subject—

### HIVES FOR OUTDOOR WINTERING.

I want a quadruple hive, four colonies in one hive, and I want a large hive at that. Then we never have any little weak colonies—all are good and strong. Make all increase by division, and always make a new colony—a full colony, especially if made late in the season.

### FRAMES, EIGHT OR TEN.

I have been very much interested in the discussion of the question as to eight or ten frames. I don't know but that I am on the fence, with Dr. Miller. I have eight-frame hives enough to hold over 150 colonies; but if you ask me if eight frames are my choice, I don't really know. I have been led to use them, whether it was my choice or not, in this way: I first made one hive to hold four colonies on L. frames. I made it to use nine frames in each set—two stories high. After I had it finished I found it was too wide



to slip into a common wagon-box; and as I expected to haul them sometimes from place to place I changed; and all that I made after the first I made to use eight frames in a set, so that is the way it happened that I am using eight frames. I soon discovered that two sets of eight frames did not give me comb room enough; so then, to have more comb room, I put on the third story. In the honey-gathering season I use 24 combs. I think it is none too many. I am still using my nine-frame hive with a third story added—27 frames—and I don't think that is too large. I have 140 colonies in my home yard, and have combs enough to fill all three stories high. For winter I take off the third stories and pack them away in my comb-room. I make sure that the second story is full of honey. I want at least a part of the lower combs to be empty when cold freezing weather sets in; then the bees will cluster in the empty combs just below the honey, and will work up as they eat the feed, no matter how cold the weather is. I think there is at least 2000 lbs. of honey now in my comb-room, that I took off with those third stories, so the bees are in no danger of starving, as they had their second story full in the fall.

In the spring, in March or April, I look the bees over. If any are getting short of honey I change their empty combs for full ones taken from the honey-room. In the spring we work to get all colonies strong; and as soon as the two lower stories are full of bees we put on the third stories and fill up with the combs from the store-room—honey and all. We usually get that on two or three weeks before we commence to extract. By that time the combs will extract nicely.

Mr. Hatch seems to think, in GLEANINGS for July 15, that, if a queen keeps eight frames full of brood, they are boomers. If I had a queen that did not equal eight frames of brood during the breeding-season, she is no queen for me. With our L. frames we keep the lower story of eight frames full of brood, and the surplus brood-combs we make into new colonies. In that way I made 45 new colonies this year, 1894, from 95 old ones, and every one of the new ones were given eight good brood-combs—360 brood-combs, or on an average of nearly four combs from each queen, to keep the brood down to eight combs; no natural swarming to speak of. We very seldom have a natural swarm. We don't have them to hive. When we are extracting we take all the honey we can get from the two upper stories, and keep the brood below. If I should find a brood-comb in the second story, and an empty one in the lower, I would put the empty one up and the brood below. Eight combs, kept at work breeding bees for a three-story hive, will keep bees enough in the hive to fill the two upper ones with honey, in a good flow, once in a week; so they can be emptied once a week; and bees with me worked

in that way don't swarm. I don't know but a three-story ten-frame would give more honey to the hive than the eight-frame. There would be larger colonies, but you could not get as much increase, as it would require ten brood-combs in the lower tier to breed enough bees to work the upper twenty honey-combs. This brings me to another point—

#### LIFTING HIVES AND TOP STORIES FULL OF HONEY.

I don't have to lift hives. No man can lift my quadruple hives when full. Three stories will weigh at least 400 lbs., and I think more. I am getting too old and feeble to lift a top story full of honey. I use a hand-cart at home, where my L. hives are. For a few years past I have run that yard myself, with the help of one and sometimes two hired boys. My cart will hold four carrying-boxes. The boxes are made with bottoms, two sides, and back boards. The front is left off. They will hold ten combs each, if full. The combs hang on top of the end boards; cleats are nailed on the outside of the end boards to handle them by. When extracting I fill two boxes with empty combs; put them on the cart, then either myself or boy runs the cart alongside of one of my big hives, then turns one half of the top chamber over on to the other half. Now we can work two colonies—pry up the honey-board of one, smoke the bees down and brush off what few bees there may be on them; hang the combs in the empty boxes on the cart; when the third story is empty, lift it off and set it down on the ground, then smoke and take out the second story; set and hang them in the other empty box. Now fill up the hives with your empty combs; put on the honey-board, wheel the cart to the extracting-house, slide the full boxes off on to a platform on a level with the cart. You will not need to lift it. When they are extracted, take them back to fill out the next one worked. Why not use a bee-escape to get the bees out of those combs? Too much lifting to put them on, and I don't think the bees can be got out of the second or middle story any way, with an escape, as there is very likely to be some brood in it. It doesn't matter, however, as I can take the combs out of the two upper stories in five minutes, and no lifting except taking the combs out one at a time.

Now, Ernest, if you can not get along with your out-aparies run for extracting without so much lifting, come here and let me give you a few lessons. But let me tell you, if you run a good-sized yard for extracted honey you will want some help during the extracting season.

This brings me to another point. When you travel over the country I think sometimes you go too fast. You would do better to take more time. When you got to Platteville you put up at the hotel, and came to our place after church time, Sunday. I told you then that you deserved a whipping for not coming out the night be-

fore. Well, it was Sunday, and I did not feel at liberty to talk bees to you. I expected you would stay over on Monday. My wife took you off to church Sunday evening, and Newell took you to the powder-mills Sunday afternoon, and the train left at 9 A. M., and away you went, so I had but very little time to talk with you. There were very many things I wanted to talk about, and some things I wanted to show you. I expected to take you out to some of our out-yards. We could make three yards in half a day, and talk over bee matters on the road. It costs considerably to get to a place; and when you are there, why not stay long enough to do some good?

Platteville, Wis., Dec. 17.

[Yes, I am afraid we condemned the sealed covers too hastily; and without saying any thing about it in print, I decided we would give the matter another test this winter, though perhaps not on quite so large a scale as before. One half of our colonies at the out-yard are under sealed covers, and the other half under absorbing cushions.]

I know I appeared to be in a hurry while I was at your place; but the fact is, I hurried at all the places—one reason for this being that I had a good many calls to make, and limited time; and another reason was, I feared in some cases I might be a "bore;" but since I have come away and read your last two articles I see that I missed it in not *taking* more time. But after all, our general readers would not have gotten the information regarding the methods of management so fully and accurately as from your pen; but at all events, next time I come I will go straight to the France home and stay till you get tired of me; so, look out.—Ed.]

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### LARGE VS. SMALL HIVES.

REASONS WHY THE TEN FRAME IS BETTER  
THAN THE EIGHT.

By S. C. Corwin.

*Friend Root:*—I conclude, by reading Mr. Gill's article, which you indorse, that he runs his apiary for extracted honey. It may sound strange, but my experience is that an eight-frame hive is better for extracted than for comb honey, and for this locality it is not good for either kind. I should like to know whether Mr. Gill ever tried his eight-frame hives four stories. I have; and to lift that fourth story is much harder than lifting a third ten-frame story, because it is a lift at arms' length. My hives are on stands eight inches, and it puts a fourth story above good lifting position. Mr. Gill also says, and it's my experience, that, after filling six or seven frames, they *prefer* to occupy two frames above; and if allowed, they will do so; and, as I said in my former article, it gives us ten or eleven frames of brood, and we are obliged to go into the brood-chamber to get this honey which is in the other five or six frames, or leave it through the season, cutting our brood-nest to the size of a ten-frame hive, or any mat near it. This is about the way eight and ten

frame hives have worked for me this past season. The ten-frame brood-chamber gave me about nine frames of brood, with two extracting-supers, each having nine frames working the same as for comb honey, raising the partly filled one and placing the empty combs between the upper and lower stories. This gave me strong colonies with plenty of room, and very little swarming. The eight-frame hives were run two stories for brood-chamber, and gave from ten to eleven, and in a few cases as many as twelve, frames of brood. Two stories were run for surplus, each having seven frames, giving fourteen frames, or four frames less than the ten-frame hive; and as they had more brood they gave rousing big colonies, but also gave me more swarms. Had I gone below and extracted, the result might have been different; but I do not go into the brood-nest after the surplus season opens. Again, I use the large size Daisy wheelbarrow for running my combs to the extracting-room. It takes two ten-frame bodies crosswise and one lengthwise on top of the two, and hard against the head of the barrow, putting most of the load near the wheel, carrying 27 combs at a load. With the eight-frame body I can carry only the same number of bodies holding 21 extracting-combs, or a difference of six combs, or more than 35 pounds of honey at each load less with eight-frame than with ten-frame bodies. You will say, carry four eight-frame bodies crosswise. The slant of the wheelbarrow head lets the square-edge body slide forward and push up the frames; and a bevel edge, not having any thing to hold it, is apt to tip over, and then the two stories so near the hands makes too much of a load.

Mr. Gill wants us to do without dummies and one-story in harvest while he *tiers up* to show us the superiority of the eight-frame hive. Let us take the eight and ten frame, use them to the best of our ability to secure large crops, and I think you will find the ten-frame hive ahead. This has been my experience, and my order this fall calls for ten-frame Dovetailed hives.

Sarasota, Fla., Nov. 23.

[As I read over your article I could not help seeing the point you make; but somehow the thought kept coming into my mind, Would not the 12-frame be better than the ten-frame? That is, the same arguments apply very largely in the case of the 12 over the 10 as in the case of the 10 over the 8. But the 12 is away off from the standard. The thought came to me again, Is not the 16-frame hive better than the 12 frame? if so, then the two 8's, rather than one large 16, should have the preference, so that we can adapt the colony to the *season* and to the *locality*. Regarding this, in the last *American Apiculturist* Mr. Henry Alley gets in a good deal of truth something after this fashion:—

Ed.]

How will the big bee-men settle the question as to whether an eight-frame or a ten-frame hive gives the better results? In GLEANINGS for November 15, two experienced bee keepers give their experience with hives having eight and ten frames. One of the



above parties says the eight-frame hives gave the best results, while the other man says his colonies in the ten-frame hives did the best.

This is exactly as it always will be. In some cases ten frames will be found best, while in other cases the eight-frame hive will do equally well, if not better. The question of the right number of frames to use must be decided by each bee-keeper for himself.

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### SHORT VS. LONG LANGSTROTH FRAMES.

WHY THE FORMER ARE PREFERRED: THE DISCUSSION OF LONG AND SHORT FRAMES, AND OF THE LANGSTROTH IN PARTICULAR.

*By John Craycraft.*

The discussion for and against the eight-frame hive has been read carefully, and I should be pleased to give my experience.

About 15 years ago I used the ten-frame Langstroth hive in Indiana. I then became convinced that it was not the best for economy. I changed part of my frames so as to hang crosswise in the ten-frame hive—that is, I made the frame  $9\frac{1}{8} \times 13\frac{3}{8}$  inches—what is commonly called now the short Langstroth frame. I then found I could winter bees better on the short frame, for the simple reason that the bees could form themselves into a more compact body than they possibly could on the long frames during the long cold winter. Then, again, in the spring, when breeding commenced, they could and did breed up with more rapidity than I could possibly get hives with the long frames which were sitting beside the ones with the short frames. This all came from the more square and compact form the bees could form themselves into, which was not possible for them to do on the long frames early in the season, when ordinarily there are not more than enough bees to cover five Langstroth frames.

This is where I found that there was economy in the short frame and a smaller hive, and for spring increase. It is a self-evident fact, that a more uniform temperature can be maintained by the same quantity of bees on ten short frames in a square hive than the same bees can on eight long frames whose space is about the same in comb and cubic contents. I kept this test there for three years, and then I sold out and came to Florida in the fall of 1883. I then started with a few colonies all on the short frames, with square hives,  $14\frac{1}{4} \times 14\frac{1}{4}$  in., same depth as the regular Langstroth hive and frame, keeping about 20 colonies until this season, when I increased my stock up to 110 colonies, all on short frames, 10 of them in the brood-chamber, which is made with a tight bottom. All have tin roofs raised two inches above the frames. In the spring I start them up seven weeks before the usual time of orange-bloom, so that, by that time, I have the brood-chamber full, and usually one story above full of brood in various stages. I give queens full play to the top as long as I want

honey-gatherers reared; then I shut the queen below to the brood-chamber with zinc excluders, and add more stories, if needed, by raising the ones up and placing an empty story next to the brood-chamber, filled with comb foundation usually, but I have found that starters are about as good, except there is some more danger of drone comb being built. By thus tiering up, and letting all honey be sealed up, I can get good honey, well ripened in the hive, and keep my bees busy all the time, by thus keeping space vacant near the brood and queen.

I see there are some doubts and failures about getting queens to go up into the story above. I have very little trouble; for when a brood-chamber is becoming crowded I remove two frames of sealed hatching brood from below, placing combs in their place below, putting these two frames of brood in the center, and filling in combs on each side. I then scarcely ever fail to get the queen up there, and I have had them up in the fourth story the past season.

Thus by proper management with the small square hive with the short frame, I have a small compact hive when most needed, and a large one when most needed also, besides using the surplus heat to ripen and cure my honey on the hive, with no loss of bee labor.

With this square hive and short frame I have all the advantages for comb honey that can be obtained in any long-frame hive; with half-stories I can work them with and on the same hive for both comb and extracted. If I wish to work a hive for comb I raise up the story above the brood and place a half-story next to brood, placing the full-story on it. I let the half-story of sections remain below until nearly ready to commence sealing them. I remove to the top or remove the story above, and place another half-story under the one being sealed. I can get comb honey in this way, and also extracted; but there must be no extracting done at this time, or no comb honey will be obtained. This is plain to all comb-honey producers.

I have another claim of economy in the small square short-frame hive; and that is in material. It takes less lumber to form a square of the same cubic contents than the long hive; less roof for same volume covered, and less bottom. All this you can figure for yourself. It is plain to be seen that you have less ground floor in a four-story house of four rooms, and less roof, than if the four rooms were in only two stories.

I should be pleased to call your attention to the following, and then I am done:

In the *American Bee Journal* of Nov. 15, page 625, E. L. Holden says, "I, in 1858, bought of Rev. L. L. Langstroth the right to use his hive, for which I paid him \$5.00. At the same time I bought two hives, both of which I still have, and have just taken the trouble to measure them. The inside measurement of the hive

is  $18\frac{3}{8}$  inches one way and  $15\frac{3}{4}$  the other, and  $10\frac{1}{2}$  deep. The frames are, inside measurement,  $12\frac{1}{4}$  and  $10\frac{1}{2}$  inches. This is the common hive; the other is his observatory hive of two or more stories. The frames are of the same length, but the depth is only  $8\frac{1}{4}$  inches. These frames are the very ones I bought of father Langstroth 36 years ago, and, of course, are the correct size of the Langstroth frames."

Now, if this octogenarian is correct, were not the frames the size of the short Langstroth frame? Were not the frames set across the hive and across the entrance? Who is correct? Is there not hope of a standard frame?

Will not some friend call on father Langstroth and read this statement of friend Holden's and learn for a certainty from his lips the truth? and if not that, the true and original Langstroth frame was not  $12\frac{1}{4} \times 8\frac{1}{4}$ , inside measurement; so that we who advocate a short frame are within the pale of truth when we claim, at least in part, to be followers of father Langstroth when we use and advise a shorter frame, and a square hive for reason of its economy.

Astor Park, Fla., Dec. 10.

[Years ago the short Langstroth frame was tested quite extensively by a large number of bee-keepers, ourselves included; and the only advantage we could discover was that they were a little lighter to manipulate and better for queen-rearing than the long frame, the two short frames making a small and more compact cluster for the nucleus. But we, like everybody else, discovered that there were just so many more frames to handle for the same capacity, and, with a very few exceptions, they were discarded for the long frame adopted by father Langstroth years ago. I have sometimes thought myself, that, if the crosswise Langstroth had been made an inch or so deeper, and adopted as a standard by Langstroth, instead of the frame now accepted as such, perhaps it might have been better. But after all, reports seem to show that colonies on the short frames winter no better and produce no more honey. The Langstroth utilizes to the very best advantage the standard width of barn-boards in the hives; whereas in the deep-frame hives very wide lumber must be used, or one or more pieces fitted together. This makes the hive either expensive, owing to the wide boards, or if of narrow boards, to a greater or less extent a patched-up hive, with unsightly cracks that will surely gap sooner or later. Taking every thing into consideration, while the Langstroth standard seems to give just as good results, both for wintering and for honey, it surely does give more surplus room on top—a very important desideratum, by the way.—ED.]

### ECONOMY IN THE PRODUCTION OF HONEY AS A STAPLE ARTICLE.

BEE-KEEPING IN CUBA, IN A NUTSHELL; RESOURCES GREAT, BUT PRICES LOW.

By Fred L. Craycraft.

In order to correct the impressions of some of the readers of GLEANINGS who seem to think this is the "El Dorado" of the bee-keeper, and

that fortunes are to be picked up in a few months, I will give a few facts in regard to the outlook.

