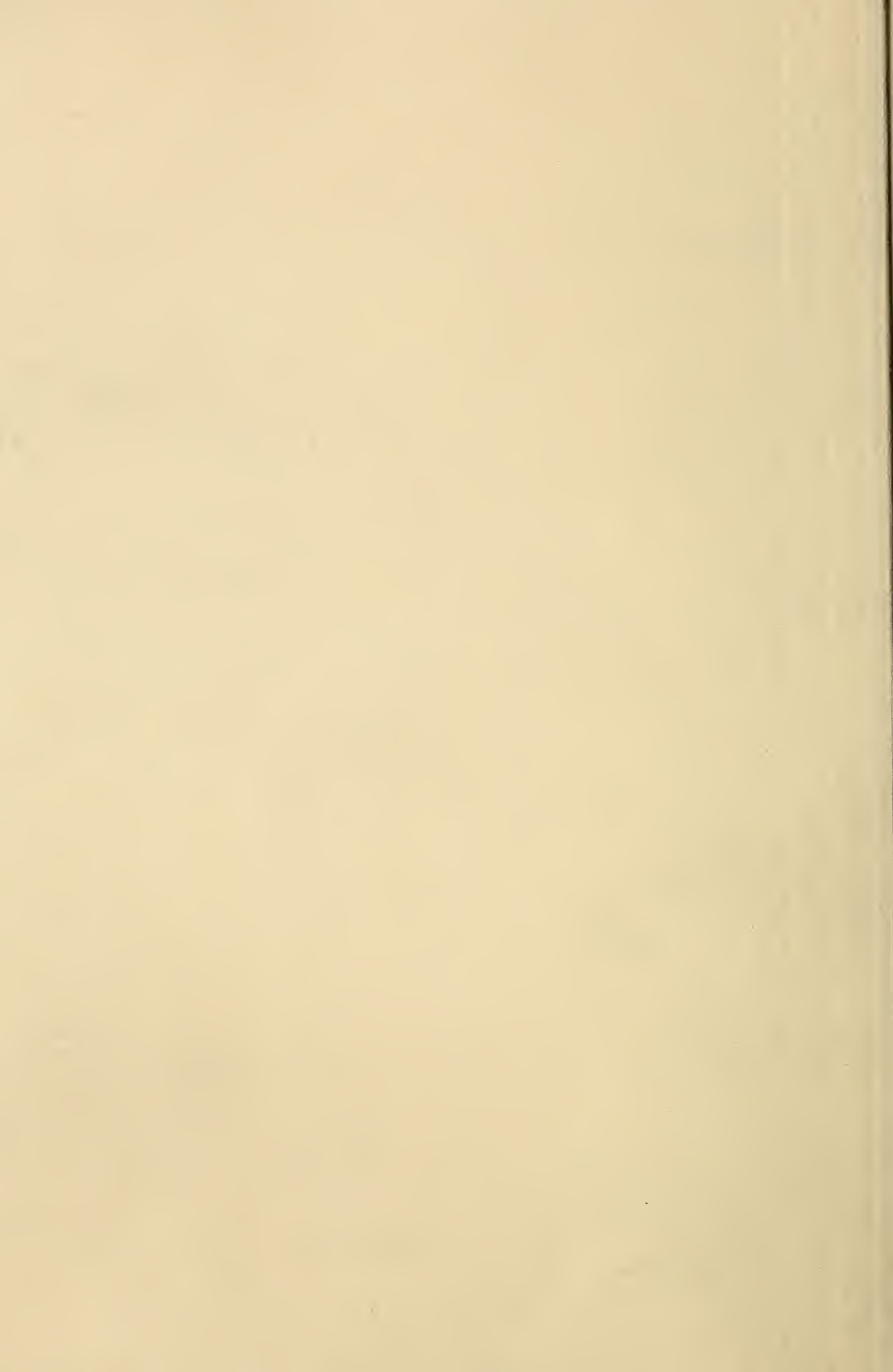


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GLEANINGS

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.

BEE CULTURE

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FEB. 15, 1893.

No. 4.

STRAY STRAWS

FROM DR. C. C. MILLER.

THANKS to many friends, for dictionary help. "SLUMGUM," it seems, is not a new word. R. Wilkin writes that J. G. Corey used it 16 years ago.

IF WE ARE to have cholera and hoop-skirts both at a time the coming year, we shall indeed be an afflicted people.

"OUT-APIARY. An apiary kept out of doors." That's a definition I have seen given in all good faith, as a correct dictionary definition.

"SOUCHE" is what the French call the hive or colony that has sent out a swarm. We haven't any name for it, unless it be "mother-colony." Do we need any other?

IT WOULD COST a German bee-journal something in the way of revenue to join brother Root in his crusade against tobacco, for tobacco "ads" are common in German bee-journals.

SIX BANANAS made Hutchinson's dinner on his way to Washington. That's just double the rations other slaves get. At least, I've read that three was the number in the West Indies.

PROF. COOK has been translated into German. His picture and biography are in *Illustrierte Bienenzzeitung*. The editor considers him a favorite among American bee-keepers. Ganz wahr.

IN GERMANY, in some parts, bee-keepers are much interested in the planting of fruit-trees along the highways; and, if I am not mistaken, some public appropriations have been made for the purpose.

I'VE BEEN WONDERING who it was that handled the king's English so well in C. B. J. Hutchinson lets the cat out of the bag. It's G. T. Somers. I thought there was a summery air in the editorials.

THE COLD has been no greater—indeed, not so great—here as some other winters; but its staying qualities have been unusual. The thermometer has been steadily humble for an unusually long time.

HUTCHINSON thinks that, so far as organization is concerned, "the Canadians are away ahead of us." Yes, and I don't know of any nation under the sun that isn't. We've mighty little "git up and git" in that direction.

R. WILKIN thinks we need a word indicating the contents of the hive, as distinguished from the hive or box containing them. He thinks Langstroth suggested the word *ruche*. If I am not mistaken, *ruche* is simply the French word

for *hive*. Do we need such a word? and if so, what's the word? Will some German tell us if *bau* is used in that sense?

"DRY FEACES" was a bone of contention in this country some years ago. Now they're having it in Germany. Weygandt asserting that any other than minute dry pellets of excrement is just so far evidence of disease, Dzierzon opposing.

HUTCHINSON, you just attend to Michigan and let Illinois alone. All the same, if the Illinois State Society would let the bee-journals publish its report free, and could spend that \$500 in useful experiments, a lot more good might be done.

HASTY is to get up the review for the *Review*, taking all the journals, including the *Review*. The bee-journals will have to make unusual exertions to be dull if Hasty doesn't get something spicy out of them. The *Review* will be a review as is a review.

FIVE ESSENTIALS in the condition of a colony, to make the best of a harvest, are thus given by C. J. H. Gravenhorst: A queen without fault; proper combs; swarming at the proper time or not at all; not overcrowded with bees; and not having too much brood.

THAT SHORT WAY to kill skunks, on page 93, reminds me—I tried that way once within 15 miles of where Mr. Wertz lives. The only difference was, that I struck the tail instead of the head, "Smudge!" I can smell it yet! It was dark, and I thought it was a duck!

JUST AS I THOUGHT. Prof. Cook says, "I feel sure, not from guess but from careful investigation, that honey is always injured by adulteration with glucose. Such practice is ruinous to bee-keeping and, should be denounced and prevented, no matter what it costs."

GRAVENHORST thinks Frank Benton was incorrectly reported at Chicago in saying that European bee-keepers were behind the times, or else that he hadn't seen or learned much about it, during his sojourn in the Old World. They can surely give us points in some respects.

THAT GENIAL GERMAN, C. F. Muth, with his usual persistence, has succeeded, as reported in A. B. J., in getting freight rates on extracted honey the same as on syrup, instead of 40 to 50 per cent higher, as heretofore. I don't know just how much territory is covered by this ruling.

RAMBLER, if you want one of those sweet creatures under my care, on page 90, why don't you walk up like a man, instead of sneaking round the corner? But one of the "sweet surups" has her eye on you through that hole in the wall; and if she once spears you with that nose you'll never complain of fleas again.

QUEEN-EXCLUDERS, says Rambler, in *Review*, let queens through not only once in a while, but twice in a while. That's rather discouraging. I thought the last lot I got worked every time; but I'd give something to be certain. Suppose GLEANINGS gives reports of successes and failures with *virgin* queens, telling, if possible, the kind of perforations used.

THE SEVERE COLD of this winter is being commented on by the editor of *B. B. J.*, it having actually gone as low as 5° above zero in one place! Bless your heart, Mr. Editor, come and spend a few days at Marengo, and you'll call 5 above mild. Why, it's been playing around zero for weeks, sometimes 20° below, and yet it has gone a good bit lower other winters.

THE NAMELESS DISEASE is reported so differently in different cases that L. B. Smith, in *A. B. J.*, thinks there must be two separate diseases. I've had more or less of it for years, and don't think it of importance enough to make a fuss about; but it seems quite a different thing with others. Mr. Smith saying, "They just die by the wholesale—a strong colony dying out in a few days."

LANGSTROTH'S REMINISCENCES.

AN INTERESTING ACCOUNT OF THE CIRCUMSTANCES THAT LED TO THE INVENTION OF THE LANGSTROTH HIVE AND FRAME.

The principle of having the bees suspend each comb from a separate bar, by which Dzierzon accomplished such great practical results, had, indeed, been known before his time. In 1675 (see "A Journey into Greece," by Geo. Wheeler, page 41) the bee-keepers of Mount Hymettus used it in a rude form, in making artificial swarms; and in 1790 the Abbe Della Rocca shows in plate No. 3 of the third volume of his work on bees, that he used bars with "wings" similar to those used by the Baron von Berlepsch, to keep the combs at suitable distances apart. In the sixth volume of Hamet's bee-journal, *L'Apiculture*, p. 146, may also be found Della Rocca's description of his hives, made, as he said, "after the method of the ancient Greeks." On p. 147 of the same journal there is a cut and description of a hive with two tiers of movable slats, and with side-opening doors, invented by Buzaries. A description of this hive may be found in "Memoires de l'Académie de l'Industrie Française, de 1832:" but the inventor says that he made it known to the Society of Natural History in 1828—some seven years before Dzierzon began to keep bees. These proofs that hives with slats, and even with side-opening doors, were used and described prior to Dzierzon's writings, are not given with any intention to detract from his merits, for there is not only no proof or even probability that he knew of them, but it is very certain that, until by his great skill he had made such hives a success, they had contributed scarcely any thing of value to practical apiculture.

Having by the use of my improved bar-hive secured a more perfect control of the combs than I could find in any other hive, I began to see that artificial swarming might be made much more successful than by Huber's method; for about this time I discovered that bees without a queen, if they build comb at all, make it of drone size; a fact unknown to Huber, and fatal to any practical success in artificial increase by his methods.

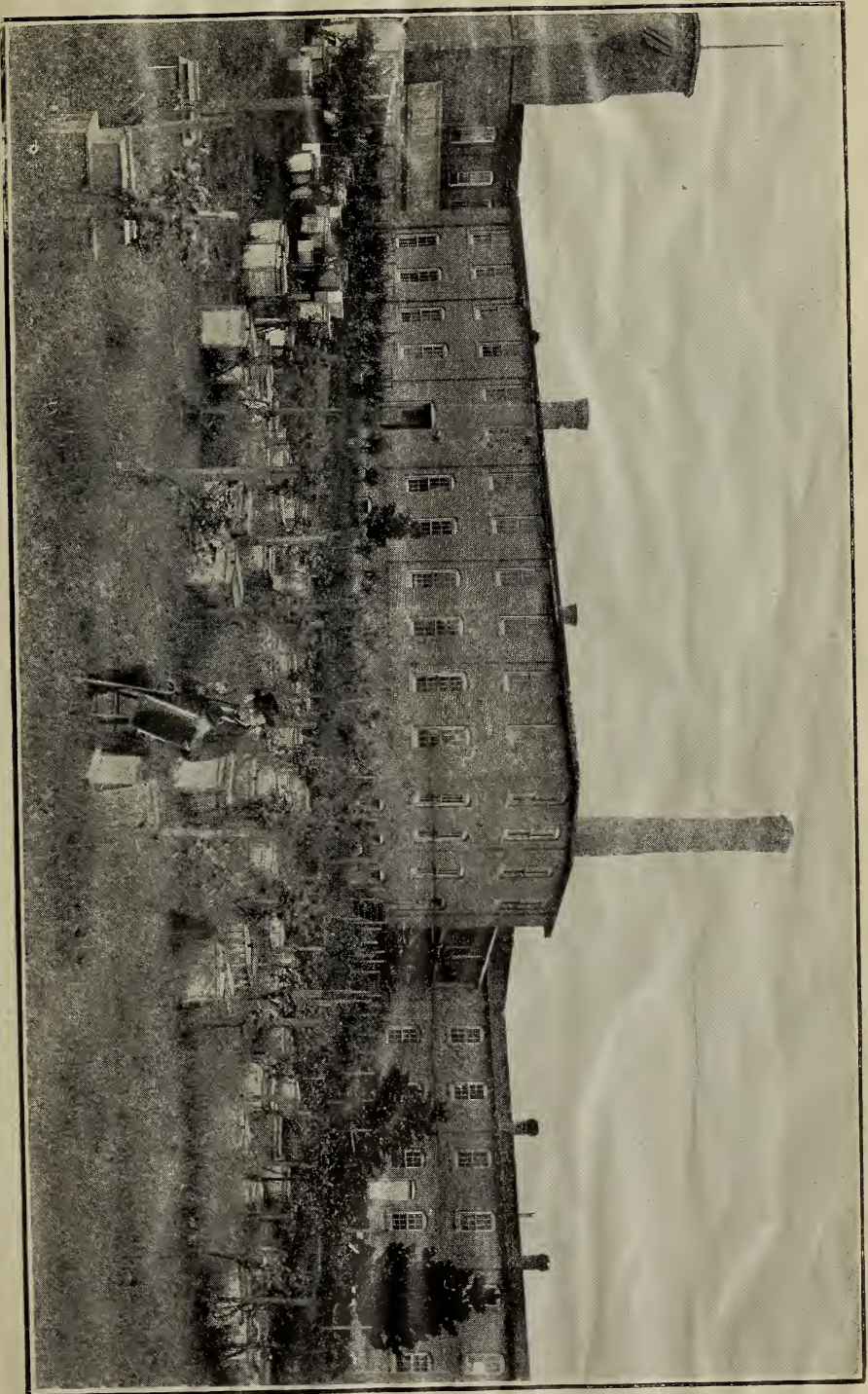
The publication of my discovery, made in the summer of 1851, that bees could be trained to work in large observing hives, even when exposed to the full light of day, without obscuring

the glass with propolis, brought me a visit from the late Rev. J. H. Berg, D.D., of Philadelphia. From him I first learned of the existence of such a person as Dzierzon, and of the great attention he had attracted by his successful management of bees. Before Dr. Berg communicated any particulars of Dzierzon's methods I showed him my hives, and explained my system of management. He found our hives to differ in some very important respects; but he was greatly astonished at the remarkable similarity in our methods of management, as my investigations had evidently been conducted without even the slightest knowledge of Dzierzon's labors. He informed me that Mr. Samuel Wagner, cashier of a bank at York, Pa., had made a translation of Dzierzon's work on bees, the loan of which he procured for me.

No words can express the absorbing interest with which I devoured this work. I recognized at once its author as the *Great Master* of modern apiculture. His discovery of parthenogenesis threw a flood of light upon the profound mysteries in the physiology of the honey-bee, which had so perplexed observers from the time of Aristotle, and which even Swammerdam, Réaumur, and Huber had failed to solve. I soon perceived that I had been anticipated in more than one important discovery, and that he was well acquainted with the fact, with all its practical results, that bees without a queen build only drone-combs. Artificial processes, which I had supposed to be all my own, and which I had practiced on a comparatively small scale, had been conducted by him so largely and so successfully as to secure special recognition by the king of Prussia, at whose request his book was written.