During the season of 1891 and '92, buyers paid from 45 to 50 cts. per gallon; in 1892 and '93, from 40 to 45 cts. The season of 1893 and '94 opened at 38; later on, dropping to 35, and during the summer of 1894 prices dropped down to 20 cts. per gallon; and now with new honey coming in, dealers are offering from 24 to 26 cts. per gallon, without package; but before the end of the season prices may go up to 30, or they may go down to 20 cts.; and with sugar at  $1\frac{1}{2}$  cts. per lb., and other staple products correspondingly low, and all manufactured goods exceedingly high (Spain having bestowed with an unstinted and generous hand the blessings (?) of a high tariff protection upon this beautiful but unfortunate country), it can be very easily seen that the prospects are any thing but flattering, and the only solution of the problem is by producing honey on a large scale, and economically enough to make it a safe investment.

There are certain conditions here which make it peculiarly adapted to producing honey at a small cost. There being sufficient flowers here to sustain from 200 to 500 colonies at one location, the certainty of the honey-flow, and the small amount of work required to keep the bees in condition, are factors which must be considered in counting the cost of production.

With a modern four or six frame extractor, a lively man who knows his business can throw out a large amount of honey in a day; and where there are a large number of colonies in one place the bees do not get enough honey during the spring and summer to encourage swarming to any extent; and during the "campanilla" honey-flow the bees are never strong enough to swarm; therefore it can be seen that the swarming question can be eliminated.

In order that the readers of GLEANINGS may see the rapidity with which extracting can be done by having the apiary arranged in a convenient manner, I will give a short description of the *modus operandi* in use here.

The sheds for the apiary are 13 feet wide, with a row of hives set on each side, the entrances facing out, and the hives set close up together, there being only about half an inch space between the hives, in order that the supers may be lifted off easily without being wedged in between the hives at the sides. In this manner the hives form a solid wall on each side, making it darker inside, and very few bees enter to bother a person when opening the hives, and it is also a protection in case of robbing, as the robbers do not like to enter the shed; and after buzzing around the entrance a while they will become discouraged and leave. When extracting, a man can fill his comb-cart at one place, saving both time and steps.

Taking into consideration the length of the



honey season, and having all the rest of the year to requeen, I think a man can manage seven or eight hundred colonies by having an assistant during extracting time.

San Jose de las Lajas, Cuba, Dec. 21.

[I think our readers, at least those of latter days, would like to see a photo of one of those bee-sheds to which you refer; then tell us *why* you have it, etc.—Extracted honey at 26c per gallon is about 2½c per lb. Well, if one man can with a little assistance take care of 800 colonies, perhaps he could make a little margin on even this ridiculously low price.—Ed.]

### RAMBLE 124.

#### BEULAH LAND.

*By Rambler.*

We learned that bee-keeping was not neglected in the old historical county of Monterey. I had on my list of correspondents a few, but they were away from our line of travel, and circumstances did not favor our going into the byways of the county. I believe, however, that the county as a whole is not a first-class honey-producer, and may rank with its sister county of San Luis Obispo, on the south, as having only a few and far-between favored localities.

I found some quite nice comb honey in one-pound sections in a Salinas grocery, and learned that it came from an apiary near the Salinas River, some six miles away. It proved that a progressive bee-keeper was laboring there with some degree of success.

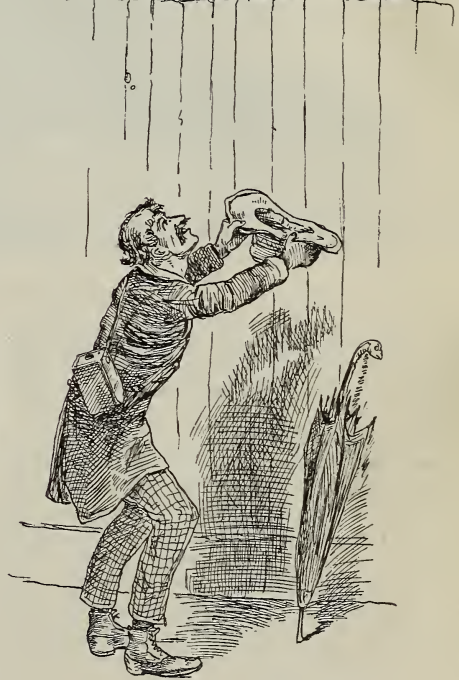
After a day's rest in Salinas the ponies were called into duty again, and we circled the Bay of Monterey for many miles, and camped on the sands of the shore where again the thunder of the waves lulled us to sleep. Our neighbors in this camp were industrious fishermen in their humble hut, from whom we obtained a supply for our evening and morning meals.

We this day, July 27, added another county to the growing list we had passed through, and entered Santa Cruz (Holy Cross). We found here a dividing line of hills, not of an arduous nature to climb, but when we had climbed to the crest and looked out upon the scene beyond we were both inclined to shout "Beulah Land!" For weeks we had witnessed dry and barren plains and hillsides; but here was a valley of freshness and beauty where the fields were green, the mountains beyond covered with a wooded growth from summit to base. The transition was so sudden that the following verse came to mind:

A sweet perfume upon the breeze  
Is borne from ever-vernal trees;  
And flowers that, n'er fading, grow,  
Where streams of life for ever flow.

The town of Watsonville was nestling like a gem in the midst of the sea of green, and the people we met had a buoyant air about them which was also in sharp contrast to the dejected air that pervaded the agricultural regions

subject to drouth. We had anticipated finding fruits in abundance as we toiled northward, and here our expectations were realized. Fruits of all varieties were plentiful and cheap. Apple-orchards abounded; apples in profusion



PSHAW, WILDER! THAT'S MEAN.

on trees, in profusion on the ground. I had not seen the like of it since I left the far East. An early and opportune rain had given vegetation here a boost that made nature and people happy. Bro. Wilder looked far and near over garden-walls in hopes to see an extra early watermelon; but the festive melon had not put in an appearance, and he had to content himself with a few fresh apricots, apples, etc. We saw the busy bee at work upon the various blossoms, but did not hunt up the owner. I have not learned whether the valley is of much value for honey production; but from a passing observation I should think bees would do fairly well there. That the home market is not supplied by local producers was evidenced by the groceries having on sale the decoctions called "honey," from San Francisco wholesale houses—the usual glass jar, with fancy label and a piece of comb in liquid, supposed to be honey.



WORN CLIFFS AT SANTA CRUZ.

Had there been an enterprising bee-keeper near Watsonville it is evident that this foreign substance would have been crowded off from the market.

From Watsonville to the city of Santa Cruz we found many fine ranches, the owners having so much pride in them that the names were posted conspicuously upon fancifully decorated signs: thus, Sylvan Dell, Glen Echo, Aptos Ranch, and many others were passed. The Aptos Ranch comprised many hundred acres, with a deer-park, blooded horses, and every thing that betokened the wealth and taste of the owner, who, we learned, was C. Spreckles, one of the sugar-kings.

It was in this region we also saw our first specimens of the noble redwood trees. There is a little belt of them here, and they are truly majestic.

By a little extra pushing on the lines we made Santa Cruz just before the shades of evening fell. Our inquiries for a camping-place revealed that there were several such locations. For a quiet place to spend Sunday we were directed to the old fruit-dryer locality. In following up the directions we approached a large building, and surmised it to be the dryer. Several well-dressed people were coming from it, and inquiry elicited the information that it was not a dryer at all, but a tabernacle of the Christian Church, in which there was at the time a State Association being held. We felt that to be just the place to spend Sunday, and accordingly camped in the grove of gum-trees with the rest of the disciples. It was a pleasure to again attend services of this nature,

after quite an absence of several weeks from it. The good brethren were very zealous in their views, and one aged minister came in Sunday morning from a town twenty miles out, and arrived before some of the good people in the tents were up.

In the afternoon we strolled into the city. Santa Cruz is quite a pretentious town, of about 5000 population, and its chief industry seems to be gazing at the ocean, and bathing; or, in other words, it is a great resort for pleasure-seekers. Bathing-houses line the shore, and beyond the bathing-beach are the chalky cliffs which the restless waves have for centuries been wearing away, until caves, tunnels, and many curious formations are the result. The breakers dashing through these formations occasionally throw the spray high in the air. Our walk to town was along the cliffs, and our walk and talk was enlivened by witnessing the antics of the dashing waves.

Santa Cruz had just been enjoying its annual "fiesta." This Sunday was the last day of the celebration. The attractions of the day were feats of horsemanship, shooting of glass balls by Texas Jack, riding bucking bronchos, and a bullfight. The above sports were held in a large inclosure, and we deemed it our sacred duty to stay outside. The bullfights are more or less of a sham outside of a wholly Spanish community, and we afterward learned that this was also a sham, or a trick to draw a crowd.

A quiet crowd was gathered upon the beach, the foreign and Spanish element largely prevailing. Thus we had on this Sunday in Santa Cruz a diversity of attractions that ought to



suit the most ardent sight-seeker, and happiness ought to (and seemingly did) prevail.

### DISCOURAGEMENTS.

By J. D. Fooshe.

*Friend Root:*—I believe that, as bee-keepers, we should report discouragements and losses as well as successes. I know to report loss is not nearly so pleasant as to report success in our business. It has been said, and truly it looks as if it were true, that misfortunes never come single. I will come forward as a bee-keeper who has been reasonably successful in the business for about 18 years; but I must say that this year has been the most disastrous that we have had during the whole of the 18 years; and not only in the bee business, but nearly all other industries failed to the extent that what we made as money, crops sold, and is being sold, fell below the cost of production. The March freeze that caused such widespread destruction showed itself in the harvesting of our grain crops. The wet summer we had told seriously on the cotton crop, which is our money crop; and, to cap the climax, cotton fell in price to 5 cts., and at times below that. This is unprecedented in the knowledge of this generation, since the war, and it is needless to say that all classes are feeling the depression from low-priced cotton. I am not disposed to complain, for an all-wise Providence can overrule all these disasters and disappointments for our good; but, really, the situation is certainly gloomy to begin to farm for another year, to raise cotton at 5 cts., which is the main money crop for the South.

As to my bees, they are in excellent condition for the winter, having stored plenty of honey to carry them through to spring in excellent condition. Had I not fed my bees after the March freeze, I should have lost at least  $\frac{3}{4}$  of them, as most people here who had bees lost in that proportion. I shall try to set out another year, trusting that we shall have better success than this in all departments of business. My bees, upon the whole, gave about as good results from the outlay as any thing else that I engaged in.

I mention these facts to show that, while we may be sanguine and prosperous in various departments or enterprises, we do meet with failures occasionally, but no more nor oftener in the bee business than elsewhere. I set a large lot of cabbage-plants last spring, which were all killed, and had to contract for 2000 lbs. seven-top-turnip seed, which was all killed. I now have a contract for 4000 lbs. of seven-top-turnip seed, and can sell thousands of early-cabbage plants if I get orders for them; but it seems, of late years, that all or nearly all our success depended upon getting safely through March.

Coronaca, S. C., Dec. 1.

### CHAT ON EUROPEAN MATTERS.—NO. 4.

By Charles Norman.

A correspondent writes that, in September, at a time when the bees were killing the drones, he heard tones that came out of several hives, and these tones he took to be the piping of queens. In one hive the tone was so strong that he heard it at a distance of ten feet. He opened the latter hive, but found nothing unusual. He thinks the sounds were produced by drones "molested by the bees," for "at this time they sometimes make a noise that is not dissimilar to the piping of queens."

Mr. Doolittle's excellent article on the prevention of robbing, in GLEANINGS for Mar. 1, page 191, was duly appreciated, for Mr. Bertrand has translated and published it in full for the benefit of his readers.

To find out to which hive the robber-bees belong, we are often told to sprinkle them with flour, etc. Instead of doing this a correspondent puts at the entrance of the hive, all along and very near the entrance, a strip of flour, so that the bees which leave the hive are obliged to whiten themselves in this flour in passing.

The present low price of honey is a source of great anxiety and complaint to the French and Swiss bee-keepers. There are numerous complaints to be found like this: "At this time the great effort of the apiculturist needs not to be directed any longer toward the increase of his crop (as to this, enough directions are given to us), but much rather how to dispose of it;" and in this direction these French-speaking apiculturists display a vim and energy which beat Mr. Dadant's "dreadful Yankees" all to pieces. At their frequent exhibitions (more frequent than in our country) they not only present their finest honey in the most attractive form, but they combine with them a regular honey-market where many visitors who would not buy otherwise are induced and persuaded to purchase, with the expectation of creating a demand on the part of the public for good pure honey. Moreover, they try all kinds of ways of transforming honey into eatable or drinkable things. They make vinegar, hydromel, brandy, and liquors of it: use it for the manufacture of chocolate and bonbons: give directions for making apothecaries' syrups, etc. As the temperance movement is known there by name only, and they are not yet up to an understanding of its noble principle at all, both laity and clergy take a deep interest in the production of the above "drinks;" and not seldom one hits upon articles written by Protestant ministers as well as Catholic priests, in which recipes for making these stuffs are given, and the urgent necessity of creating a market for their sale is set forth with genuine zeal. Allow me to cite just one instance, to illustrate the blindness with which my continental countrymen (I am a German with a little admixture of French blood) are



stricken. In a speech delivered by a noted French apiculturist we find the following: "If, regarding the food substances, our age has a well-characterized taste, it is certainly the one for alcohol and alcoholic beverages. They have been used and abused to such an extent that the general health is already affected by it; and from the chair of the hygienists as well as from the laboratories of the analysts, competent authorities announce a slow but continual degeneration of our race." Now, any logically inclined mind should, from such a premise, it seems to me, draw the inference that we had better abstain totally from the use of alcoholic beverages. Not so our orator. He distinguishes between the drinks which have hitherto been consumed and "the vinous beverages, as well as the delicately flavored and healthful alcohol that can be produced from honey," and then he goes on to tell how these are made!

How the French and Swiss apiculturists cure foul brood by means of formic acid or eucalyptus tincture, etc., I have already described—see page 788, 1894. I still remark, that, that in order to *prevent* foul brood, many of them place naphthalene under and about the frames.

Mr. A. I. Root, in his A B C, has some kind words for the ants, and says that, so far as *his* experience goes, they were never any considerable bother to his colonies. A certain Swiss bee-keeper met with quite a different experience. One day he noticed an extraordinary excitement about the entrance of a hive. When looking after the thing he observed that quite a number of ants were attacking the bees about the entrance, biting their legs, wings, and bodies. The bees, being unable to get rid of their enemies, either flew off, carrying them along, or dropped down to the ground from the alighting-board, to die there. Boiling water, applied to the ants and to their nest, restored peace.

There is an instance reported of a mule which fell victim to bees. It was tied to a tree, near an apiary. Unluckily for it, the stand under a hive broke down at this very time, and the hive was upset. The bees threw themselves upon the mule, and treated it in such a manner that it was dead before it could be led to the stable. Every thing, however, has two sides, and the report concludes with the words, "The master consoles himself, because it had become quite vicious."

The laws of a certain bee-keepers' association contained the following article: "Meetings shall not take place on Sundays." For some reason or other this section was repealed, and only one man found fault with it, and withdrew. How different the customs of different peoples are!

In conclusion, let Mr. Gubler, a prominent bee-keeper of the canton of Neuchatel, relate what came to pass at one of his apiaries:

"Last year a lover of sweets tried to help himself from one of our hives. But he came off

badly for that. Probably being a novice in the art of robbing a colony, he directed his efforts toward the very worst of our Cyprians, and selected a frame from the center of the hive at that! Finding, no doubt, more stings than honey, he was obliged to abandon his prey and run away in a hurry. We found the frame lying at the side of the hive, with a cupful of frozen bees. Fortunately the queen had remained with the colony, which has not suffered much by this nocturnal attack."

St. Petersburg, Fla.

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### THE EUCALYPTI, OR GUM-TREES.

PROF. COOK DIRECTOR OF FARMERS' INSTITUTES FOR SOUTHERN CALIFORNIA.

By Prof. A. J. Cook.

*Dear Editor of Gleanings:*—You remember the blue-gums and less common red-gums of Southern California, which are, next to the beautiful peppers, the most conspicuous and vigorous shade-trees of this region. The species of eucalypti are desirable here, for they become large trees in a very brief period (four or five years), and go down to water, so that they are independent of irrigation. There are about one hundred species, many of which are exceedingly beautiful, and so this tree is of no mean importance to the people of this sunset land. Like the acacia, there are many kinds, as rich in their beauty as in their variety, and some, at least, are very valuable as honey-trees.

Last week, while conducting a farmers' institute at the wonderfully beautiful city of Redlands, I was entertained by Mr. A. K. Smiley, who, with his brother, owns "Smiley Heights." This place is a marvelously beautiful illustration of what can be accomplished by the art of the skilled landscape-gardener. About eighty species of eucalypti help to form these wondrously varied pictures that charm every one who visits "Smiley Heights."

I have been surprised, the past two months, to find how much honey my bees have gathered every bright warm day in October, November, and December, and they are many. The bees have been busy, and have not a little honey. Upon examination I find the chief source of the nectar is a winter-blooming eucalyptus, which Prof. McClotchie, one of our best California botanists, tells me is *Eucalyptus longifolia*. The bark of this tree is smooth, and so it is a much pleasanter tree for roadside planting than is the common blue-gum, or *Eucalyptus globulus*. The constant peeling of the bark of the latter, which is the most common eucalyptus yet planted in California, makes it untidy, and, in so far, undesirable for roadside planting. The *Eucalyptus longifolia* has long leaves, which doubtless gives it its name. Indeed, the leaves

are much the form of leaves of mature trees of *Eucalyptus globulus*. You remember the peculiar leaf habit of the blue-gum. The early leaves are oval and bluish; while later, as the tree becomes older and larger, the very long green leaves replace the earlier and more curious leaves. This *E. longifolia* has very showy and beautiful flowers. They are creamy white, and the long numerous stamens are very conspicuous. A curious conical cap also falls off the bud as it opens, which adds to the interest of this honey eucalyptus. The fruit is also conical, or top-shaped, and so is attractive after the flowers fade. The tree, like nearly all California trees, is long in bloom. It had been blooming since October, and is certainly good for three weeks yet. That it is a rapid grower is shown in the fact that a two-year-old tree is seventeen feet high. It is very desirable that our bees be able to secure honey during the winter months, and so I wish to urge upon California bee-keepers the wisdom of setting or planting this *Eucalyptus longifolia* as we would the basswood in the East. It is most desirable for roadside planting for other reasons, and must become a valuable acquisition to our bee-keepers. As yet it is a rare tree. Mr. L. L. Pond, of Riverside, writes me that it is very rare there. I find only a few about here, and I have noticed scattering trees at Pasadena and a few at "Smiley Heights."

Another eucalyptus, probably *E. rostrata*, is said by Mr. Pond to be very fatal to bees. It blooms earlier in the season, and Mr. Pond says he has taken gallons of dead bees from beneath the blooming trees. He says a neighbor who has an irrigating-flume beneath the blooming trees has had the holes so stopped up by dead bees that it interfered very much with his work of irrigating. This is very interesting, and I shall give it personal attention next season. It would seem that *E. rostrata* might well be superseded by *E. longifolia*.

There are various reports about the insecticidal properties of the eucalypti. It is reported that the blue-gum keeps the mosquitoes away, and is deadly to many microbes; and a merchant of Los Angeles reports, so I learn from Mr. Abbot Kinney, our best authority on these trees, that the foliage placed among clothing is an effective preventive of moth ravages.

I have been appointed by the University of California as Director of Farmers' Institutes of Southern California. This is exactly the soil for grand meetings. There is so much of ability and culture among the ranchers that the papers are very able, the discussions very free and sprightly, and the attendance and interest are remarkable. I speak at each institute of the value of bees in horticulture, and receive a very hearty response to my propositions.

Claremont, Cal., Dec. 27.

[We, as bee-keepers, will rejoice over the appointment of Prof. Cook as Director of Farm-

ers' Institutes; for that means that the bees will receive a fair share of recognition, and Prof. Cook of all men in a public meeting seems to have a happy faculty of breaking down antagonism against our pets, and of creating an interest in their behalf.—Ed.]

### MICE IN BEE-CELLARS.

THE DAMAGE THEY DO; HOW TO POISON THEM.

By C. Davenport.

Mice in bee-cellars do more injury than is often suspected. From a good deal of experience I know that a very few mice, if the hives are so that they can get in or at them, will often ruin a good many colonies. When I built my two outside bee-cellars, six years ago, I tried, and thought I had made them mice-proof; but they soon got in. Bees seem to draw and attract mice, and it is pretty hard to keep the vermin out of a bee-cellar. Of course, it can be done; but I will venture the assertion that they can get into 29 out of 30 bee-cellars as they average. Wire screen can be used to keep them out of the hives; but this is a poor plan, for bees that are confined are apt to become restless and excited. Wire netting is used that will not confine the bees but exclude the mice. This is considerable work and expense; and, besides, if the hives are so that the mice can reach them they will gnaw and scratch, trying to get in; and if they are not able to get in they will do nearly if not quite as much harm as if they did, as many bees will come out, and the mouse then helps itself to the choicest part of as many of them as it wants; and it is not only what they eat, but their gnawing excites the bees so that a good many of them leave the hives, and die around in the cellar; and I think this is often attributed to other than the real cause. If this is kept up for three or four months it is apt to cause poor *luck* in wintering.

The hives in both of my cellars are fixed so that mice can not reach them. This can be done without much work or expense. My hives are set in tiers. The lower tiers are supported about a foot, or a little more, up from the cellar bottom. I would have them like this, mice or no mice. I know that in my cellars, and I think in all cellars, it is better to have the lower tiers up from the cellar bottom; but in cellars that have tight board or cemented floors this may not make any difference. Neither of mine has any floor except the ground. I set the lower tiers on two pieces, 4x4. These are placed about 10 inches apart, and are held up by driving a stake into the cellar bottom at the end of each; and if the 4x4's are long, and the hives are piled pretty high, it will be better to have a stake under the center of each 4x4. I nail two or three narrow pieces of boards, across on the under side of the 4x4, to keep them from spreading. On the top of each stake



I place a piece of tin, about 8 inches square. These tins can be held in place by driving a nail through the center of each into the stake; but this is not necessary; for, after the 4x4 are placed on top of them, they will stay all right. If the whole is a little away from the walls this will keep mice from getting at the hives, as a mouse can not walk bottom side up on a piece of tin. Old pieces of sheet iron or zinc would answer for this as well as tin.

I will now give those of you who have your bees in the cellar so that mice can get at them a plan by which you can get rid of them without their doing much if any harm to the bees. You will need three or four old saucers. Tin covers, or any small dishes that are not of much account for any thing else, will answer for this purpose. In one put some cheese that is mashed up fine; in another put some fresh lean pork that is chopped up fine; and if beef is handy, put some of that in with the pork. In the other, put some honey; and if you have both dark and light, it would be well to give them a dish of each kind. Try to suit the taste of all. Season the contents of each dish with arsenic well mixed in; and if these dishes are set around in the bee-cellar, and the contents renewed every two or three weeks, mice will not damage the bees much. It does not cost very much to feed them this way, as one meal is all each one cares for; and if any of you do not care to kill them, it is far cheaper to feed them in this way without the arsenic than to let them help themselves in the hives all winter.

Some of you will probably think it is not necessary to give them such a variety; but in order to have them let the hives alone, I assure you that it is.

Now, probably some of you will also think that I have exaggerated the damage mice do; but I will again assure you that I have not; and in this locality, at least, they are often the cause of heavy winter losses.

Southern, Minn., Dec. 3.

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### FIVE-BANDED BEES.

BEEs FOR BUSINESS: A FEW POINTS WELL MADE.

By J. J. Hardy.

They are very pretty to look at, but every experienced bee-keeper and stock-raiser knows that the fewer points of excellence you strive to attain in breeding bees, horses, cattle, or any thing else, the nearer you can breed up to your ideal of perfection; and not only so, but every added point is detrimental to the others. The *prettiest* bees that I ever saw were those that came in so heavily loaded that they would fall and roll over each other in front of the hive. The prime essential in a honey-bee is its honey-gathering qualities; therefore I breed first for

the best honey-gatherers; then after they have stored the sweet nectar I like to have a divide without bringing on a regular pitched battle. Give me the best honey-gatherers that are good-tempered, and I will be satisfied. Every one must admit that these are the essential traits of a good honey-bee; and whenever you attempt to breed in an additional trait you must do it at the expense of one or both of these.

### BEE-SPACE.

After trying different distances, from one-fourth of an inch to three-eighths, I settled down on one-fourth of an inch as the correct bee-space. I use double-top-bar brood-frames; and where all the spaces between top-bars, frames, and supers are  $\frac{1}{4}$  inch, I have neither brace nor burr combs.

### RAISING QUEENS IN FULL COLONY.

I have tried raising queens in the same colony with another queen by placing the old queen on four or five brood-frames behind the division-board, with queen-excluder, without any chance of exit from the hive. The entrances to these hives were on the side. They built queen-cells readily, and raised queens. But the queens, instead of going out to mate with the drones, seemed to have a mania for killing the old queens, which they did, in many instances, going through a double set of excluders on the division-board, to reach them. But they could not, or did not, get back to go out to mate, and soon disappeared. And the others, too, disappeared in a short time without even laying any eggs. I lost a good many bees by this experiment, but I learned that it is best in bee-keeping, as well as other things, to experiment always on a small scale. I used a single-story hive for these experiments.

Lavonia, Ga.

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### BEE-PARALYSIS.

REASONS FOR THINKING IT IS NOT CONTAGIOUS.

By S. A. Shuck.

*Editor Gleanings*:—I have just read Mr. T. S. Ford's article, page 871, on the above subject. In speaking of bee-paralysis Mr. Ford says, "Beyond all doubt it is infectious." And in your footnote you state that it is "positively settled now that the queen can and does transmit the disease."

While the circumstances in Mr. Ford's apiary are such as to cause him to decide so positively, yet there are so many contingencies in matters of this kind that there is much room for error in judgment. If the disease is infectious, why is it that a severe case of it does not infect a part or the whole of my apiary? Yes, if it is infectious why is it that a sudden flow of nectar causes it to disappear altogether, as in Mr. J. P. Israel's case?

While I have noticed a few of these paralytic bees in a portion of my colonies nearly every



every year since obtaining my first Italians, in 1878, there have been but few cases of sufficient severity to require special attention. In the winter of 1882 I had 52 colonies in a temporary cellar, made expressly for wintering the bees. Two of the strongest of these colonies became restless early in the winter, and continued so until set out in the spring, at which time both of them were affected with paralysis. As the spring advanced, the disease grew worse; so that, when the flowers began to yield nectar, they were only about half the strength of average colonies. But at this time they began to recover, and the disease soon disappeared.

The winter of 1884 being very severe, I lost most of my bees; and, having no better place to put the hives and combs from dead colonies, they were stacked up in the yard, and closed up to keep out robbers and moths. After the weather had become quite warm, I discovered that what I considered my best colony was robbing from the combs from dead colonies. This colony persisted in robbing these combs until I had them occupied with other bees. During this time they became affected with paralysis, and began to dwindle away. I removed their queen and gave them another. But by the time they were compelled to turn their attention to the flowers for subsistence they were too weak to be profitable for honey-gathering. At this time they began to recover, and became a fair colony before the season closed.

In 1892 one of my most promising colonies became suddenly affected with this disease. Soon after discovering their condition I removed the queen, intending to give them another; but the bees died off so rapidly that the colony soon perished outright. A part of their combs were given to other colonies, and these were replaced with combs containing bees and brood, thus restocking the hive, and without any noticeable ill effects.

Quite a number of other cases have appeared in my apiary from time to time, but not of sufficient severity to materially affect the working strength of the colonies. If the disease were infectious, my apiary would surely have been ruined by it several years ago. As it is, my bees, so far as I can see, are as active and healthy to-day as they ever have been.

From my observations I have concluded that, in some instances, this disease is the result of a poisoned condition of the honey, and that the poisoning results from incipient fermentation—not that all honey with a slight tendency to ferment is injurious to bees, but that honey in this condition will readily absorb the poisonous effluvia from dead and decaying bees or other decaying matter in the hives. Then, too, I believe that, in many instances, the honey becomes actually sour enough to cause the disease; and I fear that this is the trouble in warm climates such as that of California and the Southern States.

It is no uncommon thing for me to find sour honey in a few hives at extracting time, except in very dry seasons. In several instances fermentation had proceeded far enough to cause great blisters in the cappings of well-sealed combs. Colonies that produce honey of this nature are the ones that have paralysis.

Here is where the many contingencies mentioned above present themselves; and a number of questions naturally arise, of which the two following are, perhaps, of most importance:

What sours the honey?

Why is the honey in one hive sour, and that in a dozen, twenty, fifty, or more, in the same apiary, and gathered at the same time, in good condition?

The answer to these questions is found in the fact that an occasional colony is found, that, for some cause, unknown, I think, to apicultural science, does not possess the ability to properly ripen their honey in average honey weather—especially if the nectar is very thin. As the temperature increases, this weakness becomes more apparent; so that, with a temperature up in the 90's, with an excessively humid atmosphere, such colonies are really worthless; and in a large apiary, at such times, several colonies may show this weakness in a less degree.

Here, I think, is the sequel to the cause of paralysis in warm climates. If the source from which the nectar is obtained is one that naturally produces an inferior quality of honey, and the ingathering is at a time when the atmospheric conditions are such as are mentioned above, a careful examination of the combs will reveal the fact that, in a large per cent of the hives, numerous minute gas-bubbles exist in the honey. If allowed to do so, the bees will seal this honey up; and, although it may be left in the hives several days or even weeks, its condition grows worse, as is shown by the gas-bubbles which become more numerous and larger; and when this honey is thrown from the combs by the extractor it presents a frothy appearance.

During the past fifteen years I have experienced two seasons that gave me considerable trouble with this kind of honey. Bees reared from food of this nature show a decided tendency to the disease in question, even here in Central Illinois; and the longer these conditions exist, the worse the disease becomes, owing to the increased deterioration of the food and the weakened condition of the nurse-bees. This condition continues until the colony perishes; or if a fresh supply of healthy food is obtained, it shows signs of recovery with the first generation of brood thereafter.

Liverpool, Ill.

[I admit that there are a good many contingencies in matters of this kind, and that there is much room for error; but it seems to me you have overlooked a very important factor—local-

ity. As I have often said, this disease has not appeared to be serious at all in the North. It is what it may do and has done in the *South* that we have been considering. I never knew it, in fact, in the colder climates, to cause any particular trouble. An occasional colony, for instance, will show that it is not in normal condition. Investigation shows that it is affected with paralysis; but it does not seem to be infectious, and, if left alone, will go off of itself; but the case does not dispose of itself so easily in the *South*. Possibly soured food has something to do with it; but note this fact: In many instances the removal of the queen effects a cure notwithstanding the bees are in the same hive, on the same combs. This one fact alone by itself, to say nothing of other corroborative evidence, seems to show that the trouble is hereditary rather than one of food; but no doubt good food, like good diet for human ills, would go far toward doing away with the difficulty.

I am very sure that the course of queen-breeders in stamping it out as soon as it appears is the right one. Now, this disease is surely, in warm climates, making serious inroads, and the only way to check it is for queen-breeders—not for their own sake, but for the sake of their customers—to stamp it out of their own yards on its first appearance. So far all of them have held up their hands, signifying their purpose to carry out this policy. As it will entail some expense in the loss of a colony, the ready response of the queen-breeders to agree to this is as generous as it is kind.—ED.]

### JAKE SMITH ON BRACE-COMBS.

HE REPORTS AN INTERESTING CONVERSATION CONCERNING THEM.

*Mr. A. I. Gleanings—dear Sir:*—Jim Short's a good-hearted fellow, but he has some queer notions. But then, a good many people's that way. One good thing about Jim, he never gets mad if you side agens't him. He was over the other day, and Zed had been readin in your paper about burr-combs. Beats all what that boy thinks of your paper. Why, he reads it through from cover to cover, and then reads the cover. Well, he was a tellin Jim how it told to get shet of 'em.

Then Jim turned to me, and, says he, "Does your bees build brace-combs?"

"Course they do," says I, "whenever they have a chants."

Then Jim luffed one of his hearty lafs, and, says he, "That's what comes o' gettin so many kinks out o' books. Now, my bees don't have any book-larnin, and they don't build any brace-combs. Not a blame comb but honey-comb. What kind o' comb is brace-comb, any-way? Do they make it just out o' beeswax or what?"

"Why," says I, "brace-combs is beeswax like any other comb, only it's the little pieces they build in between the top-bars; and when they build between the top-bars and the supers, why, that's burr-combs."

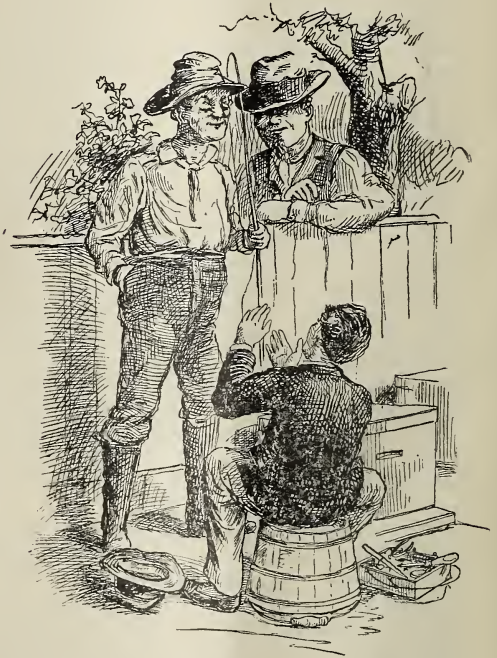
"That's it," says Jim; "you git in so many new fixins with your top-bars and supers and sitch that the bees jist has to start in some new way to keep up. Now I want to know if every-

body that has these new fixins is agreed in tryin to stop brace-combs."

"I guess they be," says I.

"No," says Zed, "not all. There's Doolittle, one of the smartest in the lot, and he says he wants his bees to have brace-combs—wants 'em for ladders to climb up on; thinks they commence work upstairs sooner."

"Now that stands to reason," says Jim; "you go to work and put on another story for them, and then you don't build no stairs for 'em to climb on, and they go to work and build ladders. Now, there's my house. You know the kitchen floor's two feet higher'n the sittin-room floor. Now, how would it work to have that two feet to climb up and down all the time with no steps? Hard on the women-folks, hey? Well, you see I jist decently put some steps there; and if I hadn't a done that you wouldn't blame



WHAT ARE THEM BURR-COMBS ANY WAY.

the women for puttin' boxes and things for them to climb up and down on, would you now? And that's jist what the bees do too. They build things to climb up on, soze they won't have to split their legs a straddlin so far."