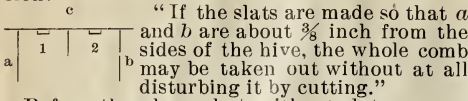
In the fall of 1851 I had nearly completed my application for a patent upon my improved bar hive. It will, no doubt, appear very strange to persons not familiar with the ordinary progress of inventions, that the shallow space between the tops of the bars and the board on which the receptacles for surplus honey rested, and which I proposed to make one of the leading features in my patent, did not at once suggest itself to me that uprights might be fastened to the bars, so as to give the same bee-space between the front and rear walls of the hive, and so change the slats into movable frames. But I used the shallow space above the bars, for a whole season, without ever connecting the two ideas; and then, only when it was too late to make any use of it in the apiary for that year, did the simple idea of the movable frames present itself to my mind. Returning late in the afternoon from the apiary, which I had established some two miles from my city home, and pondering, as I had so often done before, how I could get rid of the disagreeable necessity of cutting the attachments of the combs from the walls of the hives, and rejecting, for obvious reasons, the plan of uprights, close fitting (or nearly so) to these walls, the almost self-evident idea of using the same bee-space as in the shallow chamber came into my mind, and in a moment the suspended movable frames, kept at suitable distances from each other and the case containing them, came into being. Seeing by intuition, as it were, the end from the beginning, I could scarcely refrain from shouting out my "Eureka!" in the open streets.

At that time there was visiting me my college classmate and dear friend, the late Rev. E. D. Sanders, who afterward founded the Presbyterian Hospital in Philadelphia, and who had taken that season a lively interest in my apicultural experiments. Full of enthusiasm, we discussed, until a late hour, the results which both of us thought must come from using movable frames instead of bars. Before I sought my



1852—LANGSTROTH AND THE EVOLUTION OF THE LANGSTROTH INVENTION.—1892—SEE PAGE 145.

bed, under date of October 30, 1851, I made this record in a private journal still in my possession:

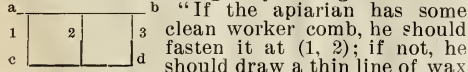


"If the slats are made so that *a* and *b* are about $\frac{3}{8}$ inch from the sides of the hive, the whole comb may be taken out without at all disturbing it by cutting."

Before the above, but without date, occurs the following entry:

Bars, or Slats. "In the use of barred hives, every thing will depend upon having the combs accurately fastened, each to its proper slat. When the slats are long, a small cross-piece extending half way down will answer quite a good purpose."

Then follows, under date of Oct. 30, 1851, after the words "disturbing it by cutting":



"If the apiarian has some clean worker comb, he should fasten it at (1, 2); if not, he should draw a thin line of wax across the center of the bar. If every other bar can be furnished with a comb-guide it will answer every practical purpose. *ab* should be an inch wide, $\frac{1}{4}$ in. thick; 1, 2, 3, *cd*, $\frac{3}{4}$ in. wide. If *a b* is not over 12 in. long, 2 may be dispensed with; *cd*, about $\frac{3}{8}$ of an inch from the bottom-board. By the use of such a compound bar, the removal of bars with comb, brood, or honey can easily be effected. With the ordinary bar, the work of removal is always difficult and often impossible; and this is the reason why hives with bars, notwithstanding all their theoretical advantages, have been so little used. It is very obvious, that the box or boxes for the storage of surplus honey may be furnished with these bars."

"The use of this bar will, I am persuaded, give a new impetus to the easy and profitable management of bees, and render the making of artificial colonies an easy operation. By the very great ease with which the bars with their combs may be removed, a command over the whole proceedings of the bees is obtained which is truly wonderful. If a hive is infested with the larvae of the bee-moth, all the combs may be examined and cleansed in a short time. To one unaccustomed to the scientific management of bees, it would appear to be a very formidable undertaking to remove a bar with its comb full of bees. The timid or inexperienced may use a bee-dress, or resort to a little smoke." "The removing of the queen by means of these bars is very easily accomplished, and this and all other operations may be performed without injuring a single bee, thus preserving the apiary from constant irritation, and keeping the bees always peaceable. It is obvious, that the movable frames (I now call them by the better name) may be adapted to almost any hive, and that they will be of the greatest practical benefit."

It must be remembered, that, when I set down these remarks, I had never seen nor even heard of movable-comb frames for a bee-hive. However crudely expressed, they show at least that I was well prepared for the results which followed their invention. It is very obvious, that the idea of using movable frames could never have occurred to any one unless he had become fearless in the management of bees, by knowing to what a wonderful degree they can be made subject to human control.

Up to the time of my reading Mr. Wagner's manuscript translation of Dzierzon, I knew nothing of European bee culture save what I found in the works of Huber, Bevan, and Huish. I was satisfied that my hive and methods of management were far in advance of any thing given by these writers, and, even after learning how far they had been outstripped by Dzierzon, I still thought that my

movable frame made a foundation for much greater results than he had reached. Making, therefore, the claims to embrace my newly invented movable frames, my application for a patent was filed in the Patent Office at Washington, on the 6th of January, 1852. The original specifications and claims of this patent, which, from some modifications of my claims, and the great press of business then before the office, was not issued until Oct. 5, 1852, are so exhaustive as to leave no room to question what I claimed to have invented.

Dayton, O.

L. L. LANGSTROTH.

Continued.

SPRING MANAGEMENT OF BEES, ETC.

PLAIN DIRECTIONS FROM DOOLITTLE; SPREADING BROOD, ETC.

Several have written me, asking me to tell just how I manage bees in the spring; and as most of them speak of taking GLEANINGS, I will reply through its columns, with the permission of the editor. As I now feel in the matter, there is only one thing which is really essential to look after, as soon as the bees are set from the cellar, or in early spring, no matter which way the bees have been wintered; and that is, to see that they have plenty of honey to last them till pollen becomes plentiful. This can best be done on any cool morning by raising the cover to the hive and turning back the quilt, or whatever covers the combs, doing this carefully, so as not to arouse the bees. If plenty of sealed honey is seen along the top-bars of the frames, the bees are all safe; and if otherwise, they are not safe, and should be fed enough to last four or five weeks, always remembering that bees consume more honey at this time than they do during the fall and winter months. Having made sure that all have honey enough, there is no further need of molesting the bees till the weather becomes warm enough for them to work in the fields or trees, gathering pollen; in fact, I now believe that further disturbance is positively detrimental, inasmuch as it often causes the loss of bees and brood, as well as a greater consumption of honey, without any proportionate gain to the colony. Six weeks is a sufficient time to build up a fair colony, to one sufficiently strong to store honey to the best advantage; and as the clover does not usually begin to yield honey here till about the twentieth of June, from May first to the tenth is soon enough to begin working for brood; and it is better not to touch them, even now, unless the weather is warm enough so that the mercury reaches from 60 to 75° during the middle of the day. With a temperature of less than 60°, brood is liable to be chilled in handling, from which a positive loss is made, rather than the intended gain. If the weather is fine about this time, the internal condition of each colony is inspected by taking the frames out of the hives, cleaning the dead bees off the bottom-board, should any remain in the corners of the hives; seeing that each colony has a good queen, and that there is honey enough in each hive to last at least two weeks. A good queen is of no more importance at this time than is this two or three weeks of honey, which means from six to ten pounds; for if the bees do not have enough stores so they need not feel it necessary to economize, a good queen and all else will not make up the lack, for bees will not rear much brood if they are obliged to economize for fear of starvation in the immediate future. After seeing that all have a good queen and sufficient stores, they are now left till willow and hard maple bloom, when, if the

weather is favorable, the combs in the brood-nest are reversed by putting those frames having the least brood in them in the center of the cluster, and those having the most at the outside, thus causing the queen to fill these center combs with eggs as fully as were those which were in the center before, or more so, while the brood in those now on the outside is not allowed to decrease at all. In this way a great gain is made, as I have proven by leaving rows of hives in the apiary untouched, and by treating others as here given. Understand, I am talking of the frames which have brood in them, or what is termed the "brood-nest," and not the brood-chamber. Only the frames having brood in them are reversed; the rest are left untouched. In about two weeks the brood-nest is reversed again, at which time all but the very weakest colonies will have brood in all, or all but one or two combs, after which there is no gain made in handling the frames, unless you have some special object in view, such as taking away the queen, changing brood from a stronger to a weaker colony, or something of that sort. In two or three days after the last reversing was done, the colonies are ready for the sections, if there is any honey coming in. If not, it is better to wait till the hive becomes a little more populous; yet if we wait too long the colony is apt to contract the swarming fever before they go to work in the sections, in which case our prospect of a large yield of honey is lessened. As a rule, the fewer swarms that issue, the greater the yield of honey; yet where bees get the swarming fever, as they often will in spite of all our precautions, better results *will then* be obtained to let them have their own way, using the Heddon plan of preventing after-swarms, or some other equally good plan, than to try to keep these "fractious" bees all in the old hive.

NON-SWARMING BY TIERING UP FOR EXTRACTED HONEY.

In a late number of the *Review* I spoke of working my out-apiary on the tiering-up plan for extracted honey, so as to prevent swarming, or reduce swarming to such an extent that it would not pay to keep a man there to look after swarms. A correspondent, reading the same, wishes me to tell in GLEANINGS how it is done, as he has friends who take GLEANINGS, but not the *Review*. Before doing this I wish to ask you, Mr. Editor, not to let Dr. Miller call me *bad* Doolittle again, as he did in a late *Stray Straw*, because I had not told him that I had an out-apiary for the last three years. I have no time to hunt it up; but I am sure that I have twice mentioned the fact in print, before so stating in the *Review*, for I had no desire to keep the thing a secret. But, to return: The out-apiary is managed in the same way as given above until the time arrives for putting on sections, when, instead of putting on sections, a second story, filled with *all worker comb*, is put on in place of sections. If more room is needed (which there generally will be where the honey is all left on to the end of the season, as I recommended in the *Review*), as soon as signs of this are recognized, put a queen-excluder on top of the second story and a third story on top of this. Drone comb, or any thing along the line of comb, can be used in this, as the queen does not have access to it. If the honey season continues, and it is needed, put on the fourth, fifth, or sixth story, not extracting till the season is over, when all is to be extracted which the bees do not need for winter. The point is, to give so much room to the queen in the two lower stories that the bees will not want to swarm. If the excluder is placed on top of the first story, the bees are kept from swarming

but little more than when working for section honey. G. M. DOOLITTLE.

Bordino, N. Y., Jan. 26.

[This plan of tiering up for extracted honey is practiced by others; and, if we remember correctly, by the Dadants. Where there are plenty of combs and upper stories or supers, it is the most economical of labor, and what is of equal importance the honey is the richest and finest, because a large part of it has been kept over the hive for a prolonged time, thus being thoroughly ripened.]

FROM PH. J. BALDENSPERGER.

A REVIEW OF BACK NUMBERS OF GLEANINGS. HOW BALDENSPERGER MAKES USE OF CAMELS.

In your issue for Jan. 1, 1892, you speak of the Stanley extractor. I may say that I too tried it one season. In addition to its being very expensive, it is too large to go through ordinary doors. In Palestine, as we used migratory bee-keeping we used them almost all the year round, out of doors; but when crated, so as to avoid the many knocks the can would have to go through in loading and unloading daily on and off the camels, they work nicely. I fixed the chains and reversible parts, and extracted some 10,000 lbs. in the course of the year with one extractor. The Arabs are not good hands at the crank, so I dispensed with that, and they work it by the simple handle. I should prefer, judging from the looks on p. 51, 1892, the Cowan rapid reversible, and I'll use one of that kind. We took 1350 lbs. of orange-blossom honey in one day with a Stanley extractor. One man turned the extractor and frames, while another man did the uncapping, another carried the full and empty combs to and from the apiary, and your humble servant took out the comb from the hives, sometimes taking 26 combs out of one hive. We never spare the brood comb, and lose very few bees; for if the whole frame contains uncapped brood the frames are left in the hive, all others passing through our hands. The above amount was taken from 40 hives, Apr. 9, 1892, averaging nearly 34 lbs. per hive. The same hives had been extracted Apr. 2, and averaged 29 lbs.

PUNICS.

Punic bees did not act with me as described on page 162 by "Hallamshire Bee-keeper." In Palestine they were less dangerous than Palestines; but having only a few, I handled them with the utmost care. At all events, they are not so ready to sting as Palestines, though just as irritable. The pure North Africans, for that is the right name, such as I saw in their North-African homes, acted differently. Perhaps their general management, which is quite different from mine, influences their disposition, for they used to attack us as soon as we approached the apiary which my brothers had there several years. Palestines, and Syrians or Cyprians, never do so, and I hope the North Africans may prove the same with kind handling. The sting is, in my flesh, just as painful as that of the Syrians or Easterns; and this lot I handled was just as cross-tempered as bees can be. I could work with Palestines, when not venturing to look through more than two hives in September or October, without a veil. With no honey coming in, robbers make necessary greater precaution; but these North Africans began stinging us the very first moment we set to work; and unless smoked continually they would simply be unendurable. Now, one thing may excite their anger; viz.: While in treeless Palestine we have hardly any traces of propolis to stick

the frames fast, and thus render the removal of frames irritating to the bees, the North Africans fill up every crevice with propolis, which is gathered by them profusely on the cork-oaks and pistachio trees or shrubs, with which North Africa is covered from one end to the other—from Morocco to Tunis. The Syrians, also, propolize a good deal. They have pine-trees all over Lebanon. I brought thirty colonies of those North Africans with me; but, nailing the doors alone, I could not do without protection. Then, again, they are the greatest robbers, in consequence of their better development of the sense of smell, than other bees, I suppose; but they are never molested by other races—at least, I had some sad experience with their robbing qualities. My Palestines and Cyprians (nuclei, of course), too weak to defend themselves, were robbed of their honey, their bees killed, and the hives left empty; and although they did attempt to attack some stronger colonies, they were repulsed; but never did I find a Palestine or Cyprian loitering about the North Africans. I came away with the Africans, some having not a single frame of brood, and arrived here in Nice Oct. 18th. They were fed up with honey in the evening. Continuing this for a few weeks they hatched some drones, and some colonies had as many as six frames of brood. They found a hive with four frames yesterday. The Palestines and Cyprians gave up brood-rearing, being placed on the same footing. I was very angry with the Africans for causing the death of several Palestines; but I hope they will pay for their impudence by yielding surplus honey, though in Palestine they gave about the same quantity, being placed in the most favorable condition.

AMOUNT OF HONEY CONSUMED IN APRIL AND IN DECEMBER.

On page 183 Dr. Miller says bees consume six times as much honey in April as in December. The following will show exactly what a hive of bees did during the year. It brought in 200 lbs. of honey; of this, 144 lbs. was extracted, and 56, consequently, was eaten and used up for breeding. March 21st it weighed 66 lbs.—bees, five, and 26 combs; gathered, during orange-flow, up to April 7, 72 lbs., but evaporated 24 lbs., thus, April 7th, 31 lbs. was extracted. It continued from April 8th till April 21st on orange-bloom, and gathered 79½ lbs., but evaporated 31½ lbs. Apr. 21st: 41½ lbs. was extracted from Apr. 21st to May 27th. The bees ate 14½ lbs., besides what little honey they gathered. From May 27th to June 18th the weight increased 29 lbs. of hemp honey, which was extracted June 18th. July 5th, weight increased 35½ lbs. of hemp honey, and again extracted July 5th. July 30th the weight increased 40 lbs. of thyme honey. The hive now stood at 115 lbs. The following table will illustrate the matter further:

July 30 to August 9, decreased 13 lbs. in 10 days.
 August 10, decreased 2 lbs. in 1 day.
 August 11, decreased 2 lbs. in 1 day.
 August 12 to 13, decreased 2 lbs. in 2 days.
 August 13 to 20, stationary—lost nothing in 7 days.
 August 20 to 25, decreased 1 lb. in 5 days.
 August 25 to 29, stationary again—lost nothing.
 August 29 to September 2, lost 1 lb. in 4 days.
 September 2 to 6, decreased 2 lbs. in 4 days.
 September 6 to 13, decreased 1 lb. in 7 days.
 September 13 to 24, decreased 3 lbs. in 11 days.
 September 24 to 26, stationary again.
 September 26 to 30, lost 1 lb. in 4 days.
 September 30 to October 6, stationary again.
 October 6 to 16, decreased 3 lbs. in 10 days.
 October 16 to February 9, lost 10½ lbs. in 116 days.
 February 9 to March 16, lost 3 lbs. in 35 days.
 March 16, decreased ¼ lb.