"Say, Jim," says Zed, "how many steps is there between your kitchen and sittin-room?"

"Let's see," said Jim; "each step's about 8 inches rise, ain't it? That would make two steps 16 inch high, and then it would be 8 inch more from the top of the step to the sittin-room floor. Yes, they must be jist two steps. But what difference does it make how many steps they be? Course, they must be steps enough to



git up, no matter how high. What makes you ask, anyway?"

"Oh! nothin'," says Zed, "only I was just a thinkin' if it wasn't so high you wouldn't need so many steps. If the two floors was on a level it might be still better for the wimmen folks; and if they couldn't be exactly on a level, but only about 8 inch difference, they wouldn't need any step."

Jim hawhawed right out. "I guess you've got me, Zed," says he. "I believe in my soul you're right. Make the upper story so fur up they can't reach it, and they've got to build steps; but make 'em so close they can reach from one to the other, and they don't need any steps. You're a great one, Zed. Well, I must be a gettin' along to do my chores. But I believe Zed's about right."

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### NOTES OF BICYCLE TRAVEL.

AT CHICAGO; ON THE WORLD'S FAIR GROUND;  
DR. PEIRO.

By E. R. Root.

Before leaving Platteville, in view of the awful Wisconsin roads that I had gone over I decided to take the train for Chicago direct, and therefore left on Monday morning, and arrived in the city toward night of the same day. The following morning I took the elevator (on 57 Fifth Ave.) for the top floor of one of those sky-scrappers in which is located the office of the *American Bee Journal*. I found Bro. York busy at his post, preparing to mail the next issue of his paper. On asking me how long I would stay I told him that I was one day behind again, and I should have to go that night. He would not have it so any way. I had disappointed him once by giving him only a short call; and now that I was in his possession he intended to keep me at least over night. Resistance was useless, and I meekly acquiesced.

He proposed that we take a run over to the World's Fair Ground for an afternoon's outing, to which I readily agreed, for I was very anxious to see what was left of the most beautiful conception that ever came from the human mind. Having some business down town I told Mr. York I would meet him toward noon. The tire of my rear bicycle wheel had given out, so I stopped at the Chicago office of the Overman Wheel Co., and on their guarantee I got a new tire put on. While the wheel was in the repair shop I ran over to Mr. Newman's, at 147 South Western Ave. I found him in his office, reading the morning paper; and for an hour or more I had a very pleasant chat with the former editor of the *American Bee Journal*, and now manager of the Bee-keepers' Union. As our readers know, he had sold out the journal on account of ill health, and is now confining himself solely to the work of the Union and the sale of bee-keepers' supplies. The season had

not been an extra good one. It started out well; but the railroad strikes, whose center of operations were here, chopped it short off. His customers, fearing they could not get their goods, went elsewhere.

Physically, Mr. N. was looking much better than I expected to find him. He had had very severe sieges of the grip; but he seemed to be master of the situation.

After an hour's pleasant chat I left, to join Mr. York. In the afternoon we took a train for the great World's Fair, or what was left of it. As we neared the place I had a kind of feeling that I ought to see those beautiful buildings looming up once more. But, no; most of them are gone, and that, too, the very best. On going through the gate where we used to pay 50 cts., now open to the public, every thing seemed to have changed. The terrible demon, Fire, had done its work. Midway had turned into a residence street, where just a year ago there was bustle and hustle—indeed, a pandemonium of sights, things, and persons.

Where, oh where! were the Manufactures and Liberal Arts Building? Over yonder were some lofty towers of framework of what might have been, probably, the great building. Tons and tons of massive framework attached to other framework standing, hung dangling carelessly in the air, and seemed ready to drop any moment; and great masses of steel bars were twisted and distorted into every imaginable shape. Bridges were burned; in fact, every thing was so fearfully changed that my heart was sad in comparing the mind's-eye picture of a year ago with what I then saw. The lagoons were there, of course, but the beautiful railings were damaged, and some of the bridges were gone. The Horticultural Building, and the Illinois State, both to me of the least interest of all, were left standing, and over yonder was the Art Building, which, of course, had been put up permanently, and is now a museum.

The grounds in general seemed very much smaller now that the best and greatest of the structures were destroyed, and every thing seemed so changed that it was hard to tell where one was "at," the old landmarks having been almost completely obliterated. Here and there on the banks were gondolas, turned bottom upward, bleaching in the sun. They were of no practical use then, and nobody wanted them. The Esquimaux ponds were gone entirely save the hollow dry spots that marked their location.

Tramping about as we did over the obstructions, Mr. York was considerably tired; for, unlike myself, he was not used to long-distance traveling. We accordingly made our way as best we could over the piles of rubbish, to the Art Building. This stood in perfect condition as it appeared a year ago, and it was refreshing to look upon something that was still left of the Great Fair in a perfect state of preservation.



It is a museum now, and seemed to have a collection of a little of every thing from nearly all of the buildings of the fair. A number of pieces of statuary were still in the building, very near their old positions, and everywhere numerous other exhibits that I remembered. But in contrast with a year ago it was disappointing. Along late in the afternoon, footsore and tired (yes, I was tired too), we made our way to the station, and were soon back in Chicago. After a few minutes in the office we took the train for Englewood, a suburb of the city, where Bro. York lives. On the train we were joined by Dr. Peiro, the one who writes those interesting articles for the *American Bee Journal*, under the title of "Doctor's Hints." I wish I could show you his picture; but he is so modest that I was unable to get it. Never mind. I will get even with him somehow. Evidently he is a man who practices what he preaches, for he seems to be the picture of health; full of life and fun, it is indeed a pleasure to know him. I believe in his profession he makes a specialty of lung and throat troubles, and yet by his writings it is evident he is well up in all that pertains to his profession.

That evening, before supper, we took a look over the apiary of the *American Bee Journal*, situated in the rear of Dr. Peiro's yard. The neighbors at Bro. York's, if I remember, were afraid to have them there, and so the doctor kindly offered to "take them in." Mr. York very modestly professed to know little or nothing about bees,\* and wished me to look them over, and assume the role of *instructor*. A smoker was procured, and we proceeded to open up the hives.

"Why," said I, "Mr. York, you have got suppers on at this season of the year." (You will remember it was the first of September.) "I would take them off, for surely you do not need them now."

"But they are gathering honey *now*," said Mr. York.

"Impossible," said I.

"Indeed, they are."

On pulling off the covers, I saw sure enough that the bees were putting honey into sections.

"What in the world can they get around here, almost in the city?"

"I can not tell you," said Mr. York.

We opened two or three hives, and every one of them seemed to be busy piling in the surplus. In the mean time Dr. Peiro came out and enlivened the proceedings with his easy-flowing wit and banter. After looking over the bees, Mr. York called my attention to the lawns, as we neared Mr. York's home. I presume there were a good many acres in reach of these bees; and the constant mowing and sprinkling allowed the white clover to spring up and yield nectar *out of season*; but on sampling the honey

that evening at the table, there seemed to be something besides white clover which was certainly present. It had a beautiful minty flavor, and in my estimation—and I think perhaps in that of Mr. York—it was as fine honey as can be produced anywhere in the world. A swamp near by it evidently gave the mint taste, so pleasant. I have always considered the Colorado alfalfa, since I first tasted it, the best; but this is fully its equal.

That evening Dr. and Mrs. Peiro called upon the Yorks. Somehow or other I felt as if I were out of place, in my knickerbocker suit, dusty and dirty; but I soon forgot my external appearance in the pleasant chat that followed.

The next morning, having had a delightful sleep and good breakfast, I called at the office of the Overman Wheel Co., secured my wheel, and took the train for Toledo. The bicycle at this point was resumed; and on reaching home, 110 miles was made in 9 hours. Thus ends my long trip on the bicycle to the Mississippi, through Michigan.



#### MRS. HARRISON EN ROUTE FOR FLORIDA.

By Mrs. L. Harrison.

On the 15th of December I left my home at Peoria, Ill., and turned my face in the direction of the sunny Southland. While in transit I looked carefully for the sight of homes of the busy bees. In Tennessee I saw an apiary of considerable size, arranged with care and order, in movable-frame hives; and another, more southward. The weather was like summer, and heavy clothing unbearable at Pensacola, Florida.

I took passage in a schooner to cross the Gulf of Mexico. We passed leisurely along by the Navy Yard, Fort Pitkins, the light-house and life-saving station, and I thanked my God that I was a citizen of a Christian land, whose government looks after and provides for the safety of her people who do business in great waters. The winds were kind, and the next day we arrived at the place of our destination, St. Andrews, Florida.

Here roses of every hue were blooming in great profusion; pear-trees in full leaf, loaded with a second growth of fruit. While a resident was showing me over his lovely grounds, and directing my attention to the difference in the spray of the Satsuma oranges, he remarked that his bees had stored only 40 lbs. of surplus honey to a colony, which he considered only a third of a crop. This apiary is located near the Bay, so that half of the flight of the bees is over salt water.

\*Such modesty in an editor who gets out such a good bee-journal is quite inexcusable.—Ed.

*Later.*—To-day is the last day in the year, and we look in vain for the beauty which greeted us on our arrival. During the night of the 27th, 28th, and 29th of December there were heavy frosts, and on the 28th ice formed two inches thick, while the thermometer registered 15° above zero. Orange-trees and lemons look sickly, and pear-trees are brown and sear.

St. Andrews, Fla.



#### DAMPNESS IN BEE-REPOSITORIES.

*Question.*—I went to my bee-cellar to-day and found things quite wet with collected moisture—so much so that the sawdust on the floor was saturated, and a post in the center, and also the inside of the roof, was quite wet, caused by this dampness. The bees appear very quiet, and are apparently doing well so far. Will this dampness do any particular harm, or accumulate to a sufficient extent to injure the bees before it is time to set them out in the spring?

*Answer.*—Many seem to suppose that a cellar in which bees are wintered should appear absolutely dry in all of its parts; and if it does not, or shows a condition of things similar to that described by our correspondent, they become fearful of the final results, often taking the bees out too early in the spring, or putting them into another cellar or room exhibiting more dryness. It will be noticed that it is stated that the bees “appear very quiet.” Now, I wish to say to each and every one, that, so long as bees are quiet, or very quiet, no matter where they are, whether in the cellar, in a room above ground, or on the summer stand, they are wintering in the best possible condition, and should be left undisturbed, no matter if the place where they are is dripping with moisture, or so dry that you may fear the bees are suffering from want of water. Quietness is the essential quality for safe wintering, for with it always comes the least consumption of stores, and with a minimum consumption of stores comes the least possible exhausted vitality and the greatest longevity during the spring and early summer days. Under such circumstances I have had individual bees by the thousand, in single colonies, live from the first of September till July first of the following year, or for a period of ten months, this being known by a change of queens on or about the tenth of August. On the other hand, I have had colonies which would not quiet down during the fall, and bees which were hatched in such colonies the latter part of September were worn out with old age, and died before the first of February, not having lived to exceed four

months. From all the experience of the past, I am convinced that the temperature of the beehive repository has more to do with the safe wintering of bees than any other one thing, and especially is this the case where the repository is affected with dampness as was the one our correspondent describes. Should the temperature in such a repository sink to near or quite to the freezing-point, it will be found that the bees will no longer be quiet, but will become uneasy, and go to roaring, and running out of their hives, should such a temperature continue long; but if the temperature can be kept at from 42° to 48°, all things will continue as they are at present, unless some disturbing element enters in besides moisture.

That I might better tell you regarding this matter I have just been to my bee-cellar, where I consider my bees wintering well, to see how I found things. I have 80 colonies in it, to where I have usually had only from 50 to 60, and I find that the extra number of colonies give off more moisture into the air than has usually been the case in years past—so much so, that, on this second day of January, I find the inside of the bee-cellar fully as damp, or wet, as I presume many would call it, as it generally is by the first of March; while, instead of the temperature staying at about 44°, as has usually been the case, it now stands at 47°, or within half a degree of this all the while. Well, how wet do you find the inside of the cellar? The sawdust on the floor, the furthest from the door, is so wet that I can nearly squeeze water out of it, while near the door end it is barely moist enough to be pliable in the hand. This sawdust has been unchanged for two weeks; but after the examination, I have spread evenly over the floor another flour-sackful, this covering up all dead bees and the sawdust there when I went in. In two weeks I shall put on another sackful, and in this way the floor is kept sweet and nice. The roof, or upper ceiling, of the cellar is covered with flagstone, as the older readers of GLEANINGS will remember, and I find that the moisture has condensed on these stones sufficiently to be running down on the under side (very much as you see the steam or moisture from your room trickle down the inside of the window-panes in the kitchen when you are boiling vegetables for dinner), to an extent sufficient to form little puddles of water at the foot of the stones where they rest on the masonry walls. The moisture condenses on the inside of the door, and runs down in the same way it does from the stones, as the door is a painted one; and, in spite of there being four doors in the entranceway, this inside door is the coolest place in the whole cellar.

Now I think I hear some one say, “Why, that cellar is absolutely wet;” but such is not the case, for the hives and all about them (they do not touch the wall or floor of the cellar) appears as dry as in summer, and will so long



as the colony of bees remains alive inside. But should any colony die, then the combs and honey take on moisture very similar to the door and flagging; and if the colony should die soon after being set in, the combs would become quite moldy by the time the bees should be set out; but as I have not lost two per cent in this cellar of late years, not many combs thus become wet and moldy.

Perhaps some of the readers of GLEANINGS would like to know how the bees appear. They are so quiet that I stood with a lighted candle in front of one colony, holding the candle within fifteen inches of the bees for three minutes, and I could not see that a single bee moved at all; but a little breath from my mouth upon them, at the end of this time, made them all raise their abdomens and thrust out their stings, and in a minute more they were crawling about, some nearly ready to fly at the light, when I withdrew from them and looked elsewhere. Some of the strongest colonies have nearly as many bees hanging below the bottom of the combs as one-half of your hat-crown turned bottom up would be, while others show just a row of the points of the abdomens standing out all along between the bottoms of the combs, while still others are up so far between the combs that no bees are to be seen from the bottom of the hive. To any lover of bees, the first and second described are so enchanting to look upon that it becomes almost bewitching, and it is with reluctance that I leave the cellar every time I go in. To look on a cluster of from two to three quarts of bees hanging below the combs, like a swarm in July, all perfectly motionless, and each bee lapping over its neighbor like rows of shingles on the roof, right in the middle of the winter, with the mercury outside at from 10 above to 15 below zero, is a sight which will dispel the blues, and a sight which is apt to give almost any one the "bee-fever." At least, I find that I have a touch of that disease myself at this time, although I have kept bees now for 25 years.

Borodino, N. Y., Jan. 2.



DO DRONES CONCENTRATE ON ANY PARTICULAR HIVE?

Do drones ever concentrate on any particular hive, and eat it out of house and home, as it were, during the working season or any other time?

JERE. LARUE.

Perris, Cal., Dec. 19.

[We never knew the drones to concentrate upon any particular hive, although it is possible that they may do so. If you were a beginner we might suggest that possibly the killing-off of the drones at the proper season when hon-

ey stops coming in would bring about the effect you describe. The bees push them out of the hive, and they concentrate, as a matter of course, around the entrance. They certainly look hungry enough to eat the colony out of house and home.—Ed.]

#### STRONG FOR THE TEN-FRAME HIVES.

I have been much interested in the discussion of the eight vs. ten frame hives. I give you a little of my experience in this section in using the two side by side for three seasons.

I got more honey and better swarms each year from the ten-frame hive, from one-fourth to one-third difference, with that much more winter loss in the eight-frame, for which I set 50 out of the eight-frame to the ten-frame hive. Most bee-keepers are discarding their eight-frame hives for the ten, in this section.

For extracting I tier up two and three stories high, using eight frames above in a ten-frame body to save so much uncapping. For comb honey I tier up with supers as room is needed. Swarming is harder to control in eight-frame hives—more inclined to swarm, and not so large as from the ten-frame hive.

We have had three very poor seasons here for bees. I have only 125 stands at present.

Washington, Ind., Dec. 3.

S. D. COX.

#### A POOR YEAR FOR W. K. BALL; THE ADVANTAGE OF EXTRACTING IN POOR YEARS.

We had a very poor season here; still, I think my bees did well. I took 13,000 lbs. of extracted and 1500 lbs. of comb honey from 100 hives. I think that is good for a poor year—don't you? I find there is a big advantage in extracting, over raising comb honey, in a poor year. I sold my old stock of bees last winter, and went to California (near the town of Hanford), and got 100 colonies of Cyprians, with a mixture of Italians. They are good workers, but fearful stingers. My comb honey is not as white and nice as common. I lay it partly to the poor season and partly to the strain of bees. I am going to try the Carniolans next year. I understand they make very nice white comb honey. I don't like that greasy-looking comb. Is it the Italian or the Cyprian that makes the dark-looking comb? I received 20 Carniolan queens from Mr. Lockhart, and expect 4 more. They are very nice.

Reno, Nev., Nov. 12.

W. K. BALL.

#### CARP CULTURE, ETC.

Mr. Root:—Do you remember the pond under my greenhouses? Well, you put a good deal of enthusiasm in me when I read your "Carp Culture;" so, two years ago, I put in 35 carp, 4 to 6 inches long, and now there are thousands of them. The old ones are 10 to 14 inches long, and we can drop in a hook at any time and catch one. I had not tried to catch one till this week. I don't care what others say, as for me and my house, we rate carp a No. 1 fish. When I was in Medina I thought A. I.'s carp-pond



looked neglected. We made another pond last week, and will stock it with carp as soon as spring opens.

GEO. M. KELLOGG.

Pleasant Hill, Mo.

[I am glad to be able to tell you that our carp-pond does not look as sad as it did. Just before Christmas, during the fine open weather, we cut a ditch alongside of the bank of Champion Brook, 400 feet upstream, to a little dam across said brook. Then we put in three-inch tile, put a little dam across the brook, and the carp-pond was filled up right speedily with nice clean rain water that fell on the ground in winter time. Just as we got the whole thing finished, and working to my satisfaction, a zero freeze came on, and now we have pure rain-water ice fully eight inches thick. In fact, it is ready now for the ice-house, and the carp have plenty of room. I am glad you pronounced them a good table fish.—A. I. R.]

FENCING POULTRY "OUT;" HOW HIGH MUST THE FENCE BE?

*Mr. Root:*—Are you not mistaken about hens not flying over netting one foot high? We have Brown Leghorns, and they fly like hawks—for ever on the move in daytime, and are the most prying, inquisitive things that I know (that wear feathers).

D. W. DICKINSON.

Hickman, Ky., Dec. 24.

[Friend D., we have had quite a little experience in the matter, and we find that one foot seems to answer every purpose with our large breeds of fowls, and we have some small ones also. Of course, this is for fencing them *out* of any particular locality. We once had a strawberry-plot near the poultry-house. It was put out originally for raising Haverland *plants*; but before we knew it we had a big crop of berries. The hens found them and commenced to work on them before they were even red. We put a strip of poultry-netting around the whole inclosure, only one foot wide. Of course, it was put up as high as we could put it without allowing the hens to crawl under. Not a berry was touched afterward. Some of the Brahmas walked along the fence, and looked over; but none of them got in. Of course, you can not fence fowls *in* with any such fence; and I presume the arrangement will answer only where they have unlimited range. Perhaps they reason this way: "Why should we take the trouble to climb over that thing when it is such an easy matter to walk around it?" They would accordingly walk around the corner; but, not finding the strawberries, they got their minds on something else, and walked off in another direction. I tried those same strips of one-foot poultry-netting to keep the neighbors' hens away from some peas. I had not enough to go clear around the peas, so I extended the fence two or three rods beyond the patch, in both directions. It served the purpose of warding them off about as in the former case—that is, it stopped them from going straight from the barn to the pea-patch; but occasionally a fowl that was out in the fields, on her way home would get into the peas. It must be remembered that poultry will seldom meddle with peas any way, where they are properly provided for otherwise.

Ernest suggests that 18-inch netting is a little better, and two feet still surer. His experience was in putting such a fence around his dooryard, to keep his neighbors' fowls away. Of course, this will be a little different. Where one man keeps a lot of fowls, and is pretty close up to a neighbor who does not keep any,

a division fence to make the chickens stay at home, especially if said chickens are in a town where they are pretty closely circumscribed any way, would need to be a little higher. Then it is to be remembered that chickens are like cows and horses in regard to getting out of an inclosure. A certain flock may become so educated that they will do very unusual things. Notwithstanding, the narrow strips of poultry-netting oftentimes serve very important purposes. We have a lot of iron rods sharpened at one end, and a little coil made at the other, to get hold of easily. These can be quickly thrust into almost any ground so as to make the strip of netting just right when it is hooked on the ring at the top of the iron stake. You can put up such a guard against the fowls almost as easily as you can chase them away, and then the job is done with until your crop is ready to be gathered, then pull up your stakes and roll up your netting until it is wanted next time. A 150-foot strip of netting, one foot wide, costs *now* only 67 cts.—A. I. R.]

ROBBING SICK PEOPLE.

*Mr. Root:*—I have just read your article on Electropoise, and was much interested, as we have an instrument that just answers the description of it, but it is of a different name, "Oxydonor Victory," manufactured, patented, and invented by one Dr. H. Sanche, 264 West Fort St., Detroit, Mich. The price is \$25. It is exactly the same in appearance as Electropoise. Whether it is a humbug or not I can not say. My mother had a very estimable and intelligent lady nurse who heard of Oxydonor, and went to Toledo and investigated the same. She personally interviewed some of the most prominent business men of the city who had used it. She became interested, and took an agency for the same. Mother gains some; and father, who has not done much work for some time past, does a good deal now. I myself cured a case of bowel trouble, and it was of considerable standing. It may be that we all would have got better had we not used it. If it is a swindle it ought to be exposed, for it is an exorbitant price. I am not a scientist, and could not analyze it should I take it to pieces; hence I write to you.

I have not written this for publication; but should you find the machine a fraud, and want to, you may use this; but please suppress my name, as it would only make hard feelings, as the agent here investigated it for us.

If I can help in any way I shall be glad to do so. My mother has paralysis. X. Y. Z.

[Friend Z., one test will apply to all these things. If the thing you describe has any virtue, then a new force or power has been discovered; but scientific men, our intelligent doctors and teachers, know nothing of any such discovery. What you tell us only illustrates again the *awful* fraud and swindle that these men are putting upon the public. The fact that prominent business men indorse it, again illustrates the credulity of the people at large. It *must* be imagination. It can not be any thing else. The very fact that they charge \$25.00 for the trifling bauble is one big evidence that it is a fraud. It is exactly on the same principle as hanging something about your

neck for a charm, or nailing a horseshoe over the door, or having little heathen gods stuck all over the house, as the Chinese do to ward off calamity and disease. With the general intelligence and science before us at the present time, people of intelligence ought to be ashamed of themselves for accepting such logic. I suppose you know that people afflicted with paralysis and many other diseases, when they are thoroughly aroused, oftentimes break away, as it were, from the disease. They have sometimes thrown away their crutches under the influence of a bottle of some kind of medicine; and yet had the bottle contained water, and they did not know it, the result would have been just the same. Many thanks for your concluding words.—A. I. R.

In the issue of *Electricity* for Jan. 9 we find a further considerable expose of Electropoise. We have room for only the concluding sentence:

Every religious paper in America might well keep standing in a conspicuous place in its columns the words of Dr. Holmes: "Quackery hobbles along on two crutches: the one is the superstition of women; the other, the indorsements of clergymen."



EIGHT extra pages this issue.

WE have quite a number of good articles awaiting their turn for insertion.

UNDER "Seasonable Questions" is a valuable article on bee-cellars—that is, how to *know* when the bees are doing well. This is a troublesome question for beginners, and even some older in the business.

HEAVY rains are rejoicing the hearts of California bee-keepers. Given a certain number of inches of rainfall, and the honey crop is assured for that State; this year the conditions, if I am correct, are met. Last year little or no rain fell, and the consequence was little or no honey.

THE new *American Bee Journal*, as it came to our office shortly after Jan. 1, was a pleasant surprise. It has been changed from a 32-page small to a 16-page large size. The printing and binding, of course, as usual, are excellent, and the selection of matter is also of the highest order. If it can maintain the pace that it has set for itself (and York will make it), the "old reliable" will boom.

G. M. DOOLITTLE, in the *American Bee Journal*, has an interesting article on large versus small apiaries. He says, and very truly, that the results from large yards are not as great in proportion as from small ones. He sees large reports from apiaries of not over 50 colonies, but not from four times that number. It is like every thing else I suppose—some lines of business will pay good returns on a small scale;

but on a large one, failure is the result. There is much in the man and the location.

You will remember that I said we had great hopes of the granulated sugar and honey giving better results than the ordinary Good caney made of confectioners' or powdered sugar and honey. We are just receiving responses of queens sent to Australia some time last fall; and while the results are not all that we could ask, they are very much better than from any former attempts of late. The only difficulty seems to be now that the granulated sugar is too coarse, and rattles about in the cage, and interferes with the bees. We are just corresponding with the view of getting a small paint-mill, to grind the sugar and honey into a perfectly soft paste. I have an idea that such a mill would cause a more perfect union of the honey and sugar.

THAT GREAT FREEZE IN FLORIDA. AND ITS EFFECT ON BEE-KEEPERS.

WE have just enjoyed a very pleasant visit from Wm. A. Selser, of Wyncote, Pa. He had just come from an extensive business tour of some 3000 miles throughout Florida. He had been all over the State just previous to the great freeze, and all over it again just after it. He reports that all the beauty of that remarkable State is gone. Every thing seems to have been killed from one end of the State to the other; and the mangrove—one of the main stays for honey—has been so thoroughly killed that it will take it three or four years to recover. Although the bee-keepers will get honey as before from palmetto, their large crops will be cut down very materially until the mangrove can begin to yield. There is desolation in the orange-groves, and they are characterized as "slop-tubs" by reason of the carloads of decaying fruit. As to what the Weather Bureau might have done to prevent this, see High-Pressure Gardening elsewhere.

DOOLITTLE AND THE FIVE-BANDED BEES.

IN the *Progressive Bee-keeper* Mr Doolittle has a very fair and interesting article replying to the statement of the editor (which I copied on page 877), that the five-banders can not be produced from Italian stock. He holds that the Italian is *not* a pure race; and as it is liable to sport, especially in the number of yellow bands, it is perfectly feasible to produce the excess of yellow without the aid of Cyprian stock; that he raised bees with more than three bands before Eastern bees were ever brought to this country. In relating how he and Mr. L. Hearn developed the original so-called five-banded stock, he adds that they are not only beautiful, but good workers, and gentle, though he admits that they are less hardy for winter when compared with the darker stock.

I have personally seen in his own apiary some



of Mr. Doolittle's choice yellow stock. They were perfectly gentle; and although it is possible that other blood might have crept in, in view of Mr. Doolittle's statement to the contrary, and the care characteristic of him, it is improbable. But I do insist that some five-banders are vicious, and poor workers; and the conclusion forces itself upon me that there are some careless breeders, and perhaps not as conscientious as they might be in keeping out the Eastern blood, for it is so easy to breed yellow from this race. The yellow stocks at present in our yard came from a number of breeders, and the progeny of the queens vary greatly.

WINTERING; WHY THE INDOOR PLAN GIVES  
THE BEST RESULTS IN ONE LOCALITY AND  
THE OUTDOOR IN ANOTHER.

In the *American Bee Journal*, in the department of Queries and Replies, the question is asked, "Do you prefer the single-walled or the double-walled hives?" The majority of respondents vote for the first, but not one of them seems to mention the part that locality plays in the matter. In fact, they all live either far south or far north. Of course, those in the southland would prefer the single-walled. Those who live where the winters are pretty cold, as a general rule prefer the indoor plan, because the double hives hardly give protection enough. But where the winters are moderate, and in some others where great quantities of snow fall, the double hive, I am sure, gives the best results. In our locality the outdoor plan surely does best. We sometimes have a couple of weeks of weather when the thermometer registers 10 degrees below zero; but more often it is open, with several weeks of fairly warm weather sprinkled in. It is then that the *cellared* bees get uneasy, fly out on the floor, and die by thousands; and it is then that *outdoor* bees get beneficial flights. Where the winters are continuously cold for the most part, the cellar plan gives the best results, because it (the cellar) can be kept at an even temperature, or nearly so. This means a light consumption of stores and comparatively few bees dying on the floor. Since writing the foregoing a well-written article on bees in cellars has come which I indorse—see p. 59.

L. L. LANGSTROTH.

I have before alluded to the fact that our aged friend and benefactor is in rather destitute circumstances, especially since the death of his son-in-law; and although there have been many calls on our bee-keepers for contributions—in fact, so many that I almost dread to speak of any more—I do think it behooves us each and all to remember father Langstroth. Perhaps the younger members of our fraternity of bee-keepers do not know about these things as well as we older ones do. By the way, some years ago quite a number of the veterans agreed to set

aside a certain sum of money each year, as a remembrance, or, perhaps we might say, a New Year's gift to our veteran benefactor. How many of us have kept sacredly this promise? I know of one man, and his initials are *A. I. Root*, who waited till the 10th of January before sending in his offering when he ought to have sent it the 1st. Perhaps it may be something of an encouragement to others to say that we have been paying Mr. Langstroth \$50.00 each year, for a long time past, and we have felt happy in doing this much. I have made these remarks thinking there may be others who would really enjoy giving our old friend a pleasant reminder that his services are gratefully remembered by bee-keepers. The *American Bee Journal* has been keeping this matter before the people for some time past. Will the other bee-papers do what they feel would be right and proper in reminding their readers of the debt we owe?

A. I. R.

THE BEE-KEEPERS' UNION.

THE Tenth Annual Report of the Bee-keepers' Union is before us. The General Manager, in commenting on the past work of the Union, says:

I am glad to state that the Union has everywhere exerted such a soothing influence that now the enemies of the pursuit are very cautious in commencing a suit against bee-keepers. Lawyers have read in their Law Journals reports of trials which have resulted disastrously to the complainants, leaving them to pay the costs, and they generally discourage such litigants unless they have well-filled pocket-books, and they discover a chance to make liberal fees. Even then, many of them will not undertake a case which gives no promise of success. Quite often they advise their would-be clients to send to the Bee-keepers' Union for documents; and when such are received and read, the arguments of Judge Williams and the decision of the Supreme Court of Arkansas are so convincing that they quite willingly nurse their wrath, and permit their bee-keeping neighbors to enjoy their rights and privileges.

One or two cases are on hand, and advice has been rendered, and the result will be given in the future. In the line of adulteration, the history of the Hunt honey-adulteration case is given, with the details of which our readers are already familiar. The financial statement is as follows:

FINANCIAL STATEMENT.	
Balance, as per last Report.....	\$721 71
Fees from 311 members for 1894.....	311 00
	\$1,032 71
Expenses for the year.....	254 20
	\$778 51
Balance, Dec. 16, 1894.....	5 00
Donation, L. M. B.....	5 00
	\$783 51

The *American Bee Journal* for Jan. 3 contains an article from G. W. Demaree:

I want to suggest that the proper thing to do is to elect a new set of officers for the National Bee-keep-

ers' Union. I think a change, from time to time, is best for all such institutions.

Let all sentiment be laid aside, and let each member vote for some intelligent "bee-man" (our sister bee-keepers have a higher mission than is found in court decisions); properly distributing the number to be elected throughout the country as justly as is practically possible.

As to any change pertaining to "General Manager," that can be safely left to the judgment of the members. I can see no reason for any change in that respect, as the office of "General Manager" is hedged about by a board of directors—the president and vice-presidents. As one of the "old board," I shall positively decline to act in the future. I want to see a change.

Another thing I want to suggest. 'Too much money in the "treasury" is a temptation to lawsuits. I regard the Bee-keepers' Union a temporary concern. When we have obtained from courts of *repute* a sufficient number of *decisions* to put bee-keeping on even grounds with other pursuits, each bee-keeper must then do his own "lawing." I have practiced the profession of law, and know whereof I affirm. There is a specific stage of civilization that leads men to resort to the law as a mode of warfare against their enemies. No "union" should encourage that sort of civilization. This world—not this country alone—is becoming full of "unions," and "trusts," and "combines," and "societies," of every earthly description, and there is a cataclysm ahead, or the "watchers" of the "signs of our times" are mightily mistaken.

There is a good deal of truth in what he says, and we commend the article to our readers. It has seemed to me several times that the work of establishing precedents in law, so nobly and well done by the Union in the past, is nearly at an end; and as the extract from the General Manager says, there is less trouble now from jealous neighbors than formerly. It seems to me that the Union should do more in the way of hunting out suspected cases of adulteration—in fact, assume the aggressive—that is, employ detectives to follow up a few of the unscrupulous city dealers, for instance. Surely there are funds enough in the treasury to do this work.

#### THE EXPERIMENT AT THE MICHIGAN EXPERIMENT STATION, OF FEEDING BACK.

In the *Bee-keepers' Review* of Dec. 10, Experimenter Taylor reports having fed two colonies to fill out unfinished sections, for the purpose of determining the amount of loss or gain. The following is the table as it appeared:

Net wt. of sections adjusted.	Amount fed.	Amount of finished product.	Net gain.	Gain per cent.	Pounds fed for one lb. gain.
41	106¾	110¾	69¾	65.3	1.53
28¾	112	94¾	65¾	58.4	1.70
69¾	218¾	205	\$135¾	61.8	1.61

In summarizing on the result, Mr. Taylor says:

By a simple process of calculation, taking the value of the material used and the market value of the product, it will be seen that the profit is more than 50 per cent and this would have been consid-

erably increased had all the sections been partially filled at the beginning of the experiment.