March 16th, orange-blossom began again.

I was absent from Oct. 16, 1890, to Feb. 9, 1891, so I made no daily observations.

THE COST OF HONEY.

The cost of honey is discussed; but on p. 230 Mr. E. France talks about extracted honey, and he very justly remarks that it depends on location, bees, and the apiarist. In Palestine I worked the bees very differently from what any bee-keeper in the United States, perhaps, would do. As I owned no land I had to hire a place to put the bees during the winter; and during the different flows in summer the bees were hauled on camelback from one place to another. The usual pay for a camel carrying 8 hives is from 50 cts. to \$1.00. The apiary of 100 hives is located in only one place during the orange-blossom flow. One keeper is sufficient; but during the dry summer months not more than 24 hives are placed in one apiary, thus requiring a keeper each. Again, the apiaries being located near honey-plants, water is generally lacking, and has to be hauled. A keeper is paid from \$6.00 to \$8.00 a month; the workmen, for extracting, carrying honey, etc., are paid from 25 to 40 cts. a day, according to their ability. Thus I find for 100 hives:

Food for bees	\$ 48.00
Location	25.00
Tinkering	10.00
Bee-papers	5.00
Postage	2.50
Keepers and workers	75.00
Carriage for bees and implements	26.75
“ for myself	20.30
Water for bees	6.00
Repairing	4.70
Duty on bees	30.00
100 days' work	150.00
	<hr/>
	\$414.45

I got 12,000 lbs. of honey, which was sold at 8 cts., on an average. But even this does not exactly give us the cost per pound for the capital invested yearly. Mortification, and such items, may be viewed very differently, thus leaving the calculation open to everybody to choose according to his own views.

SHOULD BEES BE ALLOWED TO MAKE WAX?

June 1, p. 415, G. de Layens' experiments are given, and Mr. de Layens gives his experience, following which we might suppose it to be a fact that bees really give us more, or at least as much honey, if they have only starters to begin upon, as when they have old drawn-out combs. Now, the results of my experiments with hundreds of hives are as follows:

1. That a hive having 26 combs built, and ready to be filled when the honey-flow begins, has always proved the best, the honey being at once stored away, and which, as soon as full, those young bees having a surplus secretion of wax to use up can busy themselves in filling up the corners and uneven places which are always found on all extracted-honey combs; for the uncapping-knife occasionally slips too low, thus breaking out a bit of comb, and so leaving plenty of chances for the bees to mend.

2. That a colony given a super full of foundation will go to work slowly; and, even if it has stored honey in most of the frames, these new combs are so fragile when handled that it is very dangerous to extract the honey out of them, thus giving a good deal less honey; for the same colony would almost fill the combs again in the same time that the foundation, newly built, is left in the hive.

3. A colony will surely build its own comb foundation out quicker, provided there are not too many frames given at a time, and provided they are always put in between two fully built old combs.

4. Again, a colony will build too much drone comb if only starters are given; and the drone comb will be filled out with eggs as fast as bees

advance in cell-building. From all I know, if the experiments were taken strictly, as Mr. de Layens says, it would be unwise not to let our bees build all their comb afresh every year. If all our colonies would remain quiet, or even if the swarms that issue as early as April would not greatly lower the average, the general average would always be a good deal higher from colonies on old-built combs than those colonies which are generally helped with several brood-combs, some empty, built out combs, and some foundation; for, while the old hive bees can work right away, the bees of the first swarm, it is true, have the advantage of having the laying mother, while the parent swarm loses some time waiting for the new queen to mate. But suppose the bees swarm out again: then, of course, the parent colony, having lost a great deal during the first period of its queen's virginity, how much more during the second!

REMOVING PROPOLIS.

I jotted down in my note-book the way in which Miss Emma Wilson gets propolis off her hives, separators, etc., on page 419, to test it, as soon as I needed it. On p. 423 the junior editor, in addition to the above, tells us to rub grease over the contact part of brood-frames to prevent the depositing of propolis. Now, Mr. Editor, do you really advise greasing all contact parts of frames? and why brood-frames only? Do you intend to say by that, that the brood-frames are more propolized than others? or is it because they are (with Northerners perhaps) left untouched most of the time? With us, in Palestine, we made no distinction, but extracted honey from every frame, no matter whether it had brood in it or not, excepting open (unsealed) brood, and there are never more than two or three such combs in a brood-nest. Advanced brood is not very much injured by passing through the extractor. If the larvæ are moved a little outward by reversing, they are put right again; but what about the others on the second side? Well, I think the damage is not sufficient to warrant us in leaving the honey; then while we are taking out the full honey-combs, occasionally one brood frame slips along with the others.

DRONES CONGREGATING.

On p. 452, Mr. E. France, talking about drones congregating, agrees with Mr. Doolittle that drones do congregate; but although I have watched them occasionally as they congregated in Palestine, I always found them only half a mile from the apiary, making a great noise. It is generally in the afternoon, from one to four o'clock, that they fly out, the forenoon being too hot for them. May 14, 1890, and several days following; May 17, 1891, and following days; and Apr. 15, 1892, and following days. I saw the drones congregating, none out of sight, the young queens rushing up and down, followed by about two dozen drones, forming serpentine and whirling figures as swift as possible, passing out of sight, and this not more than thirty paces from the apiary. June 1, 1892, a queen and two or three drones dropped down not ten paces from an Arab apiary; but as there were a good many weeds in the place I could not find them. From all these observations, I think that drones congregate also immediately in or around the apiary, provided a good place, comfortably warm and without any wind, is found near by, behind a mountain or above some low lands.

PH. J. BALDENSPERGER.

Nice, France, Dec. 9, 1892.

[This is another of Mr. Baldensperger's carefully written articles, and we are sure it will be read with interest. These articles are particularly valuable because the data are not taken

from memory, but from the ever reliable note-book. The same painstaking care in collecting and preserving data always gives the exact page when referring to previous communications. We wish our correspondents would kindly remember this, as it saves much trouble. A quotation from memory of something said a few months back by some correspondent is apt to be unreliable, and is sometimes exasperating.

Referring to Mr. Baldensperger's inquiry in regard to greasing the contact parts of brood-frames, we would say that, by brood-frames, we meant all frames that may be used for brooding purposes, whether used for extracting or not. It is our custom in this country to call all frames not used for holding sections (such as "wide frames," "section-holders," etc.), brood-frames. So far as the propolis is concerned, there should be no difference whatever between the amount deposited on frames used in the brood-chamber or those in the extracting-supers. We do not recommend—or, at least, we did not intend to—that all who use self-spacing frames should rub the contact edges over with grease. We simply desired to suggest the trial of the plan. Reports since, however, regarding the value of the grease for the purpose are conflicting. We still urge further experiment in various localities on a few hives.]

RAMBLE 78.

ON THE ROAD TO CAMPO; THE CONFLICT BETWEEN BEE AND FRUIT MEN IN CALIFORNIA; A CHANGE FOR THE BEE-KEEPERS' UNION.

The scheme Mr. Hansen had in view when I met him in San Diego, and which elicited my hearty co-operation, was an extended camping-trip into the mountains toward the Colorado Desert. The preparations for the journey consisted in getting a few necessities of life in the line of sugar, salt, etc.; a double-barreled gun, and a stove upon which to cook our game. Our stove was not very cumbersome. It was made from a square five-gallon oil-can. We cut out one end and a portion of the other, and then cut a round griddle hole in the top, and it is done. It makes a fine camping-stove, and many of them are used in California. A comfortable tent was also supplied; some bedding, a bale of hay, and a bag of barley.

Mr. H. has one bay horse—large, fat, and lazy, and bearing the name of Kimball. Give him a cut with the whip and he will look around to see if it is meant; and it requires two or three more cuts to make him realize that he must move. Kimball was a power, though, when he got into motion. Our load, however, was too much for one horse, and a companion was hunted up. There are many horses in National City, but Mr. H. hunted a long time to find one just a little slower than his own, and succeeded in finding a white horse bearing the short but expressive title of Bob.

Having the two horses, we next secured the loan of a two-horse wagon; and here I found that my friend possessed another peculiar hobby. It seemed to be his delight to borrow some old ramshackle vehicle of his neighbors, and to nicely repair it for the use of it. People were therefore all anxious to lend to him, and he has a great reputation of being a handy man in the neighborhood.

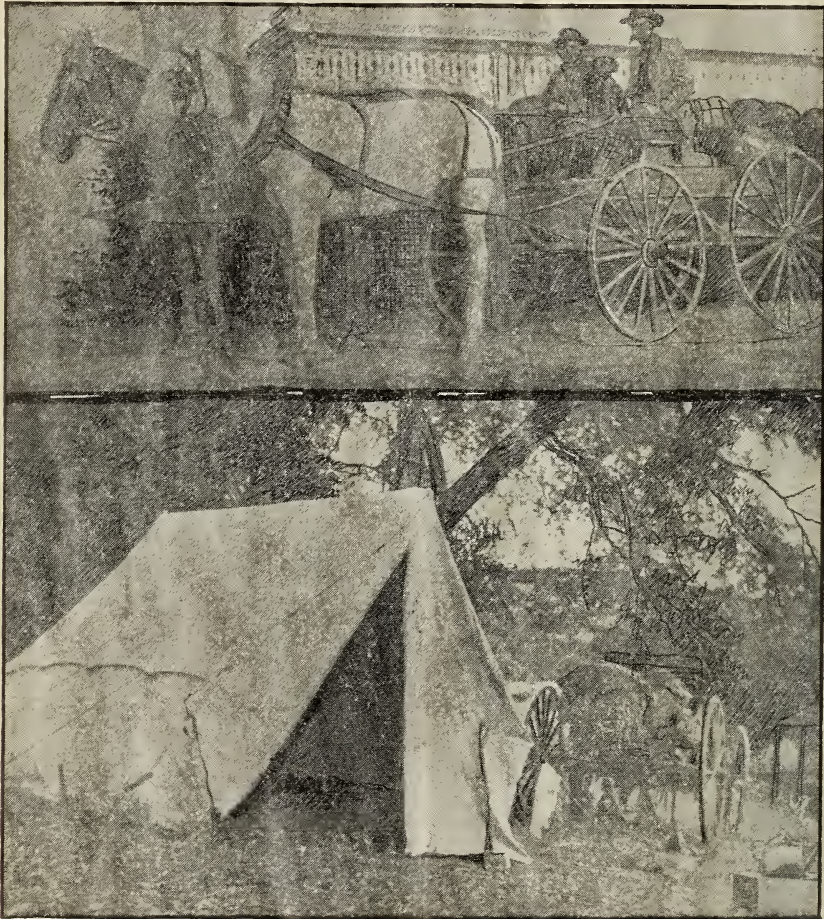
Of course, our wagon had to be repaired, and the Rambler was requested to fix the brake. When this vexatious job was finished, then the box needed repairs; then a strap nailed on, and nuts replaced. My patience became nearly exhausted, and I remarked that we'd better go

out into the woods with an ax and make a new wagon. I used considerable more sarcasm, and was just getting warmed up to the theme when he suddenly straightened up from another repairing job he had on the harness, and shouted, "Well, who's a-kicking?"

I felt extremely ugly, and was about to retort sharply when I happened to think of my grand-sire's oft-repeated admonition to count a hundred before giving a quarrelsome answer. Instead of counting I relieved my pocket of my Waterbury watch and commenced to wind. The effect was magical. The angry opponent at first looked interested. As the interesting

that I must wind it, I slyly put my fingers into my watch-pocket and commenced the process. I thought no one would notice it; but that tell-tale click, long drawn out, excited the curiosity of the occupants of three seats fore and aft, and, at the completion of the job, I looked around and was "consternated" to find a dozen people staring, and plainly saying with their eyes, "Jehoshaphat! what kind of an infernal rigging has that fellow got, any way?"

Moral.—Never wind a Waterbury in church. It may not be sinful, but it is highly distracting. Begging pardon for the above digression, I would resume by stating that we finally came



RAMBLER'S CAMPING OUTFIT.

process proceeded he looked anxious, and finally a broad grin spread o'er the face of both opponents, and peace reigned. The Waterbury is, therefore, not only a good timekeeper but a great peacemaker.

There are times, however, when this winding can be overdone; and the Rambler once made the fatal mistake of winding the Waterbury in church. The minister, I believe, had just entered his fifthly on the equatorial regions, and was craving another minute to elucidate a point. I happened to think that my watch had not been wound since the day previous, and

to the starting-point, and found that Kimball would start under the lash, but Bob had to be helped along with the lever. The lever was not used as a cudgel, by any means, but as a gentle persuader, and both horses caught on to it immediately. Queen, the spaniel, had a place of honor on the seat with us, and our first day's drive was ten miles, to Cockatoo Grove. Here we found water, and camped. How sweetly we slumbered under our canvas roof! When I left San Diego, a severe cold had taken possession of me, and I thought myself in a bad condition to make a camping-trip; but tent life and an

abundance of pure air completely banished the cold.

Under a little more persuasion, and abundant rations of barley, our team began to increase the speed, and early the next forenoon we arrived at Cedar Canyon. Wishing to establish an apiary out here, Mr. H. explored and found the honey pasturage excellent and unoccupied. An apiary that had been established a little too far up the canyon had been entirely consumed during a brush fire which sometimes sweeps over these mountains. Later visitors will undoubtedly find a booming apiary in the canyon, with my friend as manager.

In this region is one of those large Mexican grants, which, in nearly all cases, are a block under the wheels of progress. This "Jamul" (pronounced *hah-mool*) grant comprises several thousand acres, and for many miles there are no signs of settlement or improvements, though the land is fertile, and accessible to water. For many years it has been in litigation. The old adobe residence is in ruins, and about all that remains is an ancient palm-tree drooping over the few sun-baked bricks. After many years, when the lawyers have exhausted the resources of the parties interested, it will again produce fruits and honey.