I understand how he arrived at his conclusion, but it seems to me the figure, 50 per cent, gives a wrong impression. Let us glance for a moment at the table. By running across the figures at the top, and stopping at the last item, it is shown that, for every pound of unfinished honey, it was necessary to feed about 1½ lbs. of honey. The same item just below for the other hive, shows the proportion of 1 to 1¾. Mr. Taylor says, "The profit is more than 50 per cent." Now, I do not see it in that way. In the first place, there was the labor; and in the second place, the bees were probably stimulated to the rearing of brood—such brood as would probably be of no use to the colony later on. It seems to me the question is, which would bring more in dollars and cents—the extracted honey fed in the liquid form, plus the unfinished sections, both as separate items, or the total amount of finished product in one item, as the result of feeding? According to the Honey Column in this issue, extracted honey of good quality brings at wholesale 7 cts., and comb 12. Taking the figures for one hive which Mr. Taylor fed, there are 41 lbs. of unfinished sections, which we will say ought to bring on the market at least 8 cts. There was 106¾ of extracted, which was fed back, which ought to bring 7 cts. The total for the two items thus would be \$10.75. The amount of unfinished product for the same hive, in feeding back, was 110¾ lbs., which would bring, according to the same price current, 12 cts. per lb., or \$13.29. Subtracting \$10.75 from \$13.29 would leave \$2.54, which would represent the gain in dollars and cents; or, when reduced to percentage, 23½ per cent, instead of over 50 per cent, as Mr. Taylor makes it. But this \$2.54, it seems to me, is largely offset by the labor of feeding. May be I am mistaken; but I really can not see any great gain from a dollars-and-cents point of view. But Mr. Taylor's feeding back was, I am of the opinion, more favorable than it ordinarily is. Take the case of Mr. A. F. Unterkircher, for instance, of Manchester, Mich., about 70 miles southwest of Mr. Taylor's residence. It will be found in full in our issue for Feb. 1, 1886, page 101. He fed back 175 lbs. per colony to 20 colonies for 35 days, and got back only 62½ lbs. of finished comb honey per colony; in other words, he fed nearly three pounds of extracted for every pound of comb honey secured; or, to carry out the dollar-and-cents comparison—for every 20 cts. worth of *extracted* honey fed, he got back 12 cts. worth of *comb* honey. He says further: "Thus the consumption for the 20 colonies, in the secretion and forming of wax scales, and for brood-rearing, evaporation, etc., is the enormous total of 1650 lbs., or 82½ lbs. per colony. . . All this [stings, etc.] is certainly enough to disgust one in feeding, to say nothing regarding the loss in the operation."



## WHY PEOPLE ARE OUT OF WORK.

SOMETHING BOTH ENCOURAGING AND DIS-  
COURAGING.

Dear friends, I am moved to write this because of a little recent experience. Some of you know, but perhaps not all, that in our saw-room we have saws to cut across the grain. These are called "cut-off" saws. Then we have saws to split boards lengthwise of the grain. These are called "rip-saws." One is all right for the ripping business, and the other is all right for the cut-off business; but to change them about, neither would work at all. Oh, yes! you might crowd a board lengthwise a little way on a cut-off saw, and *vice versa*; but it would be like hitching a team to the back end of a wagon instead of the front, to do work. Well, now for the illustration:

There was a man in the saw-room, who, if he were given boards square in shape, or something near square in shape, would continually make a mistake and push them against the saw at right angles from the way they should be pushed; that is, he did not seem to know whether he was sawing with the grain or across it. When I heard of it I remonstrated with him. I told him I could hardly believe it possible that he, a grown-up man, should even *once* make such a blunder as that. He excused himself by saying that others did the same thing frequently. I have not learned whether this is true or not. I told the foreman of the room, when we were discussing the matter, that, in my opinion, the man who does such a thing even once should be sent home, and never permitted to come into a shop again where machinery is used. The above may be rather severe. Perhaps it is; but one whose mind is not on his work to the extent that he does not know whether he is pushing his board lengthwise or sidewise, I should say that he by such act of indifference or half-heartedness, literally *cuts off* his chances of making his way in the world. It is just this very thing we are considering that makes the difference between a man worth 10 cts. an hour and one worth 25 cts. an hour. You may say that everybody makes mistakes sometimes. Yes, some kind of mistakes. But did you, my friend, ever in your life, hitch a horse to the back end of your wagon, and start off, instead of hitching it to the front end? My illustration is, perhaps, a little exaggerated, but it shows what I mean. Now, this man of whom I am speaking is or has been a special friend of mine, and one whom I should be glad to help. When his shortcomings have been reported I have taken his part, and talked with him, and afterward said I was sure he would do better. When he did not do better I began to study into the case, and this has come to light: He is naturally full of boyish spirits, and is much given to good-natured jokes and pleasantry; and he carries this thing so far that he is very apt to be making fun during his work. We have had trouble in the saw-room by certain ones indulging in throwing blocks at each other. Notices have been put up, requesting that this thing be stopped. But even right in the face of these notices I saw this man throwing a block at one of the other men. He explained it by saying that the block was thrown at him, and that he simply threw it back again, and I *happened* to see only the last part of it. Now, this may be some excuse, but it is not a sufficient one. A grown-up man with a family to support should be above every thing of this sort—that is, during working hours. Some people do not seem to be able to comprehend the fact that almost all kinds of work nowadays require *careful, thoughtful, earnest* attention. The men who get good pay, and who are mak-

ing great strides in their profession, concentrate all their energies—all their *attention* and *thought*—on the work in question. Let us take another view of the matter.

I believe we have now the reputation of making pretty fair work—I will not say the best in the world, for every little while—in fact, almost continually—some customer (sometimes a customer from clear across the ocean) is calling our attention to little defects in our work. A few days ago one of the endless chains in the machinery that makes our sections broke a link. A new one was put in, and the machine was supposed to be all right. Mr. Calvert happened to pass by, however, and he discovered the bolts of beautiful white basswood were not passing squarely through between the dovetailing saws. One end of each bolt was ahead of the other. It was only just a "lettle," as old Yankees would say; but that "lettle" made a great part of the sections grooved too deep on one end, and not deep enough on the other. The men who were running the machine neglected to make very careful tests after the breakdown, to be sure the work done was exactly as before the break. When we hold our councils—that is, the members of the cabinet of the A. I. Root Co.—it is the same old thing over. "Oh, I wish we knew where to get real careful, accurate men—men of *intense devotion* to the work that is intrusted to their charge!" Now, please do not all of you write to me, saying that you are just the chap we are after, and that you want to come here. If you are just the chap we are after, you would not be out of work. People would be watching for you, and bidding for you, and may be quarreling about who should have you. I know, for I have grown gray in this sort of thing. Sometimes I have been tempted to say, "Oh, why is it that God made so many worth so little, and only a few worth so much?" But, hold on. God did *not* make us so. We did it ourselves, and we are *doing* it ourselves. The man who has good common sense can stop his foolishness and play, and attend to business if he tries hard. He can, if he *cares* enough about making a success in life, and the chances are that he can do it at home, right where he is. You see, the successful bee-keepers and the successful berry-growers and the successful men anywhere, and they are the earnest, keen, hard-working people. They do not always work hard with their muscles, but their brains are ever on the alert to discover better ways, and to achieve greater perfection. Now, it is not because these heedless people do not know what nice work is; for if they want to *buy* any thing they are oftentimes the first ones to complain of something that is not what it ought to be. We all know when we are properly served by the rest of the great outside world; but a great many of us do not *care* very much whether we serve other people honestly and well or not.

This little sermon is written on New Year's day; and if it meets the eye of some one who is out of a job, or is likely to lose a job which he already has, may God rouse him up to recognize and realize what I have been telling him; and may the Holy Spirit help him to see his faults as others see them. My friends, I too am guilty of poor work. I am guilty of half-heartedness and of slipshod ways—that is, at times I am. I sometimes fear, however, that I am oftener guilty of being too vehement and exacting because others around me seem to be so indifferent to what is going on before their eyes—yes, to put it plainly, so *stupidly* indifferent to their own interests; or, to put it in a sadder way still, to the interests of their *wives* and *children*, and others depending upon them.

After the above was dictated, the following

came to hand from our good friend Geo. M. Kellogg:

The reason I wrote my "want" ad. (p. 33) so sarcastic was, I am so bored by men who claim to be gardeners, etc., when they know but *one thing*—that is, to laze around and kill time. I just turned off a man to-day, after 2½ days' of work, who came and recommended himself so highly that I really thought he might be a good help. I would not give such a man his board. I would rather take a green boy, and teach him how to work. I am down on fossils in human form.

Pleasant Hill, Mo., Dec. 29.



#### ON THE WHEEL—LACLEDE CO., MO.

There are a good many peculiar things about Missouri; that is, they have different crops, and different ways of doing things, from what we have here in Ohio. The great staple seems to be corn; and the rich black soil, full of humus, for the most part, seems to be especially adapted to corn. Now, with such immense crops of corn, the price gets very low; and in a good many places the crops are a good way from railroads; therefore, to use up as much as possible of it, a great deal of pork is raised. The wire fence that troubled me so much to get over was one of the pig-proof sort. As there are immense tracts of forest, or, rather, scrub-oaks (for the greater part of the trees are a peculiar kind of oak of small growth), and these oaks furnish most seasons immense quantities of acorns, to use up this great quantity of "shack" the pigs—especially those belonging to poor people—are allowed to run at large. The consequence is, the farmer who raises crops must fence the pigs *out*; and so they have fences with barbed wire very close together down near the ground—so close, indeed, that many of them are chicken-proof as well as pig-proof, unless the chickens jump and get through the wide spaces a little higher up. In running my wheel over the dry leaves through these trails in the woods I often ran into droves of pigs. By the time I conclude, however, that they are not going to be frightened at the wheel, as the horses, cattle, and mules are, the leader of the drove gives a peculiar grunt of astonishment and fright, which is the signal for a general stampede; and if I do not slow up, I am sometimes in danger of getting rolled into the leaves among the pigs. Well, where pig-growing is such an immense industry there are great quantities of pork thrown on the market; and in order to furnish a *balanced* ration (ham and eggs) great quantities of poultry and eggs are produced. In fact, Missouri ought to be able to furnish ham and eggs enough for at least a part of the great wide world. The women-folks have a great deal to do with poultry-raising; and friend Abbott's bright spicy poultry-talks at the farmers' institutes have made him quite a general favorite with the sex. It won't hurt him any, for he is a good man, and always remembers the faithful little wife who so well looks after the comforts of his neat little home in St. Joseph.

These great cornfields are a splendid adjunct to the poultry business—especially the turkey line. Turkeys, you know, ramble over miles of territory. One of my brother-in-law's neighbors has a flock of slate-colored turkeys num-

bering over a hundred. He said they started out in the morning like a regiment of soldiers, taking the fields and woods, and every thing that came before them, each turkey marching perhaps twenty feet from its neighbor. He said they went away every morning, and generally came in about an hour before sundown, keeping up the same line of march in all their raids. I told him I should certainly have to go over to his place to see them, and I happened along just at the time specified—about an hour before sundown. They were just emerging from the woods, in a long line, all abreast. As they went over the pasture-lot, every cricket, grasshopper, bug, and worm, was pretty sure to be detected by their keen sharp eyes, and you could see them do their work as they moved forward. Of course, they get into the cornfields some; but I believe it is generally considered that they do enough good in their march to atone for the corn they take, for corn is cheap down in Missouri.

But even with the great numbers of turkeys domesticated, there seems to be still a field for more, for wild turkeys are even yet quite abundant. They live, I believe, mostly on corn and acorns. In fact, so plentiful are they that they often mix, and the eggs of wild turkeys are sometimes set and hatched under the tame ones. They grow up with the rest very much as if that were the way they had always done; but when the wild turkeys fly over them on their way south they are very apt to catch the fever, and burst the bonds of domestication, and soar aloft with their wild untamed brethren.

The man who owned the turkeys, finding I was greatly interested in sinkholes, such as the country abounded in, told me there was quite a tract, several miles away, where the ground had suddenly dropped down forty or fifty feet, leaving steep or even perpendicular sides all around the inclosure. The road used to run through this piece of forest, and a man rode over on horseback only an hour before the sink occurred. As the rest did not seem to be particularly curious about such phenomena, I decided to hunt it up on my wheel. After various meanderings through the woods and across the clearings I discovered that I had got beyond the spot. Many people seemed to know but little about it, even though it was in their immediate neighborhood; and they speculated as to what "that fellow on the wheel" wanted of that large sinkhole, anyway. Some thought I was prospecting for minerals. At length I found a little log house in the wilderness, belonging to the man who owned the property where the ground had dropped down. Nobody was at home but the woman of the house. It was getting toward night; and darkness in a locality where it kept one busy to get through by daylight was not the thing to be most desired. She said I was to follow the road down to a wheatfield. Then I was to go straight through the wheatfield, and I would find the road again on the other side. When I got there, "straight through" seemed to be a pretty difficult matter to manage. In searching for the road I got off into the thick and tangled forest, and lost my bearings; and as the sun did not shine I could not even tell which way I came from. I was lost in the woods, and obliged to drag my wheel, and pull it through the underbrush. No matter which way I went, the bushes and vines grew thicker. I pushed for the top of a little hill, thinking I might see some signs of human habitation in some direction; but it was all unbroken forest. I could not discover in any direction any thing that looked a bit like the path or the wheatfield I had left. It may seem a trifling thing for a full-grown man to acknowl-



edge his weakness, and to ask direction from on high, just because he has lost his way in the woods only a little way off from human habitation at the worst. I felt weak and tired out in working my way through the tangled brush; and, almost before I knew it, that little prayer burst forth—"Lord, help!" Almost as the words were on my lips I stooped down to get a better view away off through the bushes and underbrush. In one direction I could see quite a distance; and at the end of this view a little patch as big as one's hand showed something that looked as if it might be a log house; and the words, "O Lord, I thank thee," followed almost as swiftly after the appeal for guidance. Before I reached the log house I struck a trail that led me to the door. There I found that I must turn around and go right back, for I had just come in from the very neighborhood of the sunken half-acre. I do not think it comprises more than a quarter of an acre—perhaps a little more all together; but the sight of it fully rewarded me for all my toil. The largest trees in the forest had gone right square down until their tops reached but little above the ground where I stood. I managed to slide down through the sand and dirt until I came to a point choked up with bushes, briars, trees, dirt, and stones. It seemed as if an opening had broken through and let every thing run down into it until the trees, etc., stopped the hole up. I got right down into the very crater; and then it occurred to me, what if my feeble weight should start the thing going once more, and I too should go down, down, who knows where? I confess the thought of it made my heart beat a little faster as I climbed up the steep sides through the loose dirt and stones. I found the road that had been broken suddenly off where the ground went down. This drop, too, like the others, was near the summit of a hill. Can some geologist or somebody else tell me why it is the hills instead of the valleys that suddenly give in, down here in the Ozark Mountains? Has this any thing to do with the reason volcanoes burst forth from the summit of the highest mountains?

Of course, I had many pleasant visits in Lebanon, the county-seat. It is a very pretty town. The stores are neat and attractive; and as business is dull, goods are sold, many of them, at very close margins. The merchants are vieing with each other in getting the trade of the country people, and may be they know their own business better than an Ohio wheelman can tell it to them. But I want to venture a suggestion. If some merchant in the town of Lebanon would put up a watering-trough, so the farmers could water their horses in front of his store, giving them that beautiful "electric" (?) water, it seems to me it would be a bigger advertisement than all the signs he could put up, or all the advertising he could do in the county papers. If I am correct, there is not a place in the whole town where horses can be watered—that is, no public watering-place. A little out of town there is, it is true, a sort of millpond where horses can be watered by driving right down into the mud. My brother-in-law told me that this pond arrangement was a recent improvement. Where is the Humane Society down in Missouri? By the way, there are no such watering-places in the whole of Missouri—that is, none that I found—like those we have here in Ohio. In our own and adjoining counties where I have traveled with my wheel we find substantial watering-places every four or five miles in almost every direction. These are more frequent, however, in hilly countries, where springs furnish perpetual running water. Through the level parts of our State, town wells with good nice-work-

ing pumps are found in the center of most of even the small towns. Let us now go back to Lebanon.

All through the southwestern part of the State of Missouri there is a sort of general agreement that hitching-posts should not be placed in front of stores. In fact, you seldom see a team standing in front of a store at all. When farmers come in from the country they hitch their horses near the church or to the fences in the outskirts, and then travel on foot to the stores. When they get ready to go home they can, if they choose, drive up in front of the stores to load in their purchases. On one occasion a friend missed a train because he had to drive out of town to find a place to hitch his horse. This whole matter is fixed by ordinance passed by the town; and I was surprised to hear one of the teachers at the farmers' institute pitch into hitching-posts. The only reason he gave was, that it made the town look untidy; and hitching-posts, where horses gnaw them, afford means of communicating disease from one horse to another. Now, I am sure this whole matter can be managed. In Medina we have iron hitching-posts that horses can not gnaw, and I know a good many of the country people feel bad the way they are being used. I asked Robert which of two towns would get the trade if one would furnish convenient places for hitching teams in front of the stores, steps for the people to get out on the sidewalk, and public watering-places where horses could drink, while the other town furnished no such inducement. He said the farmers would almost in a body patronize the town that tried to make them welcome in the ways mentioned above.

Terry said, at one of his recent institutes in Indiana, that the merchants of a certain town provided a good dinner for all the farming friends who came to the institute. When the farmers expressed some surprise at this, one of the men of the town got up and said: "Look here, neighbors, when we happen to be out in the country at dinnertime your doors are always thrown open; your wives bring out their best things laid away for company, and you never think of asking us to pay. It is a pity if we can not return the compliment when you have a meeting here in town like this, once a year."

Now, that is the sentiment exactly. Farmers throughout our country have been having a tough time of it. Sad will be the day when the people of our towns and cities think it behooves them to look down on the farming community, or to laugh when drouth and flood prove disastrous to the crops. United, we stand; divided, we fall.

When the people found out how curious I was about caves, sinkholes, etc., somebody told me there was a natural tunnel not ten miles from the county-seat—a place where a horse and buggy could be driven through under ground nearly a quarter of a mile—a tunnel of God's own making through the hills. Few people, however, could tell me much about it. One man said that, instead of being a quarter of a mile long, it was only 75 or 100 feet through it. He said, too, there were stalactites and stalagmites like those in Saltpetar Cave. I suggested that it was a natural bridge, but he said it was not a bridge at all; it was, rather, a tunnel through the hills, and a tunnel that crooked and turned.

The weather turned cold, however; reports came from home that Ernest was laid up, and Mrs. Root said I had seen enough holes in the ground for one visit. So I reluctantly bade adieu to Laclede Co., Mo.; but it made me feel a good deal as it did in leaving Tempe,

Arizona, without even visiting Superstitious Mountain. By the way, after I left Superstitious Mountain a band of explorers found a great gold-mine somewhere near its summit, and speculators are taking their victims right into the mountains and exhibiting them gold that stands right out in plain sight—not quite in plain daylight, but plain enough so that thousands and thousands of dollars are being put into it. Am I sorry I did not stay long enough to help discover the gold? Not at all. God has not called me to develop gold-mines. If they could be separated entirely from the gambling and swindling and robbery that seem to be so invariably an adjunct, I might like to see them; but *my* field is the strawberries, the beautiful honey, soft water from artesian wells, and all these things that are awaiting man's touch and skill; and how we may secure them by our labor is more in the line, I am sure, whereunto I am called.



He hath filled the hungry with good things.—  
LUKE 1:53.

The words of our text are taken from that wonderful speech of Mary, the mother of Jesus; in fact, it is a part of her salutation to Elizabeth. I hardly need explain to our readers that this promise means something more than simply satisfying our bodily appetites, or that the good things mentioned are simply something to eat. When we are tired out with the cares and worries of the day, and when hunger comes as the result of honest, earnest labor, we enjoy taking our food. But this joy and this satisfaction that we experience would be a very poor feeble thing to *live* for. It may be that there are people who think more of what they shall eat and drink, and who spend more thought in making provision for good things to eat and good things to drink, than any thing else; but I am sure the most of us would pity such a human being. I confess I feel a little ashamed of myself, sometimes, say after having had an enjoyable wheeled, because I take so much comfort in partaking of food and drink. I am glad of one thing, however—I very seldom take either food or drink without first thanking God for it. When I am away from home, a great many times there are no thanks given—that is, at least, no general audible thanks before we take food and drink; and in public places it is not to be expected that all should unite in recognizing the great God above before each meal.

While I am dictating these words we are only a little way past New Year's day. The words, "Merry Christmas" and "Happy New Year," have scarcely died away from the streets and in the homes, and wherever we go. They are coming even yet through the letters; but I am afraid our people are almost too busy here in our work to remember to return these kind wishes and salutations. But we think of it, nevertheless. It is this "I wish you a happy New Year" that impressed me to take up this thought.

A good many times, especially during this year of 1895, I have tried to analyze this "happy New Year" expression. What does it mean? A great many times the well-wisher adds something about prosperity; but financial prosperity does not make a man happy. If he has been working hard, and the prosperity

comes as a result of his labor, then I confess there is a kind of satisfaction and peace in seeing things come into shape. He has his reward for doing his duty. In my department of the work here I almost always have a great lot of things on my mind. I sometimes say to myself, "Oh, dear! this thing *must* be attended to before the day passes." But the day does pass, a great many times, when it is not done. More important things crowd. But if I keep on trying, and asking God for grace and strength to tackle each new difficulty, by and by I get at least a good many of them done. Then I feel glad. The one who neglects and neglects, and *continues* to neglect, is not very likely to have a happy New Year, nor a happy year of any sort, for that matter. In fact, I do not know of any one thing that makes a man more miserable than to keep neglecting and putting off things he ought to do.

Now, this expression in our text, "good things," means substantial things. Why, everybody knows—at least, it seems to me everybody knows—the good things spoken of in the Bible are the most substantially good of any thing there is in the whole world. We are enjoined on every page to "seek first the kingdom of God, and his righteousness." Of course, it is not worded that way; but we all know the attitude the Bible takes; we all know the spirit of it. It enjoins us to be unselfish; it enjoins us to find our satisfaction and happiness in working for the general good of humanity—in striving to lift up, to restore faith and courage to the faint-hearted or to the weary soul. Man's wisdom—I do not mean manly wisdom (because manly wisdom would be God's wisdom) but the fashionable worldly wisdom—would be to take notice of the rich and the great, and to seek for their favor, but to overlook the downcast and the discouraged. The mother of Jesus opens her mouth in thanksgiving and praise because God has seen fit to send his Son into the world, among the poor and lowly. He has passed by kings and princes; he has disregarded the crowned heads and those who sit in palaces; he has sent his greatest gift, the gift of his Son, into the world, to the homes of the poor and lowly, even to the birth in the manger. Now, dear friends, when we say to somebody, "I wish you a happy New Year," what thought have we in mind? do we wish such a person worldly prosperity that he may wear fine clothes, and be spared from the toil and drudgery of every-day life? God forbid! There are some overworked fathers and mothers who ought to take a little respite; they ought to have a little more time for the easy-chair, and perhaps lay off some of the soiled clothing used in every-day work. But let us not think of making them happy by going to the other extreme and sending them into town to live, with nothing to do but to kill time. Oh, dear! what an expression—killing time—throwing away as valueless one of the most precious gifts that God ever gave!

I often find happiness by a change of occupation. Sometimes I take a day or two off, and, instead of going around among the clerks and hunting up things that are wrong, I go off in the country to ride my wheel, and in this way I find recreation, relief from care, and enjoyment; and, while I think of it, may be the dear friends at home find a certain kind of *relief* also. But I rather think they like to see me around, notwithstanding, especially when the Holy Spirit fills my heart, and these bright texts are bubbling forth and shining forth from my every-day life. But, again, how shall we all have a real happy New Year? Will lots of money bring it? Oh! no, no. Will a chance to ride in the Pullman cars, and plenty of money to



procure the best seat in the stage-coach, or to drive a stylish rig of one's own? Again, no, no. Will expensive clothing that will make people stare and wonder? Will a suit that costs enough to buy a farm, worn around every day, make you joyous and full of good nature? Surely not. It may be well for us, under certain circumstances, to wear our best clothing, and to look neat and tidy, and to be well dressed. We expect the pastor of our church to wear good clothes, and to keep them clean. His appearance is expected to be somewhat a symbol of his holy office; but where any individual expects by his fine and expensive clothing to let people see how much money he has, or have them take notice that he does not have to work for a living, or to let his clothes indicate in any way that he thinks himself of more consequence than people at large, then we certainly need not envy him, for I am quite sure he is not having a happy New Year. A good many times he is really to be pitied. So is the man to be pitied who, through pride or any other mistaken idea, burdens himself with that which does not benefit his fellows, or make him happy. There is no pure, lasting, substantial happiness to be found in this world except that which comes from helping to make others happy; and this is the secret of the Christian's joy and peace.

There is always a tendency among humanity to think that getting a great lot of this world's goods makes one happy. Children, at a very early age, exhibit selfish traits. They get a taste of delicious fruits, and straightway the little one, who has not got far enough along to know better, reaches out his hand to grasp and control *all* of the good fruit. When he takes a look at his brother or neighbor's child, and considers that the little companion loves these things too, a struggle commences in the little heart. Shall he divide? or shall he, because of superior strength, or because he has *possession*, monopolize the whole of it? Sometimes you can see the struggle going on in the little heart. It is a conflict between self and the higher and better trait of benevolence and love toward one's fellow-men. Oh, dear me! if it were only in childhood that we see this disposition, what a grand thing it would be! Who has not read of the exposures being made in the Tammany Ring business, without wondering how it is that men can be so foolish or so *behind the times* as to want, besides a liberal salary, large bribes of money, or gifts that may be offered them as a reward for violating a sacred promise, or for violating and trampling down the best instincts that can enter into the human soul? Surely there can be no "good things"—that is, *real, substantial* good things—in the life of a man who recognizes at every minute that he is traitor to his employer or traitor to the government which he serves. I wonder if they ever find professing Christians in such disgraceful work as this. What a *dead* kind of Christianity it must be, to find a man who professes to love God and his fellow-men *selling his soul* for the privilege of enriching himself just a little with something that does not belong to him! There are complications in business, I know, dear friends; there are places where it seems hard to decide what is exactly right and what is wrong.

But may God be praised, there is always open a way before us, or before any one who wants to do right. Make the matter a subject of prayer; ask God to tell you what is right and what is wrong. If you are honest and sincere in this you certainly can never go a great way astray. Our walk in life may be a very humble one. We may have to work very hard, and we may be obliged to wear poor and cheap

clothing; but we may enjoy to the fullest a host of good things—good things that rich millionaires have no suspicion of.

By the way, as the years roll on I am getting better and better acquainted with the men sent out by the different States to teach at our farmers' institutes. I have been greatly pleased to see how plainly and simply these teachers furnished by the State are dressed. They get pretty good pay; and if these men saw fit they might dress in much finer clothing than the average farmer, even when he comes to a farmers' institute. They are nice-looking men, every one of them; but I never saw any thing flashy or doddish about a single one of them. Almost if not quite all of the institute workers are Christian men. They quote quite largely from the Bible in their teachings and instructions. T. B. Terry often speaks Sunday evening, and his talks are very *practical sermons*, even if they do not contain very much theology. W. I. Chamberlain, the originator of the whole idea of farmers' institutes, is an ordained minister. Waldo F. Brown, whom I met only last week, at Ada, O., gave us one talk that I wish could be given from every pulpit in our land. It might include a good many practical every-day matters for a Sunday *sermon*, but I do not think it would be of any less value on that account. By the way, I have sometimes wondered who is back of our farmers' institutes. Who is it that decides in regard to the men who are *safe* and those who might be *unsafe*? Evidently, somebody who thinks our farming people do not need any more teachings in the line of skepticism. By the way, is it not true that progress in agriculture goes hand in hand with faith in God and belief in immortality?

The man who labors only for self, and for the enjoyment that he can find in selfish pleasures while his life shall last, and no further, can not well be a *progressive* man. He can not well be a help to the community in which he lives. He can not well be a blessing to humanity round about him. One who builds, however, for the benefit of generations who shall come *after him* must have faith in God. It seems to me, too, he must have an animation and inspiration that come only through faith in God, belief in a hereafter, and love toward his fellow-men. The man who does great things is the one who rejoices to see things going on, and to see people happy, even though he has no part in it. To go still further, the real hero whom we all love and reverence and respect is the one who is willing to bear *toil* and *pain* that *others* may be happy, and grow, and arrive at achievements that were unknown to him. This is the Christlike spirit. The lowly Nazarine *died* that we might *live*; and when we so far forget self that we are rejoicing and feeling happy to see others happy, and to see them grow in wisdom's ways, then shall we all at once discover we are getting hold of the *good things* ourselves. We are slowly discovering the *pearl of great price*. Let us now close with that beautiful thought given by Christ himself:

Then shall the King say unto them on his right hand, Come, ye blessed of my Father, inherit the kingdom prepared for you from the foundation of the world. For I was a hungered, and ye gave me meat; I was thirsty, and ye gave me drink; I was a stranger, and ye took me in. Then shall the righteous answer him, saying, Lord, when saw we thee a hungered, and fed thee? or thirsty, and gave thee drink? Or when saw we thee sick, or in prison, and came unto thee? Then shall the King answer and say unto them, Verily, I say unto you, inasmuch as ye have done it unto one of the least of these my brethren, ye have done it unto me.



#### SPACING STRAWBERRIES, ETC.

I have once or twice mentioned the difficulty of getting strawberries for field culture evenly spaced over the ground without having it cost more for labor than we could afford to pay. Let us go over the matter briefly.

Our strawberry-book directs that the rows be 4 feet apart, and the plants 2 feet apart in the row. This is the plan Terry has decided on, and he gets his fine even stands by letting the runners go out and set pretty much their own way; then in the fall he goes over the plot and takes out the superfluous small plants so none are left nearer than about 6 inches apart. I believe he assists in getting a complete matted row by spacing the runners while they are beginning to root—that is, he assists nature by placing the runners so as to cover the ground evenly. When it comes time to put on the mulch, the matted row is from 18 inches to 2 feet wide; and none of the plants, as I have before mentioned, are nearer than 6 inches apart. Well, a great part of our planting is done, as you know, in the early fall, after some crop is taken from the ground; and while our fall-set plants put out runners to a considerable extent, they do not, of course, produce so full a stand as where they are planted in the spring; therefore it becomes *exceedingly* desirable to have the new plants evenly spaced. In fact, we get finer and larger berries, because our plants have more room. But it is *exceedingly desirable*, as I have said, to have what plants there are, pretty thoroughly distributed over the ground—that is, over this strip of ground, say 18 inches wide and the length of the field. Now, I have for years been trying to find a man or boy who would do this spacing, and do it well. I hope none of our friends will feel hurt when I say that I have been again and again disappointed. I have said to myself, "Now, I am sure this man or boy will understand, with sufficient explanation, just what is wanted, and that he will fall in love with the job, just as I love it." In fact, I do not know of any prettier work in the world than to take a nice piece of ground, with strong thrifty plants putting out runners rapidly, and train them so as to have a nice even beautiful strawberry-bed. You think the matter is very simple, do you? Well, let me explain some of the points that the workman must keep constantly in mind:

First, he must swing the runners around to the right or left, so that the new plants shall not all be on one side of the old plant, at the same time keeping in mind that each new plant shall be at least 6 inches from its neighbor.

Secondly, as we keep the cultivator constantly running between the rows, the first thing to do is to make a narrow row—that is, avoid stretching a runner out at right angles so it will run out where the cultivator will be sure to dig it up. Of course, the man who runs the cultivator can swing around a plant thus stuck straight out, or he can jump his cultivator over it; but I emphatically object to putting him to this trouble. His business is to stir over every inch of ground possible, with the cultivator; and the man who sets the plants must bear this in mind and keep his row narrow—that is, he must *gradually* widen the bed out to 18 inches or 2 feet. Of course, some very thrifty plants will make the row a little wider at some points than it is at others; but it can be gradually

widened as the growth of any part of the bed demands.

Thirdly, the one who spaces the runners should keep constantly in mind that he is to fill up vacancies. If one of the original plants should die, by stretching runners straight out toward the spot it occupied, from each side, the vacancy can very soon be filled up; and during a favorable time, say just after a rain, some of the oldest and best-rooted plants can be taken up with a trowel, and moved to a part of the row where more plants are greatly needed. Now, this is not a difficult matter, neither does it require a great amount of labor, to have a nice stand of plants at no place being greatly crowded, and at no place having very many vacancies. I said I had tried a great many men and boys. I have not tried a smart *woman* yet; but if I don't have better success, I believe I shall try it. The trouble is this: Almost everybody I set at it gets along too fast. He says the strawberries are all done. I go out and look at a row; but before I have gone a rod I will find plants taking root not two inches from each other. I will find altogether too many plants at one side of the old plant, and too few, or none at all, on the other side. Then there will be runners sending out their white roots that have not been put in the ground at all; a good many plants right out in the path of the cultivator, when there was *plenty* of room to place them either at the right or the left—at least, very much *more* out of the way than where I find them. I suspect the trouble is this: The one who does the work is not particularly interested in the strawberry business, and his mind is on something else. Dear friends, it is next to impossible to do any sort of work well and thoroughly unless the work in question occupies all your thoughts, all your time, and all your attention. After the above prelude I have something to tell you.

Last week I had a splendid wheelride right in the month of January. I was attending a farmers' institute at Ada, Hardin Co., Ohio. While there I got acquainted with Henry Young, the originator of the Enhance strawberry. It is now one of the prominent strawberries before the people. It is a perfect berry, very prolific, beautiful in color, a strong grower, free from rust, and, in short, would be a model berry were it not for its awkward shape, and that some object to its tartness. This latter quality, however, makes it especially desirable for canning. The shape, however, has with many rather thrown it into the background, although the berries are about as large as any of the newer sorts. Well, I was greatly pleased to see friend Young's plantation, even in the month of January. This Enhance strawberry is his pet—his child. He loves it; and, as a consequence, it does wonderful things under the training of his loving hands. He too has met the same problem I have figured above, and he has solved it—at least, he has invented a way by which even a stupid man, or

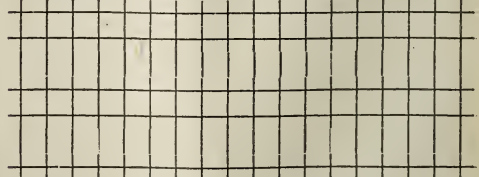


FIG. 1.—MARKING OUT THE GROUND.

Please notice, the simplest and most accurate way of marking the ground will probably be to mark your whole field, marks 18 in.-hes apart each way—that is, mark it lengthwise and then crosswise. Now commence setting your rows lengthwise of the lot. Set two rows; skip one for a path; two more; skip one, and so on.



one with his mind a part of the time on something else, might set out a bed so as to give a perfect stand. He does it this way: He sets out his plants in double rows, and this is done by setting the plants 18 inches apart each way. Now, this double row is 3 feet from the next double row. Fig. 1 will show how he marks out his ground.