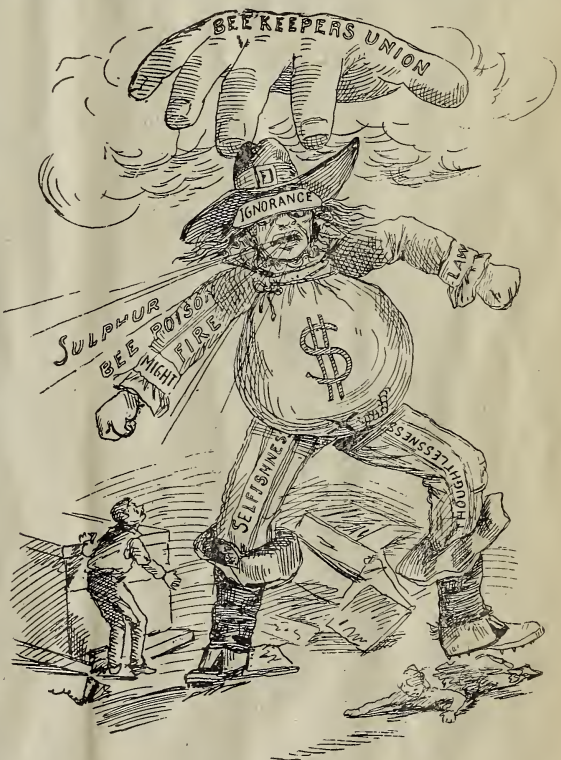
We made good progress, and at noon joyfully entered the suburbs of Del Zura. This little hamlet was enviered by big hills, and it appeared to us to have all the marks of an excellent bee-pasturage. While our horses were grinding a few quarts of barley we stretched ourselves under the oak-trees and disposed of a few sardines and other luxuries. While thus busily employed we were joined by one of the residents, and our inquiries were in relation to certain bee-ranches further along. After giving us the desired information he said he owned a small apiary near town. When he began to talk of his apiary a cloud seemed to hover over his features, and he said he supposed he would have to move his bees; for one of his neighbors, who owned a small fig-orchard, was making the air blue with his threats against all of the apiaries within ten miles of him. It seems that this man had a little money to lend, and was getting an interest of from 12 to 15 per cent. He became very much of a big man, and began to imagine that he owned the whole country. He was, furthermore, encouraged to make his threats from the fact that a Major Chase, another fruit-man living in an adjoining town, had brought suit against a bee-keeper, and obtained a judgment against him, and he was ordered to move his bees; but before a new location could be found and the bees moved, some persons, presumably a few hirelings from the major, stole out under the cover of night and burned the entire apiary, and that ended that case. It was also generally believed that the verdict of the jury was obtained through bribery.

Now in relation to figs: Bees never injure good sound fruit. Certain varieties of figs are, however, subject to fermentation upon the large end. A small portion will swell up and burst, and the fig is ruined; but as soon as it bursts, the bees step in and clean up the remainder.

At a recent meeting of the Southern California Pomological Society a paper was read upon

this subject, and the cause of fermentation was traced to a small insect that deposits a small amount of sour yeast-like substance in the end of the fig; and this society, in their treatment of the subject, said not a word in condemnation of the bee. So this man's trouble about his figs is all through ignorance and prejudice. Now, Mr. Small, the bee-keeper giving us his grievances, and all of the bee-keepers we met on this trip, had never so much as heard of the Bee-keepers' Union; and when we depicted the beauties of the Union, and what it had done for bee-keepers, the cloud visibly lifted from his face, and we have no doubt that ere this he is a member.

Another case that harrowed our feelings to a great extent, was in relation to a Mr. Steele, in another town not many miles away. Mr. Steele and his wife were well along in years, and between them managed 150 colonies of bees.



FRUIT BRIGAND.

Their income from the bees was not only enough to support them, but also to enable them to lay aside a little money every year. Some fruit-men moved in, and then there commenced a nagging of the old people. The nagging, and threats of a lawsuit, caused them to keep the bees in the hives during a portion of the day; but the confinement resulted in the death of several colonies, and from this they came to the conclusion that they might as well kill all of them, and, with burdened hearts, the whole 150 were consigned to the sulphur-pit. After the deed had been accomplished, and the contents rendered into wax, the hives were replaced upon their stands; and it is supposable that the fruit-men continued to fire their threats against the desolate apiary. It was our intention to see this bee-keeper upon our return,

but we feared our horse Bob would fare hard over the rough roads we should have to travel, and we kept a more merciful and direct route.

The rank injustice in nearly all of these cases is apparent from the fact that the bee-keepers were the first to occupy the country. Then in the case of the Del Zura fig-grower, his profits from figs were probably less than \$50, while he wanted to destroy an industry that brought thousands of dollars into the town, and, in fact, has been and is now the leading industry.

We continued our journey again, and, soon after leaving Del Zura, deflected our route a little and climbed up into the mountains to the stock and bee ranch of Mr. S. H. Donahue. Here we pitched our tent and gave our steeds a rest, having made about 25 miles that day, much of the way up hill. Mr. Donahue is the possessor of 500 colonies, and two sons who aid in the management. Two or three apiaries are located back in the mountains, and are worked for extracted honey in a modified Harbison hive. In these cases a "modification" means a sawing-off of the hive on a level with the brood-frames, and an extracting-super worked above. Messrs. Donahue have a fine range, and have obtained some large yields of honey. They were inclined to withhold information in relation to amounts; but we learned indirectly that over 17 tons was the product during the past season. Though these apiaries were three or four miles from Del Zura and the fig-man, still his threats were high enough to reach these mountain apiaries, and cause some little uneasiness. We again rehearsed all of the good qualities of the Union, and trust that we grafted in another branch to the Union tree.

Our tent life among the grand mountains that surrounded us, and our elevation of nearly 2000 feet here, gave us not only an elevation of body, but our spirits began to enliven; and Bro. Hansen made the welkin ring with his shouts and songs, while Bob and Kimball actually became frisky. In following up this route from National City we travel about 15 miles and cross a pass, and enter what we might term a little different or later climate. When we pass Del Zura we cross another of these passes, and the climate is still later. The highest point now in sight is Tecarte Peak, about on the Mexican line. This looked down upon us for several days. Our shotgun had given us an abundance of quail and rabbits, and here was where the training of our dog Queen came in. Just as soon as the gun was discharged, away she would bound and bring in the game. Another kind of game was this: One day, while rattling along, the Rambler's hat sailed off in the rear of the wagon. Queen was directed to get it, and dutifully brought the hat to the wagon. That the dog was rightly named Queen, and a jewel besides, was a thought not only entertained by his owner but also by the

RAMBLER.

JOHNNYCAKE FEEDERS.

PRATT SELF-HIVER A FAILURE.

On page 421 of GLEANINGS for 1892, mention is made of feeding syrup to bees on "johnny-cake" as an experiment. An old bee-keeper from Allegany Co., N. Y., says that it was a common practice in 1840, and prior to that time, there to feed their bees, when they required it, by this method in the spring. They would remove the syrup and bread down to the crust.

SELF-HIVERS.

Personally I have had bad luck with Pratt's self-hiver. Securing one hiver from you, two

from Mr. Pratt, and also royalty stamps. I manufactured and placed on trial, selling some direct to others; some were used on the Dove-tailed hives; others on box hives; the result was a loss of several swarms caused by the drones filling up the front zinc. I have refunded for those paid for, and hold the hivers for further experiment. I think that explicit directions should be given, so that they may not be applied to the hive until the egg is laid in the queen-cell; and, again, the farmer with only a few swarms wants a hiver that can be attached to a box or Dovetailed hive while he goes to his daily task or to church on Sunday, and also one that will not require lifting off to see if he has a swarm or not.

Of course, these criticisms do not apply to the bee-keeper who devotes his whole time to his bees during swarming time. He would probably be successful with almost any of the devices on the market; but the small bee-keeper or farmer who would be benefited the greatest, and who is eager to accept and try a self-hiver, must have something simple and effective; and the inventor of such a hiver will reap a rich reward.

Colonies have gone into winter in good shape. Ample stores were secured; strong colonies that failed to swarm filled two or three supers of surplus honey. The drouth in September cut short the yield from ladyfinger and buckwheat. I find it profitable to sow buckwheat about the 20th of April; then sow again the first week in August, sowing both Japanese and common varieties. The Japanese made a yield of 23½ bushels per acre, which finds a ready market, either as seed or as flour. We plow early for wheat; sow to buckwheat, cut at first heavy frost; remove, and seed to wheat. The buckwheat leaves the ground in splendid shape for wheat. JACOB NIXON.

Kellogg, Kan., Jan. 4.

[That is right; we want the facts. Possibly, however, the following might suit your purpose better, although we can not fully understand why your experience should be so different from ours.]

THE PRATT 1893 HIVER.

HOW SOME OF THE OBJECTIONS TO THE FORMER DEVICE HAVE BEEN OVERCOME;
GOOD IMPROVEMENTS.

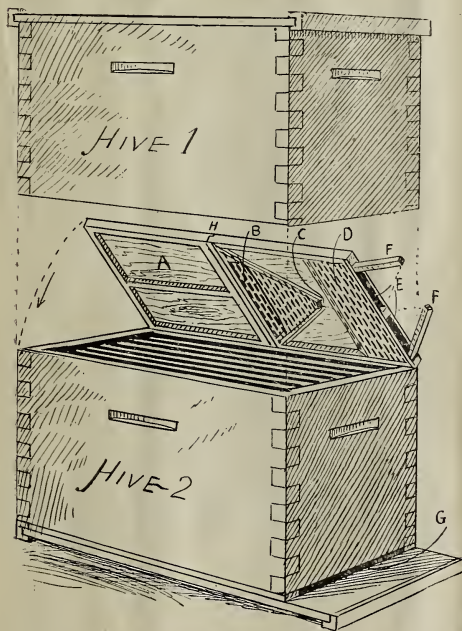
I am sending you by mail one of the 1893 patterns of the Pratt automatic hiver. You will see that I have greatly cheapened the construction, and attached it to a honey-board, all in complete condition to put directly on a hive when received. Many of the purchasers last season did not understand how to attach the hiver to their hives, and there were some who could not understand, although it was explained to them very carefully. I therefore deem it necessary to supply the escape board and excluder all complete, with directions to place on the hives in the simplest possible form.

With these facts in view I have endeavored to construct the device complete in itself, and you will readily understand the advantage this hiver I am sending you has over all the others.

First, you will notice that it is in two parts (divisible at H), making it convenient to pack and mail at a very moderate cost. These two parts intersect and form the honey (or escape) board to cover an eight-frame Dovetailed hive, and can be fastened together by the receiver with three or four nails or not, as he sees fit. As you notice, it is a cheap and light board. I have reduced the escape triangle (H, C) to two simple pieces of $\frac{3}{8} \times \frac{3}{8}$; also the zinc surface

that covers the triangle is less than half that of the original. The entrance through the board, connecting the triangle with the colony, can be as I have it, or three or four $1\frac{1}{2}$ -inch holes, as you see fit to make them.

You will also see that I have attached the excluder D to the front end of the board, with entrance there, and discarded the old-style separate piece. This is much better, as it not only does away with loose parts but affords better ventilation. It is impossible for this to become clogged by drones or rubbish. Drones will work to the extreme front end, and fust them out of the way until they become exhausted and fall down on the bottom-board, to be scooped out occasionally through the lower entrance G, which is kept blocked up tight. It matters not how many drones a hive may contain, the excluder will never be found so stopped up that there is not ample passageway for the full working force, and for complete and perfect ventilation.



PRATT'S 1893 SELF-HIVER.

Another advantage in having the excluder as it is here is this: A free and open entrance, with no zinc to pass until the bees are inside the hive (a great advantage, I find), affording excellent opportunity for rapid passage to and from the hive, besides aiding perfect ventilation and a direct and short path to either hive.

The little strips of wood, F, F', shoved into the entrance, are on pivots, to open like gates, as shown. These are to support the zinc and wood while in the mail, and are to contract the entrance for any cause when necessary. After a swarm has been hived, these gates can be closed entirely, and the lower entrance opened to them, when the board will act as a bees-escape to reinforce the swarm as the young bees hatch out.

E. L. PRATT.

Beverly, Mass., Jan. 10.

[When Mr. Pratt first sent the new device for 1893 we were not favorably impressed with it, and wrote him to that effect. However, we instructed our artist to make a picture of it,

and the result is shown above. Subsequently, in following the description through more carefully, we found that Mr. Pratt had still preserved the vital principle of his other hivers that were so successful with us last summer; viz., that the bees on returning go back through an entrance to which they have long been accustomed, but into a different hive, preceded by the queen. If the reader will understand that the lower entrance, G, is supposed to be closed, he will readily see that the bees are obliged to use the entrance E only. Of course, before they have swarmed they pass through the entrance E upward to hive No. 1. After swarming they return to the same entrance, and thereafter pass downward to hive No. 2, because the main attraction—the queen—has gone down below, into an empty hive, affording those conditions that are supposed to satisfy the swarming mania.

The device above differs from the one of last year, in that the perforated zinc in front of the entrance, as at D, was, in the 1892 hiver, placed before the entrance G. This seemed to be objectionable to some (although we never so regarded it), that the bees should travel through an empty hive every time in order to get to the brood-nest in hive No. 1, from which it was expected they would swarm. Mr. Pratt, contemplating this objection, has, in the 1893 hiver, placed the entrance centrally, so that it affords equal access to both hives.

Although Mr. Pratt says nothing about it, we assume that the apiarist, at his convenience, after the swarm has issued, say within two or three days, or a week or even two or three weeks, removes the parent or upper hive, opens the entrance G, and for a time at least allows the bees to have access to both entrances. After they have become partly accustomed to the lower entrance, this special swarming-device is to be removed, and the cover replaced, when of course the entrance G will be used exclusively. There will be, of course, a little confusion for a day or two, but the bees will very readily adapt themselves to the change.

We see no reason why this latest pattern should not work as well as the one of last year: and as it is simpler, and avoids the long bee travel, it will doubtless be preferred to the others. The queen also will be more likely to get into the lower hive because the light from the entrance E is so close to the apex C of the zinc cone. This may make all the difference between success and failure in the case of Jacob Nixon above.]

WE OUGHT TO BE BETTER ACQUAINTED.

DR. C. C. MILLER TELLS WHY.

I am expecting the World's Fair and the North American convention next year, among other things, to do some good in the way of bringing nearer together the bee-keepers of the world. I don't mean merely to bring them together at Chicago, but to get them so interested in each other that they will have a better understanding, and a better appreciation of each other. This will help to bring about a community of interests, and thereby the well-being of all will be advanced.

In a late number of *Illustrierte Bienenzeitung*, the editor takes Frank Benton to task for saying, at the Illinois State convention, that Europeans were behind the times. Possibly there is just a little tendency on each side to think, "We have it all." Now and then, in the *British Bee Journal*, some one speaks in not the most complimentary terms of Americans as coming slowly to some view or practice

that has been long adopted in England. And it does seem a little strange to see some topic come up and be redhot on one side the ocean, without even being mentioned on the other.

Whatever may be best on the other side, I'm pretty sure it would be a good thing for American bee-keepers to get out of their self-conceited exclusiveness. Before you settle down into the happy belief that you have a monopoly of all progress, my self-satisfied Yankee, please wipe out of existence all knowledge of the extractor, parthenogenesis, and comb foundation, and see where you will be. And yet the germs of these things were not hatched this side the water. If you refer to the movable-comb hive, I think you will find thousands of German bee-keepers will stoutly insist that Dzierzon alone was the inventor of movable combs, while as many other thousands on this side will say, "Who is Dzierzon?" and insist that, if Langstroth had not been born, there would have been no movable combs. Even although the movable comb of Langstroth may have been more fully developed than that of Dzierzon, there is ignorance and prejudice on both sides.

Each side needs the other, and it will do us good to get together. I feel pretty sure that each side will have more respect and good will for the other when the big show is over.

HOW BEES HEAR (?)

The question as to whether bees can hear, while not settled beyond the possibility of a doubt, is one which most bee-keepers answer in the affirmative; but investigators heretofore have not been able to locate definitely any organs of hearing. Some have supposed they might be situated on the antennæ, but such an opinion has been given rather as a modest suggestion, without attempting to offer any proof.

In a late number of the *American Bee Journal*, however, the whole matter is fully settled, the writer, G. P. Hachenberg, M. D., giving out the information as to where and what the organs of hearing are. First, he settles that in bees there is no tympanum; for if a bee had a tympanum in proportion to the size of its body it would be so little that it would be no good. He doesn't state exactly how small a tympanum must be before it ceases to tymph real good; but at any rate, such a one as a bee could carry around wouldn't tymph at all. But instead of a tympanum the bee has a thousand setæ, or bristles, over its body, sticking up, that serve as so many tuning-forks. "This fuzz serves the function of the tympanum." Just how the doctor found this out he does not say; but that is a small matter so long as we have the knowledge; and he differs from all previous investigators, in that he does not deal with a supposition or a suggested theory, but with an ascertained fact.

The robber, he tells us, is smooth and shining, "and, without a seta on its body, it is evidently deaf and dumb. It hears nothing—no angry warning will keep it out of any hive, for it hears it not." How it operates before it loses its setæ, or whether it is born without any fuzz, we are not told.

WE NEED BEE-EXPERIMENT STATIONS.

I wonder if all is being done that ought to be done toward getting experiments in bee culture made at public expense. I have some doubt as to whether any class of men, as a whole, have spent more time and money in experiments than bee-keepers. There are always unsolved problems, the proper solution of which will help to make the cost of honey less. If one man experiments for a county, the other bee-keepers of the county helping to bear the expense, there would be a saving. If one man, with every convenience at his command, makes

the experiments for the State, the saving would be immense.

If you want to know what is the best turnip to raise, or the best cultivation to give the turnip, you can find out from the experiment station of your State. But how much can you find out from that same station about bees or their culture? The turnip business is all right; the State should experiment for all in that direction, and yet the bee-interest exceeds that of the turnip—at least, I think it does in most States.

Why is it that there is nothing done with bees? Possibly one reason is, that the bee business, as a business, is newer. Until lately, getting a crop of honey was all a matter of luck; while, to raise a crop of turnips, one needed to know how. In public matters, changes are slowly made; and the fact that nothing has been done in the way of public experiments heretofore is sufficient reason why nothing of the kind should be done this year. If bee-keepers stir in the matter, and keep stirring, there is little doubt that something will be done in all the States where the honey crop rises to any considerable importance. The Hatch Bill, with \$15,000 to each State, makes a more hopeful outlook than ever before. If one State makes a break, it will be easier for all others to follow. If Ohio has a proper outfit established, that will help mightily as an argument with Illinois bee-keepers to get the same thing done in their State, and *vice versa*. Isn't this a topic worth keeping alive?

Marengo, Ill.

C. C. MILLER.

SELLING HONEY WITH A WHEEL.

Mr. Root.—I was very much interested in your article on your wheel, Nov. 15, as I bought a Victor pneumatic early last fall for business, and find it a source of great pleasure in the bargain. I got it to help me in taking orders for honey, and delivering the same; and I find that I can do as much running around in an hour and a half as I could in half a day without it. I sell the most of my crop of honey (extracted) in the quart Mason fruit-jar. I have a box made of wood (thin boards), covered with black carriage cloth, which holds two jars, which I sling under my arm by means of a strap over my shoulder. With this incumbrance I learned to ride fairly, although it used to annoy me by swinging forward when I mounted; but I need accommodations for two or four more cans, and I think your suggestion of carrying the load on the front wheel, and as low as possible, is a good one. I am thinking of making leather pouches with wooden bottoms, for protection, to attach to the front forks if possible. Now, friend Root, if your ingenuity gets up anything for carrying glass cans of honey on a bicycle, please let us know. I have about 800 quarts to sell and deliver yet, and I live about four blocks further away from the business portion of the city than when you favored me with a call last.

Manistee, Mich.

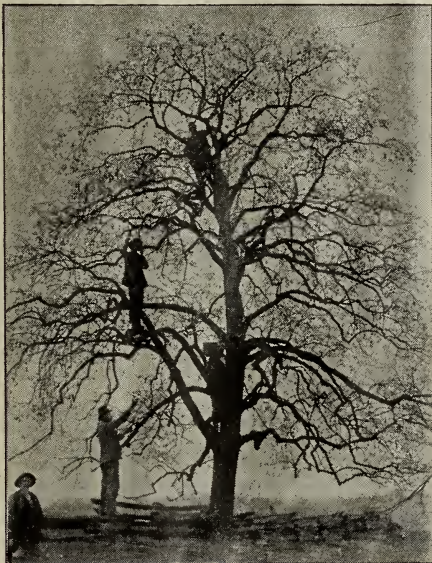
WALTER HARMER.

[Friend H., you can easily carry a dozen Mason jars on your wheel by making a couple of boxes to hang over the front wheel, saddle-bags fashion. I use such an arrangement for carrying mail-bags, and I have carried 75 lbs. without any trouble. One dozen Mason quart jars filled with honey would not weigh over 50 lbs. I feel certain that the great business world has as yet scarcely a glimpse of what the wheel will be in time, in this direction. The ingenuity of our best minds has been for so many years devoted to this matter of reducing friction, that no method of transportation can just now compare with it.]

THE PERSIMMON-TREE AS A HONEY-PLANT.

SOMETHING ABOUT PERSIMMONS AS A FRUIT.

Friend Root:—I send you a small present. It consists of persimmons, and a photograph of a persimmon-tree, with people picking the delicious fruit. Some of them "caught on" when they saw the Kodak. The day was very cloudy, dark, and wet; consequently the photo is not what one would desire; but it will give you a glimpse. This tree had from twelve to fifteen bushels of fruit on it. The fruit should have been gathered sooner, to ship; but the weather prevented. Now, friend Root, please don't think this fruit rotten, for it is just getting ripe, and must become quite soft before one can relish it. The present is for A. I. Root, to dispose of to suit himself. Of course, I should like Ernest and all to have a persimmon or two;



A KODAK VIEW FROM MORGAN CO., O.

wouldn't you, friend Root? There is no bloom, perhaps, in the world that bees are so eager to work on. I have seen bees fighting for it just as they would were you to place a comb of honey out where they could get at it.

Reinersville, O., Dec. 19. J. A. GOLDEN.

[Friend G., we are all of us exceedingly obliged to you. I am the more interested in the whole matter, because the tree is found in our own State of Ohio. Perhaps I should explain to our readers that friend Golden was kind enough to send us a whole pailful of persimmons. They are packed in one-pound honey-sections, a top and bottom being tacked on. I learned to eat them in California, so I had no trouble in eating them here; and I was not afraid of the soft ones. Quite a good many would have it, however, that they were spoiled, and could hardly be induced to taste them. They are so delicious to my taste that I began eating them as I do strawberries, a quart at a meal. I would not recommend, however, taking them in that way unless your digestion is very good. Now, if persimmons grow in our State naturally, why can't the great delicious Japanese persimmon of the Pacific coast also be grown here? And could they not be grafted on to the native trees? I think one of the

agricultural papers has said that the large foreign persimmons are not sufficiently hardy. The fact that these trees are such good honey-plants is another inducement for bee-keepers to take hold of them. My verdict is, that they are just as nice as figs and raisins. The seeds are a little bit more of an annoyance; but I have lately seen it stated in some of the papers that there is a seedless persimmon. Judging from the size of the human figures, and the fence that runs beside the tree, persimmon-trees must be quite large.]

A. I. R.

NAILS.

HOW TO USE THEM.

Every year I am more surprised at the stupidity of many who drive nails. In this age, with so great a variety of nails for all purposes, such lack of knowledge is deplorable. In planking up a building I employed several mechanics to do it. I perceived that they drove nails indiscriminately. I suggested that they should be used scientifically—that is, every nail should be driven so the strain upon it should bind the parts closer, while the proper number for each width of plank should be used; yet not one of the seven men could master the principle, and nails were often driven so as to eventually weaken the parts by drawing asunder. I often find boxes of heavy material badly racked, that look as if they had been made by an eight-year-old girl. I have made boxes of $\frac{1}{2}$ -inch boards to pack and ship, with two or more transfers, 600 miles, 250 lbs. of solid freight, with few or no cleats or bands, and I never had such a package broken open in transit.

I find uses for which no wire nails now manufactured can take the place of cut nails; for instance, where great strength is required in rough work. Where weight is suspended, heavy cut nails driven flat (a guard against splitting excepted) is better than edgewise; but where connection of parts only is desired, light cut nails are better. The last keg of ten-penny cut nails I got was a wide finishing nail with a common large head; and, being slightly curved, required straightening to drive in $\frac{1}{4}$ lumber, or they must be set to the proper curve. I wonder if that manufacturer was not the man who used to make gun-barrels curved to shoot around the mountain. Its width and taper limited its use, and I would not take another such keg at half price.

Correctly driven, four nails will hold as much as twelve nails driven at the opposite angle. For boxes and crates, long slim nails driven near the edge are superior to heavier ones driven near the center; and where several boards are used on a side, cleats may often be dispensed with by skill in lapping on the ends and nailing the edges so the joints are firmer than the sound timber on either side. Quick light taps on a nail will often drive it through a knot or cross-grained spot without splitting. The best nail for tensile strength I ever found was years ago—a rough French square wire, hard and tough, hard to draw, and the blunt point was easily driven without splitting readily. A nearly square cut box nail is the best I can find now. If wire nails were a little rough I think they would hold better. Sometimes I rust them. Nails driven into the end of the grain of wood should be driven slanting to hold more firmly and prevent splitting. It is said a ten-penny nail has sustained two tons. To some extent wire nails take the place of clout nails, proper length and size considered, driving at an angle so they will curve as they strike the iron, and turn back; or they may be driven

through, and then about $\frac{1}{8}$ of the projecting point is bent nearly $\frac{1}{4}$ over (always across the grain), and then drive it in without starting the head.

CLOSER PACKING.

For years I have looked for manufacturers to pack their larger sizes of nails in about one-fifth the space now used, and at less expense, by using two sheet-iron heads and a sheet-iron band, either round, for convenience in handling, or square, to utilize space in packing. Who would not welcome such an improvement for handling and storing? Our wooden kegs that sometimes fall to pieces before reaching the consumer are a disgrace to Yankee invention.

HEAVY GOODS IN LIGHT PACKAGES.

How much easier it is to roll a heavy barrel than to handle half the weight in a box! I have packed books, glass, etc., weighing 300 lbs., in a sugar barrel weighing 25 lbs., which, to have carried equally safe boxed, would have required a box and extra packing weighing 150 lbs., thereby saving in the cost of box and freight on it, sufficient to pay the freight on the goods hundreds of miles.

FILLING FOR DOUBLE-WALLED HIVES.

From reading and observation I conclude that double-walled hives capable of producing an interior uniform temperature have decided advantages over thin walls, where cost, bulk, and weight do not prevent their use. Dead air has its defects, because it is not dead, as a varying temperature on either side sends warm air up and cold air down, causing a current. May not this be overcome in part by thick pasteboard on each side of the air-chamber? or entirely so by a central partition of pasteboard, as paper is the best non-conductor of heat or cold? Cheshire says cork dust, to fill a one-inch vacuum, is 14 times better than dead air. Filling for hollow walls must be impervious to moisture and heat, to secure permanent results. Allegan, Mich., Jan. 10. W. H. GARDNER.

[Our correspondent writes as though he had had experience in nail-driving. We believe all he says is true.]

HIVE-COVERS.

USEFUL TOOLS ABOUT THE BEE-YARD, ETC.

A friend in Florida recently wrote to know how I now like the corrugated iron covers recommended by me in GLEANINGS several years ago, and just how I used them. My answer was, "They are indispensable with me." The smaller corrugations are best, as the cover lies closer and smoother. The sheets are cut at the factory, any size ordered. Mine are about three inches wider and five inches longer than the hives. This gives a small projection all around, which is quite a protection to the life of the hive, aside from the shade. The corrugations should run the long way of the hive. Now, let's see: First, we have the thin wood cover, which is framed something like honey-boards. This thin cover takes the place of all other inside covers such as cotton cloth, enamel cloth, etc., both winter and summer, as it is made to fit the surplus cases as well as brood-chambers. Next we have the corrugated iron cover which will not leak; and, next, a shade-board made of $\frac{3}{8}$ -inch common boards, about five or six inches wide, cleated on to two narrow pieces, which raises the top cover or shade-board $\frac{1}{2}$ of an inch above the iron cover. This shade-board is of about the same size as the iron cover, and heavy enough to hold all down. If three covers seem too many to handle, a few wire nails will fasten

the iron cover to the bottom side of the shade-board, and it is practically one; and, combining three very essential qualities, they will not leak, will not get hot, and will not wear out soon; and the cost is not more than that of any other good cover.

My work-block is a piece of solid oak, 6 inches thick, 12 inches wide, 3 feet long, placed on a hive-body. This makes a very solid low bench on which to nail up hives, supers, etc. The sides and ends being square, it is very little trouble to nail pieces on it for forms to hold the pieces of hives while nailing; and when through with the form, the block can be turned upside down, the form put out of the way, and smooth block on top. You would not like to be without it.

One of the most useful small things about my bee-keeping is a short stout putty-knife. The regular knife is much too flexible, and should be ground down in length until it is stiff, and about one inch wide. This will pry apart covers, hives, supers, and frames; clean wax and propolis from any thing, and will always be the right thing in the right place.

My Barnes foot-power circular saw is not often used to do much work; but how could I get along without it? It cost me, second handed, less than ten dollars. I got the last one here, and it pays its way nicely.

A pair of cheap scissors—yes, and you can't do better than to order several pairs from A. I. Root—are the best for the money I ever saw.

It is with some satisfaction that the writer has lived to see his idea of the bee-escape march steadily to the front, and to see that those who were inclined to laugh or sneer at it fall into line and bring up the rear. Porter's improvement is the best I have used, and will clean a super in short order, if the conditions are right; and if they are not right, they can be made so very easily with a little experience.

Can bees smell? This question was called to mind the past season by a queensware dealer sending for me to see my bees in one of his show-windows. Examination showed that they were trying to enter a lot of paper boxes containing "aromatic toothpicks" made of bass-wood and flavored with cinnamon—no sweet taste about them.

J. S. REESE.

Winchester, Ky., Jan. 26.

THE OUTLOOK FOR SOUTHERN CALIFORNIA NOT FLATTERING.

THE WONDERFUL HONEY RESOURCES OF THE STATE IN A GOOD YEAR.

The outlook for honey here this year is by no means flattering. The great and abundant rains that have flooded the northern part of this State did not reach us, except in a very moderate form—so very moderate that we came very near getting no rain at all. We have not yet had over five inches, and it is now past the middle of January. But to you folks in the East this would be nothing to cause any alarm; but here it means bread without butter—and very little of that. There you have snow and ice, sleet and frost in abundance. When the frost is drawn out of the ground in the spring, you have slush and mud too numerous to mention. Your ground at that time is just in the condition that every bee-keeper here wants our ground to be on the first of April—so wet, slushy, and swampy that there are but few places where an animal will not bog down. Ah! that would make a honey year like 1884 or 1886. But, no! if every year were like those years, California would flood the world with honey!

I saw in GLEANINGS, some time ago, that one of your honey-reporters stated that the crop of 1892 was not a failure in California, because they "had already received 12 carloads of honey." It is very evident that this firm does not appreciate the honey resources of California. In a good year, 12 cars could be loaded within a radius of ten miles of my apiary! San Diego Co., in a good year, will produce two and a half million pounds of honey, and not exert herself beyond her strength. This is 125 carloads, of 20,000 lbs. each. In 1886 the firm of Surr & Winchester bought, of the crop of San Diego Co., over two million pounds. There were other buyers too, and many producers shipped direct to San Francisco. Thus it will be seen that Surr & Winchester alone had, of San Diego Co. honey, 100 carloads of 20,000 lbs. each. In 1887 they still held it, and they made money by so doing, for 1887 was a very poor honey year. You mentioned it in GLEANINGS, but I think you gave no name of the parties who held the honey. Yes, we are waiting for a good crop, and we have been waiting for nearly seven long years. But we are in the hands of an all-wise Providence, who knows much better what we ought to have than we do ourselves.

Escondido, Cal., Jan. 18. J. P. ISRAEL

[Here is something that is more encouraging. As it was written some ten days later we may hope that friend Israel's locality has a little share of that rain.]

SOUTHERN CALIFORNIA; PROSPECTS IMPROVING.

I have a number of colonies of bees with from four to seven frames of brood, a month to six weeks earlier than usual. We are now having a splendid rain, and, with favorable spring rains and weather, Providence permitting, the "silver lining" will be at hand.

Ventura, Cal., Jan. 27. M. H. MENDLESON.

LADIES' CONVERSAZIONE.

MRS. AXTELL'S LETTER.