After the ground is marked as above, with any sort of marker, you are ready to put out your plants. The path for picking the berries or for running the cultivator is just a yard wide. The plants, after the plantation is put out, are 18 inches apart each way. Let me show you some stars standing just as the plants stand when they are growing nicely, before putting out any runners:

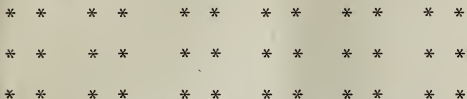


FIG. 2.—PLANTS AFTER THEY ARE SET OUT.

Now a word about cultivating. The broad spaces, or the paths a yard wide, of course can be cultivated without any trouble; and if you set your plants with a spade, on the plan given by Dan White, you can run the cultivator within an inch of the plants on each side, without injuring them. As the rows *between* the plants are only 18 inches wide, you will probably do them easiest with a wheel-hoe. Friend Young uses a wheel scuffle-hoe. With a horse trained to the business, and a cultivator that will shut up narrow, I have sometimes done quite a good job of cultivating where plants were 18 inches apart. Please notice, before the plants have put out any runners, you can, with the horse-cultivator and the hand-cultivator, go through them both ways, so as to cultivate close up to each plant on four sides. By this means an acre of plants can be kept almost perfectly clean with modern cultivators and nothing else. Not only this, we can break the crust after every rain so quickly and so easily that we can afford to keep the ground loose and mellow, banishing all weeds at the same time that we do the stirring; and there has never been any thing invented, and in my opinion there never will be, to get great crops of any sort of fruit like this mellow, soft loose soil. So far so good; but when the runners put out and begin to take root, what then? Here is what I learned of friend Young's invention: No plants are allowed to take root in the broad path 3 feet wide—that is, not the first season, any way; but when the runners are just right, and begin to take root, your man or boy is taken into the patch with a trowel, and told to set a good plant about half way between all the old plants and one in the center of the square. After he has done this he is to cut off all the others. Let us have another diagram to make this plain. We have placed the stars a little further apart, so you can see better what you are doing.



FIG. 3.—HOW TO PLACE THE RUNNERS.

The large stars represent the original plants, and the small ones the new plants at the end of the runners. This, you will notice, makes a matted row, with the bearing plants just 9 inches apart each way. This is a little further apart than what Terry directs; but with the

strong thrifty Enhance, the space is not any too great. Each square contains nine bearing plants; and each bearing plant should give a great cluster of immense berries. If your plantation is made either in the spring or fall, your first crop will be like cut Fig. 2; and it will be an easy matter, with the horse-cultivator in the three-foot path, to keep this matted row clean, for the plants stand like hills of corn, except that the hills are only 9 in. apart, and you can work them with a narrow hand-cultivator, or you can use a hoe. Then comes the question, How many crops shall we get from this beautiful plantation before plowing it up? Mr. Young thinks it pays to get two crops; and he sometimes gets three. If you work for a third crop, after the first crop is picked, clean out your bed thoroughly, then let the runners set where they choose. Just let the whole plantation grow up to a thick mat of vines, leaving a 2 or a 2½ foot path for the pickers. Through this path, of course, you keep the cultivator going. After you have secured the crop from this solid matted row, then turn strawberries, weeds, and every thing, all under, the very day you do the last picking. That is, you *ought* to do it the very day, if you are going to work up to the highest notch of high-pressure gardening.\* Now, friend Young goes to work and plants strawberries again, because his whole ground is used constantly for strawberries exclusively, or almost so. Meantime, however, he is pretty well convinced that some other crop should be put on before planting again for strawberries; and, by the way, you can get a good crop of cabbages, wax beans, early sweet corn, and ever so many other things, after turning under your strawberries. You may remember that, last season, I got a splendid crop of Freeman potatoes after the strawberries were all picked.

THE TIMBRELL STRAWBERRY.

In a little sheet called *Specialties for 1895*, published by the introducer of the Timbrell strawberry, we clip the following:

The Timbrell is a strawberry that has surpassed all expectations, yet not half its merits have been told. Each mail brings to us the cheering news that those who have planted it the past season can not speak too highly of it. Never has a new fruit so quickly become such a general favorite, succeeding so well in every locality, and never has there been such a run for plants as on Timbrell. We could not by any means supply the demand last spring.

There is no berry in existence to-day that includes the same combination of merits attained in Timbrell. Indeed, we say without fear of contradiction that there are not six berries on the market that combine the good qualities possessed by Timbrell alone. Hence you get in Timbrell the same points that you would get in half a dozen of the best varieties of the day. We claim still more: There is no variety in existence that can compare with Timbrell in quality, healthiness, vigor, and large average size; and there is but one other that equals it in productiveness, though it is soft and of poor quality.

You will notice in the above that not a word

\*Please notice, in fall planting the routine would be something like this: Use potted plants; in fact, this is the way friend Young always does, for he is a greenhouse man, and handles pots every day of his life. Use potted plants, and the next summer you will get part of a crop of immense-sized berries. After fruiting, place the runners as in Fig. 2, and the second summer you will get a full crop—all large fine berries. Gather your fruit; get out the weeds, then let the whole plantation have pretty much its own way. Run the cultivator, of course, and do as much hand weeding as you can afford to do, more or less; then the third summer you will have an immense crop of berries as before; but a great many of them will probably be small, because the beds are too much crowded. Pick as long as it pays to bother with them, then get them under the sod, and have your field clean and lovely once more.

is said in regard to the objection made by the Ohio Experiment Station; viz., the peculiar blotches of white when the berry is fully ripened. Of course, the originator does not have very much to say in regard to the *appearance* of the berry; but is it fair to give a new berry such a recommendation as the above, after the decision that has just come out from the Experiment Station? I really hope the plant *will* have all the *good* qualities claimed for it in the above. The introducer of any new fruit, who mentions all of its good qualities and entirely *omits* the objectionable, will certainly hurt himself in the end a good deal more than he will gain, even *should* he succeed in disposing of his stock of plants at a good figure; and the latter is to be doubted.

#### TOMATOES FROM THE SEED IN 26 DAYS.

Last April I mentioned purchasing a package of seed of F. B. Mills. These were given the same attention that we give our other tomatoes, but they were little if any earlier than those we have already in the market. If any of our readers have had a different experience, we should be glad to hear from them; but it strikes me that any seedsman who advertises extensively that he has a strain of tomatoes that has given ripe fruit in 26 days after planting, will do himself an injury that it will take him many years to get over.

#### CRIMSON CLOVER SOWN THE LAST OF SEPTEMBER.

Our stand at this date, about the middle of January, is almost perfect. On the creek-bottom ground the clover is as green as if it were spring, and not a plant has been disturbed, although we have had several freezes almost down to zero when the ground was bare. I confess it is a great surprise to me. But the roots, after the fall rains, went away down deep, and spread out through the soil. If it goes through until April like this, crimson clover will certainly be one of the greatest boons that has ever come to the cause of agriculture. Just think of it! If, after taking off a crop in the fall, we can sow clover and get a good stand to be cut or turned under in time for potatoes or corn the following spring, we shall be almost a year ahead. Reports seem to indicate that this clover started in the fall, and turned under in the spring, is almost if not quite as good as a crop of red clover that has had over a whole year to grow.

#### GREENHOUSES, HOT-BEDS, AND COLD-FRAMES FOR FLORIDA.

Friend Selser tells us they do not have any such thing down there; but he says, also, he saw two carloads of garden-seeds from Chicago, going to Florida to plant new stuff where the other was killed. Now look here: About Christmas time they were selling ripe tomatoes; but before the new year had dawned, every tomato-plant was killed, root and branch. Are these Florida folks going to plant tomato-seeds, and wait through the very best of the season for more plants to grow? Are there no reserved plants kept under glass, or even under cotton sheeting, to plant out in the fields, and to come into bearing in a few weeks, instead of waiting for the slow process of growing things from the seed itself? If so, then I think Florida is just where A. I. Root is wanted, and perhaps just *now* is the very time they need him most.

#### THE WEATHER BUREAU AND THE FLORIDA ORANGES, ETC.

I suppose most of our readers know, as a matter of course, of the millions of dollars' worth of oranges, fruits, and vegetables lost by the recent cold wave in Florida. The clerk of the Weather Bureau says that telegrams were sent

all over; cold-wave flags were up on Friday morning, Dec. 28, announcing the blizzard that came on the 29th. The telegrams and daily papers show that full warning was given of the approaching cold wave 24 hours in advance; but notwithstanding this, little or no provision was made for the coming storm. It really gives me pain to notice how indifferent and stupid many seem to be in making use of this wonderful invention of modern times. I often talk with people in regard to important business transactions; but when the weather question comes in, it really pains me to hear them say, again and again, that they have not even looked at the weather-signals floating almost above their heads. Worse than this, there is a sort of foolish skepticism in regard to the ability of the department to predict the weather. But few seem to know that we can now tell about an approaching cold wave or storm almost as well as we can predict the coming of a train that starts, say, from Chicago and will reach Cleveland or New York at a certain time. It is our business (as displaymen for Medina) to keep a record every day of the weather-predictions and the actual weather as it turns out. In the month of December our clerk recorded only *two* noes. All the rest of the predictions, both in regard to the *weather* and the *temperature*, were "yes," "yes," from the beginning of the month to the end.

In a recent copy of the *Rural New-Yorker* the editor asks how much the Weather Bureau was worth to farmers. The only response I have noticed was something like this: A man said it was worth a good deal to him; because, when the signal said "storm," he always expected fair weather, and *vice versa*. Now, this might have been well enough for a joke, but it was an absolute falsehood; and I protest against such falsehoods having a place in a good paper. If the editor's sanctum is where he can get his eyes on the weather-signals as they are run up, he can, with a pencil and paper, verify the predictions himself. In a recent storm on the lakes, millions of money and hundreds of lives were saved because the sailing crafts all stayed in the harbor on account of the predictions of the Weather Bureau. One vessel decided to disregard the storm-signal, and was lost, crew and cargo. Now to go back to the oranges.

Had our good friends in Florida gone to work picking their fruit on Friday morning, they might have saved millions of dollars; and thousands of people who are now almost bankrupt might have been getting the big prices that oranges are bringing at the present time. I know what I am talking about, for a bee-keeping friend, Mr. W. A. Sesler, is with us here to-day, and he has been all over Florida purchasing fruit, both before the terrible freeze and after it, and he was right in the heart of the orange regions when the freeze came.

#### USING SEEDS ONE YEAR OLD, ETC.

I have said before, that there are a good many times when I would give more for old seed that gave me a good crop the preceding year, of just what I wanted, than for any thing I could buy in the way of new seed. The following, on a postal, illustrates the point:

*Mr. Root*:—Have you any of the Golden Self-blanching celery seed left over from last spring, of the lot that I got that 1 lb. from in my seed order of Feb. 23d? I should like to get some of the same stock and lot. HERMAN HILLMAN.

Dundee Lake, N. J., Dec. 14.

As soon as we heard from him we told him how much we had left of that very same stock. Here is his reply:

Find inclosed a check for \$3 worth of that seed



you have left over from last year's supply. If there is more than my check might cover, send it along and send bill. Send by mail. I will send you quite an order next spring for seeds. I found them to be as you represented.

Dundee Lake, N. J., Dec. 20. HERMAN HILLMAN.

Perhaps I may as well say that we are now keeping a careful record of all the seed we purchase (especially *whom it came from*), and we try make to at least a small sowing of every thing ourselves. Then we watch carefully for reports from others. The fact that a certain kind of seed *germinates* all right is but a small part of it; for really no one can tell whether the seed is just what he wants until the crop is *matured*. Our experience is, that a very large part of the seeds used for market-gardening germinate almost as well the second year as the first. Beans and corn—especially the latter—are liable to germinate, of course, a smaller per cent; but I have tested peas, purposely kept four or five years, and found little or no difference in germination, and none in the maturing of the crop. This may not, however, always be the case. Our experiment stations have, however, I believe, made some experiments in this line. I should like to have the market-gardeners tell us the result of their trials of different seeds tried the second year, or even the third. Of course, you are well aware of the great advantage in having some seed that you have raised a crop from (and a crop to your liking) the previous year. It is most specially desirable with such a plant as celery, to be sure that the fault (such a fault as sending up a seed-stalk, etc.) is in the soil, weather, etc., and *not* the fault of the seed.

#### THE CHEAP ONION-SEED, ETC.

I bought a large lot last year in Iowa, at 63 cts. per lb., while most seedsmen asked 90 at wholesale. The seed at 63 cts. was every bit as good as any I could get, and everybody was pleased. I find I can not get any as cheap this year, however, and do not like to buy any seed in a promiscuous way. I got a bag of Wardell's kidney wax beans the past season that were about all green-podded, and a source of a good deal of disappointment and vexation. They tell me that the stock was short, and they had to buy some, and suppose some one deceived them.

Sanborn, N. Y., Dec. 10. CHR. WECKESSER.

#### THE PARKER EARLE STRAWBERRY—A GOOD REPORT FROM IT.

*Mr. Root*.—Those Parker Earle strawberry-plants I got of you a year ago last September have done finely. We got 50 quarts from the 100 plants you sent. They did not make any new plants the first fall.

I have a nice lot of plants this year. Michel's Early does not do any thing for me; but one mile from here, on different soil, it does nearly as well as the Crescent. I have five of those nine best kinds, and one better—a seedling that my brother started nearly eighteen years ago. He has never tried to introduce it.

Parkman, O., Dec. 31. F. P. CLARK.

Friend C., I am a little astonished at the above. I was getting somewhat out of conceit with the Parker Earle after the way it "tumbled" during such a severe drouth as we had last season; and I am surprised to hear you say that it made no plants. Perhaps this was the secret of your great yield from it. I know Peter Henderson talks about getting a quart from a single plant; but I do not believe that I ever in all my life had a pint per plant right through from a row of 100 plants. And I am glad of what you say in regard to Michel's Early. This shows how much difference there can be in localities only one mile apart. If you have got a seedling better than the nine selected by our Ex-

periment Station, perhaps you had better let us try it. But, oh dear! it makes my back ache to think of the numbers we *have* tried, and found to be no better if as good.

#### TOMATOES AND SWEET POTATOES.

The "Buckeye State" tomatoes beat any thing in size ever seen here, even the Ponderosa, and in quality the Ponderosa is not to be compared to it. The second picking was 22 tomatoes (no thinning or selecting); weighed 17 lbs. 12 oz. It seems to me you would take hold of the Bunch (or Vineless) sweet potato. We like them better than the ordinary varieties, and they don't run.

E. A. BOAL.

Hinchman, Berrien Co., Mich., Dec. 12.

Thanks for your report. We have sold the plants of the Vineless sweet potato for two years past; but our soil is so poorly adapted to sweet potatoes that we purchase most of those we sell, in Baltimore.

#### DIGGING POTATOES BEFORE THE VINES ARE MATURED, DEAD, OR DRIED UP.

There, now, A. I. Root, on page 31 you have given a good pointer on growing potato-plants, and I just want to tell how those potatoes turned out that you told me, when here last October, not to dig until the vines were dead. You see, I had taken from thrifty plants 12 side-shoots, each having a few roots, and I planted them on the 3d of July. One plant died; the 11 gave 11 lbs. of potatoes; and the very hill that I was about to dig up when you stopped me gave 3 lbs. Now, then, who will raise the most side-shoot potatoes of the Craig seedling, in 1895?

G. J. YODER.

Garden City, Mo., Jan. 5.

#### THE NEW CRAIG SEEDLING POTATO.

As orders continue to come in, and the potato seems to be receiving much favor, I begin to be quite a little anxious about its outcome. You see friend Craig, myself, and one of his neighbors, are almost the only ones who have given it a trial. Oh, yes! here is this much from Wm. Henry Maule. I take it with a letter from friend Craig:

I received Maule's report the day I mailed you my last letter. He says: "Your potato is a good one, very similar to Vick's Maggy Murphy; table qualities good." The Maggy Murphy is not given in any catalog I have. I will try to get some, and test them this year along with mine; but I am sure mine will prove the best, on our soil at least. Mr. Maule does not give the yield of either variety.

Zimmer, O., Dec. 22. GEO. E. CRAIG.

In my description there is one thing I forgot to mention. The boys dug the potatoes while I was away, as you know. When that heavy frost came so early they covered them with sheets and blankets; but the freeze was too severe, and it killed the potatoes notwithstanding. Well, now, I should have waited until the vines were entirely dry before digging. Perhaps it would have made but little difference, however. At any rate, the quality of the potatoes was extra—I believe a little better than those received from friend Craig himself; but that may be only a notion. Well, one day when we were down near where they grew, my good German friend and helper, Ben, pointed to the fence and asked me if I had seen that potato-vine. The root was stuck in a crack in the top of a fence, perhaps higher than my head, while the top of the vines reached down to the ground, with great spreading branches. As quite a few have asked for a dollar's worth of these potatoes by mail, we have decided to send  $4\frac{1}{2}$  lbs. for \$1.00. I should like to make it 5 lbs., but we can not quite do it and get peck prices. I omitted to say that one pound by freight or express will be 15 cts; 4 lbs., 50 cts.

# PATENTS

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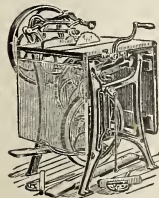
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