HOW GLEANINGS SPOILS THE BAKING.

Mr. Root:—Somehow you make your journal very readable. I thought possibly one reason was because I had an article in it; for you know that, when we take a part in meeting, we always think we have had a good one. But I have been so busy for six weeks or more, sewing for the Indian orphan school, mending up old clothing given by people in Roseville, etc., that I could not take time for writing. Yet it was not so much the time as it was my lame right hand and arm. I could not do more than my housework and the sewing; and yet GLEANINGS is just as interesting with none of my articles. I often wish it would not drop in upon me when I am baking or doing important work, for I can hardly go on with my work until I have at least looked it through, and sometimes my bread has got scorched, and I have told Mr. Axtell that GLEANINGS was to blame.

BEEES WINTERING WELL.

Our 127 colonies seem to be wintering finely, with fewer dead bees thrown out upon the cellar bottom than usual. Mr. Axtell says the white clover is all right yet. I think I never saw brood-combs heavier for winter than they were last fall. The colonies of bees seemed to average rather small, however. I think it was on account of crowding the queen. But after

inserting an empty comb, many of the queens would not put eggs in it, but would confine the brood-nest to one side of the comb; yet I think they have bees enough to winter well, as an average colony with a good queen winters just as well as a large one, unless one could have all the colonies large and the temperature of the cellar to correspond. If we know of a large colony we generally put it in the coldest part of the cellar, and the weak ones in the center. Instead of lifting our colonies up on to an inch block under the frames, as we have done for several years, we lifted up one side of the hive, which gives them a large entrance in the cellar this winter, so as to save the time of lifting up and setting them down on the bottom-board again in spring, which all know is considerable work where one has 100 colonies. If dead bees do not clog up under the frames, I don't see why they will not winter just as well; and if they are not kept sufficiently cleaned out to prevent clogging, we can run in a wire and clean them out some time when the cellar is cool.

THE AXTELLS' EXPERIENCE WITH BEE-ESCAPES.

We have tried the Porter, Dibbern, and the Reese bee-escapes, and find them all good; but when taking off the sections in the fall, many supers would have but few bees in them. We took just a little time to smoke the bees and brush them off, and carry direct to the honey-house rather than to take the time to slip the escapes under and return the next day or so for supers, which hive, if not marked, is apt to be forgotten when there are from 50 to 100 or more colonies in the apiary. The supers that had many bees in we piled six to ten high above weak colonies, which built them up nicely; but there must be no escape-board put under the supers, as the bees escaping one by one from the supers will, by some colonies, be killed as fast as they go down; other colonies would receive them all right. But a safe way is to lay a cloth over the brood-frames, doubled over at back and front, or at one side, leaving a passageway out of each row of sections. The honey in the sections invites the bees above, and they seem to pay no attention at all to the bees. In a day or so the top supers may be taken off, but the lower one may have to remain several days unless an escape is put under; but it is a real pleasure to see how nicely the bees were all accepted, and the colony built up. Probably a few of the bees would, when they flew out, return to their own hives; but the "most" of the bees seemed to remain.

In using the cone escapes, if too small they will clog, and there must be about an inch or a little more between the lower end of the cone and the brood-combs, or they will clog in return.

MRS. L. C. AXTELL.

Roseville, Ill., Jan. 6, 1893.

[We make it a point to let the pages of GLEANINGS speak for themselves so far as possible, and we are glad that they do, as many letters unpublished show. We are not glad that the journal sometimes spoils the baking; but we are glad to have it welcomed when it comes into the homes of the bee-keeper.]

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

HOW TO GET ALL THE WAX OUT OF OLD COMBS.

Make a sieve the right size to go into the top of a barrel. Set it over the barrel on a couple of sticks. Throw in several combs; then, with a hose connected to a steam-boiler pipe, let on

the boiling water freely, at the same time stirring the combs on the sieve. There should be some hot water in the barrel before the wax drops through the sieve. After the barrel is two-thirds full of water it should be kept from filling fuller by an outlet at or near the bottom. Anybody can melt up a hundred combs in a short time. By emptying the sieve occasionally there will not be a particle of wax remaining in the refuse. We have a large boiler which furnishes steam for a 25-horse-power engine. Of course, everybody hasn't the water so handy. A solar extractor will take a certain per cent of the wax out; but quite a little remains in the skins of the cells, etc. G. B.

East Avon, N. Y., Jan. 24.

[We have tried almost the same plan, and we find it does not get all the wax out. If you will take the slumgum that is left in the sieve and run it while steaming hot through a wax-press you will get much more wax out.]

BEEES NECESSARY FOR FRUIT; WHERE THE CLUSTER OF BEES SHOULD BE FOR WINTERING.

In *Stray Straws*, Jan. 1, Dr. Miller quotes from a French horticultural monthly as to the usefulness of bees in orchards. Permit me, Mr. Editor, to relate the following:

Before my brother and myself engaged in bee-keeping no bees were kept in this vicinity. One of our near neighbors has a large orchard, and in this orchard are several fine large trees of a certain variety, which, however, never yielded fruit. In the spring of 1885 we commenced bee-keeping, and from that date those trees have always yielded bountifully. The owner of the orchard himself gives our bees the credit, and he related the above incident to us.

Last fall we packed a number of colonies for winter on two sets of frames—one set of frames above the other, the upper set solid full of honey, and the lower set with empty combs for the bees to cluster in according to the advice of Mr. E. France. One fine large colony, however, we packed according to the directions in an article by E. E. Hasty on the subject, as given by him in the *American Bee-keeper*, Nov., 1892. In *GLEANINGS*, Jan. 1, Mr. E. France pointed out the fallacy of Hasty's method, and I got uneasy lest I should lose my fine colony of bees. To-day, however, the temperature was so that we could make an examination, and it turned out exactly as Mr. France said in his article. The colony packed according to Hasty starved during this long cold spell, with 30 lbs. of good honey below them, because, as Mr. France says, the bees can work up but not down in very cold weather. All the colonies packed according to the method of Mr. France are in excellent condition. Hereafter I will keep in the middle of the road, and winter my bees as Mr. France winters his. By the way, I hope Mr. France will write more such practical articles for *GLEANINGS*. The one in the issue of Jan. 1 is worth to me many times the subscription price of *GLEANINGS*.

Maumee, Ohio, Jan. 23. LEWIS C. JESSING.

THE HONEY AND THE LAND OF CANAÁN.

A colored minister of some note once invited a white brother to preach to his people. The latter took the opportunity to suggest to the colored folks that they should be a little more quiet in their demonstrations. Previous to this, some of the boys and girls had been looking through the windows of the colored church, to see the colored people at their devotions. After the sermon, the colored preacher made a sort of summing-up, and excused his people just a little, in the following words:

"Yes, I see dem stan' las' winter roun' de doors an' under de windows an laff: an' dey peek in an' laff. An' I member wot I saw las' summer 'mong de bees. Some ob de hives was nice and clean an' still like 'spectable meetin's, an' the odders was bustin' wid honey; and the bees kep' goin' an' comin' in from de clover; dey jes kep on fillin' up the hive till the honey was a flowin' like de lan' of Canaan. An' I saw all round de hives was de ants an' worms, an' de drones, an' black bugs, an' dey kep' on de outside. Dey was'n bees. Dey could'n make de honey for darselves. Dey could'n fly to de clover an' de honeysuckle. Dey jes hung roun' de bustin' hive an' liv' on the drippin's.

"An' de boys and gals come up yar an' hang roun'. Jess come in an' we'll show you how de gospel bees do! Come in an' we'll lead you to de clover! Come in—we'll make your wings grow! Come in! won't yer? Well, den, poor things, let 'em stan' roun' de outside and have the drippin's. We's got honey in dis hive!"

THE V-EDGE TO HOFFMAN FRAMES A NUISANCE; VASELINE AND GREASE NOT A PREVENTIVE OF PROPOLIS.

Last season you requested that bee-keepers try vaseline as a preventive of propolis. Early last spring I rubbed a quantity of my frames with vaseline, especially the end-bars. I used tallow on a few, and vaseline and tallow melted together, about equal quantities of each, on several; and so far as results are concerned, I can't see any difference. None proved a thorough preventive. By the first of October, all the frames were "stuck" fast together with propolis; but the bees were slower to commence the operation than they generally are.

The V-edges of end-bars, as on your Hoffman frames, are particularly objectionable. Just as Dr. Miller predicted, the bees fill the space with propolis. I want closed-end frames, but they must fit together with a square joint, from this time on.

PUNICS.

In the fall of 1891 I purchased a tested Punic queen from an eastern breeder, paying \$7.00 for her. So far her bees have not filled the recommendation at all. I had three colonies of Italians that surpassed them in gathering honey last year.

PUNICS BAD STINGERS.

The Punics are the worst to sting of any bees I ever saw, and the worst robbers. The colony cast one swarm; and when I opened it to cut out queen-cells I expected to find cells by the handfuls, as we had been told that they build cells in large quantities, even using drone-cells for this purpose; but I was greatly surprised to find only 13 cells. The only thing they come up to recommendation in with me is the vast amount of propolis they gather. I will try them in nuclei another season; and if they fail to come up to recommendation in that, I will discard them altogether and keep only the Italians. The honey gathered and capped by the Punics looks dark and greasy. They cap their honey darker than the Italians.

T. K. MASSIE.

Concord Church, W. Va., Jan., 1893.

[Your experience tallies quite closely with ours regarding the Punics. Our experience with the V-edge is not yours.]

THE SEALED-COVER IDEA NOT A SUCCESS THIS WINTER, AND WHY.

The sealed-cover idea has proven a failure with me this winter. It is not what it appears to be when tested by a cold winter. I have lost one-third of my bees that had sealed covers on their hives, while those with chaff cushions on are all alive.

In the hives with sealed covers, the moisture from the bees ran down and froze in the en-

trance so as to close some of them solid with ice, and the bees smothered. The hives were packed in chaff, and well protected; but when the moisture came in contact with the outside air, it froze before it could run out of the hive. If I had banked the front of the hives with snow, I think the water would have run out before freezing, and the bees would have been saved. The bees had a cleansing flight the 28th inst., the first one since the fore part of November. One colony has the diarrhea very badly.

Flat Rock, Mich., Jan. 31. D. I. WAGAR.

[That's right; let's have the facts.]

HOW FAR DO BEES GO IN SEARCH OF NECTAR?
WILL BEES EAT HERRINGS?

We take the following from the *British Bee Journal*, of Jan. 26:

Mr. Heddon, the American apiarist, puts down an "area," or nectar-gathering field, for an apiary at six miles; *i. e.*, a radius of three miles, with the apiary as the center. On the other hand, Mr. S. Simmins assures us that honey will not be profitably collected if the bees have to go more than half a mile from the apiary. Yesterday I received a visit from a friend residing about 150 miles further inland from where my apiary is located, and where the flora is totally different. "There's one blessing you enjoy," he remarked, as we strolled through the apiary, "and that is, you've none of that beastly 'Noorse Doorn' in these parts. I thought to escape it myself, but my bees store the bitter honey it yields to a great extent in my hives, and yet the nearest 'Norse Doorn' is a good twelve hours' ride (seventy-two miles) from my farm!" What will Mr. Simmins say to that?

A Devonshire man out here tells me that he has repeatedly seen his father place a red herring at the flight-hole of his hives, and that the bees eat it with avidity, leaving only the bones! He assures me this in all earnest. I at first concluded it to be some ancient country dodge to drive off robbers, the smell of the herring overpowering that of the stores and the odor emanating from the hive; but he assures me the bees eat it, and that he has often seen the skeleton, or clean-picked bones, of the fish lying before the flight-hole! What next? Can any of your readers confirm this? I know that they feed horses on fish in Iceland; but can it be possible that bees too enjoy such diet?

Cape of Good Hope. S. D.

We consider the bee-pasturage inclosed within a radius of two miles from his apiary comprises all the gathering-ground of any practical value to the apiarian. In proof of this we know of a case where several stocks were reduced to starvation-point one season, with an avenue of lime-trees situated two miles away. And from these same limes, the same season, bees located near at hand gathered plenty of honey for themselves, and a fair amount of surplus. Our far-away correspondent's "friend" could surely not be serious, or else he was woefully ignorant of the flying-powers of bees. It is absurd to talk of their traveling a twentieth part of seventy-two miles for nectar from any source. As to the "red-herring" story, we certainly never heard of bees possessing a taste for fish of any kind, though they have no distaste for a certain amount of salt. It will be an easy matter, however, to either disprove or verify the story at the cost of a red herring.—*Eds. B. B. J.*

[Bees in this country have been known to fly from an island 7 miles to the mainland, in search of stores. See April number of GLEANINGS, 1882. We have had other corroborative testimony, and Doolittle claims that bees go from three to six miles, from choice, and that his bees went from four to five miles to the teasels, without any teasels being nearer than 3½ miles. Bees do go long distances, but usually

not more than two miles, we think.—*ED. GLEANINGS.*]

THE HEWES ESCAPE; WHAT THE PORTERS
SAY OF IT.

The Hewes burred-hole-tin-escape idea, permit us to say, we experimented very carefully with in the spring of 1890; and had we been able to get any thing satisfactory out of it, the Porter escape would never have been known to the public. We found it impracticable to make holes through which the bees could not return readily when they wished, and impossible to make any provision for the escape of drones.

Lewiston, Ill., Jan. 19. R. & E. C. PORTER.

YELLOW JESSAMINE.

I have in my yard two jessamine vines. I have watched them closely for several years; and my bees work on them from May till late in the fall. It is one of the plants that the bees work on from early morn until late in the evening, and all summer. Can you tell something about them as a honey-plant?

Union, Tenn., Jan. 24. J. P. RALSTON.

[Honey from yellow jessamine is poisonous; bees are said to work on it very freely.]

THE ALFALFA FIELDS; INFORMATION WANTED.

Will some bee-keepers who live in the irrigated alfalfa regions tell us whether their seasons vary as much there as in other places? One not acquainted with the facts would suppose that, with a warm climate, and the moisture under control, the seasons would be nearly alike. How is it? W. H. UPTON.

Morning Sun, Iowa, Jan. 31.

MAPLE SAP AS A BASE FOR BEVERAGES.

Friend Root:—I believe you are in a maple-sugar locality, so maple sap may soon be plentiful with you. If it is new to you, let me make a suggestion to you. The first good, cool, fresh hard-maple sap you get, please make some lemonade of it, and see how you like it. Then use some sap instead of water to make the Roots some coffee—if you use coffee.

Kingsville, O. N. T. PHELPS.

[Very good, friend P. I never tried lemonade made of maple sap; but sap coffee has been a favorite beverage with the Roots ever since I can remember. Come to think of it, you know I do not drink coffee now—new milk right from the cow instead—so I think I will take mine in lemonade. For all these purposes it must be remembered that maple sap changes in a very few hours; and to have it nice it should be taken right from the tree, and that which runs in comparatively cold weather—the first of the season, as you suggest.]

PROPER POSITION OF STORES FOR WINTERING.

On reading the article on wintering, by E. France, page 19, it occurred to me to state our experience last winter. I had two swarms, good ones, and my father and mother had five. We had four in Nonpariel hives, winter cases, packed on the summer stand, and three in Cary hives in the cellar. Six swarms wintered. One of mine died. (Those wintered out of doors were in much better condition, and gave us nearly all our surplus.) It was one of the best swarms outdoors. I examined the combs to see if I could find the cause of their dying. The bees were clustered in the upper story, looking exactly like your picture of a comb of dead bees; and as Mr. France says, they cluster in cold weather close in the combs, a bee in a cell. The combs of the upper story had not a drop of honey in them, and were as white and clean as the combs in supers. In the lower story was

plenty of capped sugar stores. The thought suggested itself to me that they starved; but it did not look reasonable. Now I believe it.

In our climate this is a very important matter. This winter we have 17 colonies, some full of honey above, some below, and some with plenty in both stories. We will report results in the spring, though I should put all the honey I could in the upper stories now if it were not too late. We are only just beginners in bee-keeping; but, thanks to our teacher, Mr. A. A. Byard, and the bee-books we have read, we have a good start, and have succeeded well so far.

LENA L. CROWNINSHIELD.

Chesterfield, N. H., Jan. 7.

WINTERING BEES IN THE SOUTH.

We know nothing, by our experience in the South, of the experience and trouble they have in wintering bees in the North—no cellars nor housing is required in the South. We see it is more trouble and expense in the North to winter bees than to care for them in the summer. We have none of that trouble and expense. Bees winter outdoors here without any danger or risk; all that is required here is a good tight hive and 15 or 20 pounds of honey; in ordinary winters 15 pounds will do very well. Our bees gather honey here sometimes in November and December. They gather it from pine-trees mostly. We have 90 colonies, all Italians. We have not lost a colony so far.

Decatur, Miss., Jan. 20. N. E. CLEVELAND.

A PALETTE KNIFE A HANDY UTENSIL FOR THE HOUSE.

I want to thank C. C. Miller for his article on page 923, that was not about bees, but how to make my folks happy with 26 cts. Now I am going to pay Dr. Miller right back; but it will cost him 50 cts., and I am sure it will please his wife more than twice as much as the stove-mat did, for it can be used in a great many different ways. It is a palette knife. It is a very thin knife painters use to mix paint. The most desirable size has a blade 8 inches long, $1\frac{1}{4}$ wide, round at the end. Our people use it for scraping kettles, as it will curve right around the inside of a round-bottom kettle; also for turning eggs, taking out cookies, and turning pancakes, meat, etc. In fact, I have bought them by the half-dozen, and given them to my relatives and friends.

W. L. COGGSHALL.

West Groton, N. Y., Dec. 24.

MAKING OUR PICTURES PRETTIER.

It is not generally known that all half-tone engravings, such as are used in GLEANINGS, can be made to show up clearly and beautifully, and without cost. I am surprised that the way to do this was never published in these pages before—at least, I have never seen it referred to. By trying this method, all the finer half-tones will stand out clear and distinct, just as they would if viewed through a stereoscope. The way to do it is as follows: Hold the picture to be viewed, from 14 to 21 inches away from you; and by folding your fingers so as to form a kind of tube of them, place your hand thus folded to your eye and move the picture into focus. When the right focus is obtained, the different objects will stand out clear and well defined. One never tires of looking at good half-tone engravings after he has once tried this way. Just try it on a few of the portraits in the A B C book or in GLEANINGS. I will vouch that you will be pleased with the result.

North Temescal, Cal.

W. A. PRYAL.

[It is a little queer, friend P., that I made the discovery just a day or two before your notice

above came to hand. The *American Florist* gave a picture of a mushroom-cellar by flashlight, and I happened to look at the pictures through my fingers, rolled up so as to form a short tube. All at once it seemed a reality. The old gentleman who was among the mushroom-cellar had evidently been down on his knees, for you could see the yellow dust on his pants, and every thing else came out with startling distinctness. I showed the picture to Ernest, and told him that it was one of the finest half-tones I ever saw; but he suggested that any half-tone would come out in relief in almost the same way. We experimented with quite a number before we found that it requires some sort of magnifying-glass to give perspective fully; for without my nose-glasses the illusion is not nearly so perfect. Since then I have been in the habit of distinguishing half-tones from other kinds of pictures by this very test. Even a picture that has a half-tone for its base for the artist to work on comes out sharp and clear when tried in the way mentioned. Of course, any short tube will do as well as the folded hand. One reason for the surprising effect is, that the tube cuts off the reading-matter and every thing that might lead the eye to think it was the page of a book instead of the reality. The secret of the astonishing results produced by the modern cyclorama is along in the same line. The canvas on which the paintings are made has no visible frame nor any means of support on which the eyes may fix and decide by comparison with other well-known things. In the same way, when you see a mountain for the first time in your life, having had no previous acquaintance with such objects, the eye fails to give us a correct idea of distance, proportion, etc.]

BEWARE OF GLASS BUBBLES.

I wish to call your attention to an article in the *New York Tribune*, Dec. 28, "Beware of Glass Bubbles." I have found the same thing in honey bottles, and think it very dangerous.

Rahway, N. J.

B. C. WHITING.

Since glass cans have come into such general use for fruits, less is heard about "danger in the can." Still there may be danger even in glass cans, as appeared of late when a little child was helped to freshly opened canned plums. His teeth were heard to grate on some hard substance, which proved to be a flake of glass he had broken with his teeth into bits. In a minute more, if unchecked, he would have innocently swallowed the glass, which would have caused serious injury and perhaps death. An inspection of the empty can discovered the rough edges of a broken air-bubble on the inside. Air-bubbles are very common in the cheap grade of glass of which fruit-cans are usually made, and are less noticeable on the inside than on the outside. When the boiling fruit is poured into the can these thin shells, if on the inside, are almost sure to crack off. A tablespoonful of small shot well shaken about in the can will break these dangerous bubbles and smooth their edges; better still for this purpose is a light chain dish-cloth. Too much care can not be taken to wash out every particle of broken glass from the can; their small size, transparency and weight, which sends them to the bottom or sides, make them difficult to collect.

MRS. J. MILLIGAN.

COMB HONEY—IS IT WHOLESOME? ETC.

Friend Root:—Allow me to ask your sympathy for the kind hands or the cook who prepares the Graham gems for the poor stomach. Don't sacrifice the cook; apply the 32 Gladstone rule to every solid eaten, and cease swallowing liquids. I digress, however, as I am not an "M. D." I desire to say that I am surprised to find a dyspeptic advocating the use of *comb* honey, as, in all lessons learned or teachings taught, the prime principle is that the *comb* is

indigestible. I judge, if you eat "Schumacher" graham gems for a few months the bran will be sufficient irritant for the stomach, without the comb that will not digest nor melt in stomach. There are more dyspeptics in the United States now than Republicans. It would be a grand scheme to induce them to live properly, even if they never recover entirely.

HENRY M. HAWLEY.

Terre Haute, Ind., Jan. 31.

[Thanks for your suggestions, friend H. Mrs. Root makes the gems only in the morning. I prefer them cold for supper. At noon we dine over at the factory with the rest of the people, and then, of course, we eat what other folks do—or, at least, we get along nicely by choosing from among the good things provided. I know there has been a good deal of teaching in regard to the indigestibility of honey-comb; but I have been eating both comb and extracted honey in considerable quantities, and I do not notice any difference, unless it is that, as a general thing, I get a more perfectly ripened article in the comb. You will notice the Bible has considerable to say about honey and the honey-comb; and the connection seems to indicate that it was then considered a choice article of food, as it is now. I know it makes a vast difference as to whether our food is thoroughly chewed or not. And, by the way, I am glad to tell you that I am not a dyspeptic, and I do not mean to be. The women-folks have been protesting so stoutly that that ladies' Columbia was *their* property that I have just invested in a new Columbia, with all the modern improvements, including that elliptical sprocket-wheel, and I tell you it is just fun to ride it, even if it is good sleighing.]

THE WHEEL—DOES A REACTION FOLLOW, AFTER USING IT SEVERAL WEEKS OR MONTHS?

Friend Root:—After reading your chapter on cycling one evening, I just wanted ever so bad to have a wheel of my own; but next morning the first thing we found was the clipping inclosed, and—well, I haven't bought a machine yet. M. HAWKSWORTH.
Medina, Oxford Co., Ont., Can.

[The clipping referred to in the above is to the effect that, after the exhilaration and great benefit that come from the first use of the wheel, a reaction follows, the constitution is broken down, if the rider does not break his arms or legs or neck by an accident, and, all together, its advent is a calamity. Very likely there is such a thing as using the wheel to excess. There are extremes in the use of almost every gift from God. But I am glad to say, that, as yet, I have seen no ill results whatever. While visiting our daughter ("Blue Eyes") at Oberlin, where she is going to school, I sat at the table next to a lady who is a most expert and graceful rider. Said I, "Miss M., can you tell me how long this enthusiasm and exhilaration last that come from riding a wheel?" She replied, "I can only tell you, Mr. Root, that I have had my wheel three years, and I enjoy riding to-day every bit as much as I did at any time since I have had it." No one can look on while the students, both boys and girls, run their wheels over the college campus and throughout the streets of Oberlin, without feeling that it must be a God-send to enable them to get such a kind of outdoor exercise after the confining duties of the class-room. The newspaper clipping referred to doubtless had in mind the racing mania that seems to be more or less connected with at least a certain class who ride wheels. I have never tried to beat anybody, and never expect to; and I certainly shall never be even one of a party

who ride for prizes, even though the prize be nothing more than a bag of doughnuts.]

A CAUTION TO BICYCLE-RIDERS.

We copy the following from the *Cleveland Medical Gazette* for Jan., 1892:

As we predicted some time ago, our exchanges are filled with reports of cases of prostatitis as the result of riding a bicycle in the present abominable and ungraceful fashion. It is to be hoped that bicyclers and bicycle-makers will appreciate the gravity of the threatened and existing evil, and return to the high handle-bar and erect position.

"WHO CAN FORGIVE SINS, BUT GOD ONLY?"

Your remarks on the church (notes of travel in GLEANINGS of Dec. 1), prompt me to ask a simple question; if you answer satisfactorily it will be of great benefit to the Catholic subscribers; and if not, it will most surely be a benefit to the Protestant readers. We read in Scripture, that Christ said to his apostles, "Thou art Peter, and upon this rock I will build my church; and the gates of hell shall not prevail against it." "Receive ye the Holy Ghost, Whosoever sins ye remit, they are remitted unto them; and whosoever sins ye retain, they are retained." "Whatsoever thou shalt bind on earth it shall be bound in heaven; and whatsoever thou shalt loose on earth, it shall be loosed in heaven." "Go ye therefore and teach all nations, baptizing them in the name of the Father, and of the Son, and of the Holy Ghost: teaching them to observe all things whatsoever I have commanded you: and, lo, I am with you alway, even unto the end of the world." Has Christ deceived the apostles? Can the church be wrong, if Christ kept his promise?

Pinconning, Mich., Dec. 22. E. BRENNAN.

Friend B., when I undertake to answer your question you must bear in mind that I am not a commentator nor even a theological student, and I am liable to make grave blunders—yes, perhaps as great as when I made my remarks about that ancient church. In the first place, I can say, most emphatically, that Christ did not deceive his apostles in the words that you quote. If you go back a few verses in that 16th chapter of Matthew, you will notice the Master had been asking his followers, "Whom do men say that I, the Son of man, am?" Finally, when the question was put directly to themselves, Peter replied in those wonderful words that are destined to go down through the ages, "Thou art the Christ, the Son of the living God." This answer pleased the Savior, and he commended him. He said, "Blessed art thou, Simon Bar-jona, for flesh and blood hath not revealed it unto thee, but my Father which is in heaven." Then follows the text you have quoted. Now, the question may be, Did the Savior mean that his church should be built on Peter, or on the wonderful sentiment conveyed in Peter's answer—namely, "Thou art the Christ, the Son of the living God"? I think his meaning was, that the church should be built upon the fact that Peter had so strongly declared. The question is before the world now as it was then—who is Jesus Christ? The Bible teaches us plainly, that, except we believe in him—that is, in the Son of God—there is no salvation for us. There are many reasons for taking this view of the matter; in fact, the last of the sentence says, "And the gates of hell shall not prevail against it." The italics in the last word are my own. My understanding is, that it was not Peter he was speaking of, but Peter's declaration. In your next quotation he says, "Receive ye the Holy Ghost;" and then comes

the promise that they, his disciples, *after* having received the Holy Ghost, should have power to forgive sins, to bind on earth and to bind in heaven, etc. Humanity, however, is unstable, and even Peter himself, only a little time *after* his declaration, *denied* his Master. Notwithstanding his strong words when he was with the Master and the rest of the disciples, "Thou art the Christ, the Son of the living God," he shortly afterward said, and that before a crowd of people, "I do not know the man." This he repeated, finally using oaths and curses, to make it more emphatic. Surely, the Savior could not have meant that his church should be built on any human being so weak and vacillating and cowardly as Peter. Neither does it seem to me that he meant to declare that such a weak follower should have power to forgive sins. Of course, Peter received the Holy Ghost *after* this event; and he may afterward have been empowered to forgive sins, for we know he performed wonderful miracles; but no such power of performing miracles has ever been granted to any descendants of these apostles, nor to any son of humanity since their time. Now, dear friend B., this is a subject outside the scope of GLEANINGS. I did not mean to take it up here, and I feel sure we had better drop it where it is. You have asked my opinion, and I have given it as well and honestly as I know how. I thank you for your beautiful texts. They are dear to my heart, every one of them, and I feel sure they are also dear to most of the readers of GLEANINGS. Should we not all be thankful that the great Father has seen fit to let each one interpret the Scriptures according to the dictates of his own conscience? "Judge not, that ye be not judged."

TOBACCO COLUMN.

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

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

Prof. Thomas Shaw, of the Ontario Agricultural College, Ontario, the man who is fighting weeds on the farm more effectively, perhaps, than any other man just now in the whole world, also makes it his business to fight weeds of another sort. He recently paid a visit to W. I. Chamberlain, T. B. Terry, and John Gould, three men with a world-wide reputation in our immediate neighborhood; and I just want to make an extract from the *Ohio Farmer* in regard to his visit with friend Gould. Here is the clipping:

There were many things that interested me very much at Aurora station. I will speak of but three. The first was a farmer's library, one of the finest I have ever seen in any farm home, whether we regard the books which it contained as historical, biographical, literary, or religious. This library was the outcome of twelve years of wedded life, and represented what but two cigars per day would have cost during that time. The queen of this home, before she became its queen, exacted of her lover the promise that the two cigars per day which he was wont to smoke should remain unbought, and books purchased with the proceeds. To his undying hon-

or he has remained true to that promise. Hear my story, O ye maidens of Ohio! Do you know that, in a single generation, the power is yours to banish the weed from all your borders, and to fill the farm homes of Ohio with literature of a most helpful character?

Please send a smoker to Wm. C. Teagardin, Frisco, Ark. He has quit tobacco to stay quit; but if he should ever use it again he will pay for the smoker. He is a bee-keeper in Washington Co.
MARY A. WOOSTER.
Frisco, Ark., Nov. 12.

I have been a subscriber to GLEANINGS for two years. Since I commenced reading GLEANINGS I have quit the use of tobacco. I will not resume the habit, smoker or no smoker; but as you are giving others smokers, I should be pleased to receive one as a present.

W. C. GATHRIGHT.

Cameron, Texas, Dec. 4.

One of my neighbors, Mr. O. Goodmondson, has subscribed for GLEANINGS, and has quit the use of tobacco. If you will send him a smoker for his pledge he will pay for it if he ever uses tobacco again. I will go his security.

A. J. HUSKY.

Send a smoker to Mr. Wm. L. Albright, Kinderton, Fla. I think he is entitled to one; and if he should ever use tobacco again I will pay for the smoker.

J. H. HILL.

Grove City, Oct. 21.

In October I wrote to you for a copy of GLEANINGS. You sent me a June number in which I saw the Tobacco Column. I have smoked and chewed for 28 years, and wanted to obligate myself to quit in some way for a long time. I quit on the 15th of October. Since then I have not used it in any form. I claim a smoker to "keep me quit," and if I use tobacco again I will pay for the smoker.

R. H. HUMPHRIES.

Morganfield, Ky., Nov. 24.

A neighbor of mine, Mr. D. C. Burton, has quit the use of tobacco, after using it to excess. If you are still giving the smokers, please send him one. He keeps bees on a small scale. If he ever commences using tobacco again I will see that the smoker is paid for.

DeLand, Ill. JOSEPH A. CAMPBELL.

Your Tobacco Column has done great good. Your little token of a pledge will often do more than a large amount. I heard a young man's mother tell him that, if he would stop smoking, she would give him fifty dollars at the end of the year. I told him of your efforts to stop the use of tobacco, and of the smoker as a reminder. Please send him one, and he will stop his smoking; if he does not he will pay for the smoker. He is a good young man, and his influence may lead others. His name is David H. Marbury, Bozeman, Ala. MRS. W. M. GRAY.

Kincheon, Ala., Jan. 6, 1893.

My father has given me a swarm of bees in one of your Dovetailed hives. I read in GLEANINGS that you give a smoker to those who have used tobacco and quit using it. I never did chew or smoke any thing except cigarettes; but pa said to me that he ought to have at least one boy who did not use tobacco. I have quit for some time, and I know I shall not have to pay for the smoker, for I know I am entirely rid of the desire to smoke, and have been for six months or more. Please send me a smoker, and I will certainly pay for it if I do use tobacco at all from now on.

Lakeland, Fla., Nov. 8.

J. S. GREEN.

THE NORTH AMERICAN BEE-KEEPERS ASSOCIATION.

A CONTINUATION OF THE REPORT FOUND IN OUR ISSUE OF JAN. 15.

The report in our Jan. 15th issue ended with the address of Prof. H. W. Wiley. Considerable discussion followed the delivery of this address—not in a technical way, because no one there was competent to discuss intelligently polariscopes, right and left handed rotation, etc.; but there was some discussion with regard to the extent of adulteration, and the proposed scheme of feeding bees to make them produce comb honey. As the greater part of this discussion has already appeared in our editorial columns, we will not reproduce it here, but pass on to the address of Prof. C. V. Riley, the Government Entomologist. As the paper is a very long one, we can only make extracts here and there. After giving a brief history of the Department of Agriculture, he tells how the Italian bees were introduced by the government.

Considerable has been done by the Department, and through its agency, for bee-keepers—much more, probably, than most of you are aware of—as the published reports of the Department show. These reports, hundreds of thousands of which have been distributed very generally over the land, have surely had their influence in the promulgation of intelligent and humane methods in the culture of bees. Beginning about the time of the first edition of Langstroth's celebrated work, or nearly a decade before any bee-journal had been printed in the English language, the Department reports have, from year to year, given some notice of progress in bee culture, statistics of honey and wax production, and on several occasions excellent little treatises on bees and bee management. Notable among these is the article on the nature and habits of the honey-bee, in the report for 1857. I can not give the name of the author, as the initials only of the Chief Clerk of the Patent Office are attached to it. In 1860, Mr. William Buckisch, of Texas, gave, in an extended article, a review of bee culture as practiced by Dzierzon and his school. The essay by my old friend, Mrs. Ellen S. Tupper, of Iowa, published in the report for 1865, and covering her theory of bee-keeping, was widely read and frequently quoted, creating much interest in improved methods.

The introduction of Italian bees into this country is certainly one of the advances in American bee-culture which ranks second only to the invention of the frame hive, the honey-extractor, and the comb-foundation machine. But how many even now know that the Department of Agriculture had any thing to do with the matter? Leading textbooks on apiculture are silent on this head. The fact is, however, that the first successful importation of Italian bees from their native land to America was made by the Department, and it was almost wholly from this importation, that such skillful apiarists as Langstroth, Cary, and Quinby, bred and disseminated the race during the early sixties. Individual effort had, for some years previous, been directed to securing this race of bees; and in the autumn of 1859 a few queens were landed here from Germany by Mr. J. P. Mahan, of Philadelphia, on his account, and by Samuel Wagner, of York, Pa., and Richard Colvin, of Baltimore, acting together. Those imported by Messrs. Wagner and Colvin were lost during the winter which succeeded, and those which Mr. Mahan imported do not seem to have been multiplied as rapidly as the importation made through the Department of Agriculture the following spring. Mr. S. B. Parsons, acting for the Department, was in Italy at this time, making purchases of cuttings and plants for testing in this country, and an order was transmitted to him by the Department to procure some hives of Italian bees. Ten were purchased by him in 1859, and forwarded to this country in May, 1860. These were distributed among several of the best bee-masters, and they at once set about the rearing and sale of the queens of the new race. Thus it was that the Department succeeded where private enterprise had failed in this most important undertaking. Those who wish confirmation of this statement will find it in the Agricultural Report for 1859, page 543,

and in that for 1863, page 530. The former is a letter written by Mr. Parsons while in Lausanne, Switzerland, and the latter is an extended article on the Italian honey-bee, by Mr. Richard Colvin, a competent authority, and who had been one of the private parties who had tried, during the years 1858-60, to import this particular breed from Europe.

The professor then referred to some length to the work done at the Government Apicultural Station at Aurora, Ill., under the management of N. W. McLain in 1855-6. He next spoke of the appointment of Prof. A. J. Cook and Mr. J. H. Larrabee, for the purpose of again carrying on an apicultural experiment station at Lausung, with all of which our readers are already familiar. We will pass on to what he had to say in regard to the appointment of Mr. Frank Benton, in '91, for a similar work. As many have wondered why the proposed expedition to India after the *Apis dorsata* failed to be carried into effect, the extract below will fully explain:

Early in 1891 I had considerable correspondence with Mr. Frank Benton, whose interest and work in apiculture you all know, and who made a personal effort to introduce *Apis dorsata*. The failure of his effort was due to over-exertion and undue exposure, and I have little doubt that, under more favorable circumstances, and with the aid of the Department, the effort would prove successful. I felt that, of all men, he would be the most desirable agent to employ in the effort to introduce *Apis dorsata*, because of his familiarity with the subject and his acquaintance with the countries to be visited; but, in addition, I had some important incidental work that I wished him to do in that connection; namely, the introduction also of certain parasitic forms of injurious insects, and particularly the introduction of the caprifig insect, *Blastophaga pænes*, to colonize in those parts of California where the Smyrna fig is cultivated. I had made all due arrangements, in consultation with Assistant Secretary Willits, fully expecting to be able to send Mr. Benton on this proposed trip, and had so economized the appropriation that there was means to do it. Mr. Benton, also, had been led to give up other plans in anticipation of this mission. The project was never carried out, however, for the simple reason that the secretary finally refused to indorse it. There seems to have been some promise made to the senator who had charge of the appropriation bill, that no one should be sent abroad, or at least this was the chief reason given for the refusal to carry out my recommendations and wishes. Professor Cook was made aware of these circumstances, and it is consequently somewhat surprising that, in a recent communication to the *American Bee Journal* (Oct. 13, 1892), he should intimate that the Entomologist felt no hearty concern for the bee-keepers' interests, and should urge that "all move in solid phalanx upon the head of the Department" in order to gain our desires and rights.

WHAT THE NATIONAL DEPARTMENT OF AGRICULTURE CAN DO FOR APICULTURE.

So far, I have indulged in retrospect, and indicated what the Department has done, or attempted to do. Let me now come to the second part of the subject; viz., what the National Department of Agriculture can do for apiculture; what it may accomplish. I sincerely hope this may be much,—will depend greatly on what sums Congress may see fit to appropriate for such investigations, and this will depend, in turn, to some degree, upon what representations as to the needs of the industry, and the possible benefits to the material interests of the country, are made to the head of the Department, to the Committees on Agriculture, and to other members of Congress by their constituents. Certain kinds of experimental work can be undertaken by individuals, without serious interference with the main work of their apiaries. Indeed, it is desirable that each should experiment in a limited way, for localities differ in respect to climate, flora, etc.; in short the conditions upon which methods of management depend are so variable that each progressive bee-keeper must study to ascertain by experimentation what methods are best adapted to his own individual surroundings.

But there are certain larger fields of investigation, requiring more time and expenditure than individuals usually have at their command, and the results

of which are pretty sure to benefit apiculture, if not directly, at least indirectly. For instance, if a species or race of bees could be bred or introduced, which, in the early part of the season, when bumblebees are few in number, would fertilize the red clover, and later in the season do the same work more thoroughly than it is now done, there is no question that we should reap a reward in the larger yield of clover seed, and in this way our pasturage would be very generally improved; so that this would indirectly affect beneficially our stock and dairy interests, to say nothing of a more general employment of red clover as a green manure in the increase of most of our crops. In cases like this the benefit would be not to individuals, but would be general, and so great that the expense of accomplishing it would be insignificant in comparison. Even an experiment which fails, and which would be disastrous to individual participants in it, would not be felt by the general government, and might serve to point out the way to success in subsequent attempts; for failure often proves very useful in pointing out the directions in which we should look for any thing valuable. Thus, if the Department, by ample effort, should prove that nothing can be gained in any given direction, it will save further disappointment to individual experimenters, and prevent a repetition of useless effort. To my mind, the character of the work to be undertaken by the department should be of such a nature as to benefit the industry in all parts of the country alike; and prominent among the subjects which it should undertake is this introduction and testing of foreign races of bees, of which there is much yet to discover, and about which our actual experimental knowledge is limited. The distribution of queen-bees of improved varieties, where they would most aid in building up the industry, might be undertaken by the Department wherever it would not interfere with individual effort in this direction. But while the lines for government action, so far as the economic side is concerned, are limited, there is a large and interesting field for further scientific investigation of the life-history of the bee, of its diseases, and of its relations to plant-life. Few of you, who do not view the economy of the bee from the purely entomological or scientific standpoint, are aware of the errors that are yet extant in connection with the subject, and are still perpetuated in many of the popular treatises on the bee, and there is no better evidence of the biologic questions yet to be decided than the discussions at such gatherings as these, which, as evidenced this afternoon, involve the actual influence of the bee on the sweets which it gathers. I am satisfied that no thorough investigation under competent direction would fail to elicit most interesting facts, and to settle many disputed points. In connection with the wintering of bees in the cooler portions of our country, there is much that remains to be investigated. The statistics of the industry have never been properly collected, and could not be, except by some national organization.

Following shortly after this address was the REPORT OF THE COMMITTEE ON WHAT THE GOVERNMENT OUGHT TO DO FOR APICULTURE.

The committee to whom was referred the matter of government aid to apiculture beg leave to report and advise that the bee-keepers of the United States ask, first, that the Section of Apiculture, in the Division of Entomology, Department of Agriculture, be raised to an independent division; second, that in connection therewith there be an experiment apiary, established at Washington, having all the appointments necessary to a first-class apicultural experiment station; third, that the appropriation for this division be sufficiently large so that the work may not be embarrassed by a lack of funds.

This is the least that we can ask in justice to ourselves. That most important branch of our business, devoted to the production of liquid honey, is in great danger of being ruined. The chief competitor of liquid or strained honey in the manufactures is cane sugar; and the recent removal of the duty on it, and the consequent lowering of prices, has materially lessened the demand for honey; and we find that we shall have to lower the cost of production in order to meet this unequal competition so suddenly thrust upon us. Millions of money are taken from the treasury to reimburse the producers of cane and maple sugar for the loss occasioned by the removal of the duty; but our legislators entirely

forgot the producers of honey, whose product is but sugar with the flavor of the flowers added. We do not ask a bounty, but we do ask the government for all the assistance that scientific research and well-directed experimental work can give us in cheapening the cost of production. This is but a moiety of what is granted the sugar-men. Our industry is still in its infancy; and while many million pounds of honey are already produced, the business is capable of an expansion so great as to wholly eclipse the present production of sugar from the sugar-cane. Four contiguous counties have produced in one season over four million pounds of honey, and this represents but a fractional part of what might have been gathered. Vast as our business may become, the indirect benefits conferred by the honey-bee on the agriculturists of this country, in the fertilization of the flowers of fruits, grains, seeds, etc., will always surpass in value the honey gathered by it.

The committee have named Washington as the place for the experimental yard, because of its convenience to the Department of Agriculture; also because of the longer season in which to experiment. There may be better locations for honey, but for many purposes a poor location may be best. If for any purpose a better one is desired, such may be found not many miles out, and a part of the bees removed to it.

Should the association see fit to adopt this report, it would undoubtedly be best to have a committee estimate the necessary expense, and immediately formulate a petition naming the amount of the appropriation desired, and the changes called for, with a few of the reasons why we demand the assistance asked.

P. H. ELWOOD, }
J. E. HETHERINGTON, } Committee.

Considerable discussion followed the reading of this report, and it was argued by the government officials present that it was impracticable to establish a station at Washington, and that it was altogether improbable that the government would raise apiculture to an independent division. Prof. Riley said the tendency of the government was to *reduce* the number of divisions, rather than to *separate*. After considerable discussion it was finally voted to continue the committee for another year.

The last session was, for the most part, a business meeting. The election of officers, we have already given; and as there were no more subjects on the program, it was voted to adjourn in order that, the next morning, the whole convention might take in the sights of Washington.

OURSELVES AND OUR NEIGHBORS.

Whosoever committeth sin is the servant of sin.—JOHN 8:34.

It seems almost impossible that mankind can understand or comprehend the extent to which one's better judgment and good common sense are impaired, weakened, and blighted, by voluntarily doing that which we know we ought not to do. One who commits deliberate sin is like the man who goes and deliberately gets drunk; yes, and after he has done things while in a drunken state that he would not think of doing while sober, he is loth to believe that he has done these things. We all admit that the man who is angry has, to a certain extent, lost his judgment and reason. The greatest trouble is, however, we are never willing to admit that we *are* angry—that is, we are *seldom* willing to admit it. I have seen people who had the rare good sense to say, "Look here, my friends, I am too much stirred up now to say any thing, and I hope you will excuse me if I refuse to have any thing more to say or do in the matter until I have had a little time to get quiet, so that I may reason fairly and impartially." The man who can do this has already said, "Get thee behind me, Satan," and he has already

taken a big step from earth toward heaven. Such a man will also be wanted right and left to fill important positions among his fellow-men. He has commenced to rule himself, recognizing that "he that ruleth his own spirit is greater than he that taketh a city." Now, the groundwork toward getting this upper hand of evil is in recognizing and admitting that humanity, alone and unaided, is entirely inadequate to cope with Satan. You will notice the attitude is very, very different from that of the one who says, "I can drink or I can let it alone. No doubt it is well for some people to let the thing entirely alone, because they are weak. But I can take care of myself." My friends, the human being does not live, and never did live, who could take care of himself under all circumstances without the help of any higher power. Our penitentiaries are full of men—yes, even young men; and I am told that the majority of them are young men who boasted that they could go just so far in gambling, drink, licentiousness, or other crimes, and no fur-her. In other words, they did not believe the proposition presented in our text, that, just as soon as one commits sin—even a little sin—he is the servant of sin, and in the bondage of sin. An illustration of what I have been saying was presented vividly to my mind a few days ago by the confession of a poor penitent sinner in our county jail.

When I first found him he was very reserved, and seemed to dislike my questioning. He smoked his pipe and read the newspaper, and answered me in the briefest monosyllables. I made up my mind he was a man who had no acquaintance with Christianity and Christian people—one who had probably been much with a rough, hard set, and, therefore, he had no relish for the conversation between myself and his fellow-prisoners. Sunday after Sunday he maintained this same reserve. I concluded that he was bearing some burden on his mind that he was unwilling to confess. I asked him about his wife, children, and relatives; but he replied very briefly. I felt pretty sure, from my former experience, that the time would come, however, when he would talk. Close confinement, especially where it comes to solitary confinement, is pretty sure to soften, sooner or later, the most stubborn heart. When the story came out, it was something like this:

This poor man is a farmer; and he knew well what it is to try to make farming pay on rented land. He was fitting ground for a piece of wheat. It was already in good trim, but he had no wheat to sow, and no money to buy any seed. It was just here that Satan found a chance to whisper to one who had heretofore, so far as I could learn, been at least fairly honest and upright among his fellows. Near by there were some bags of wheat stored in an old log barn. The owner was well-to-do, and did not look after his property very carefully. But my friend finally yielded to the temptation, and took wheat enough from this old barn to get in his crop. It has always seemed to me as though sowing wheat were one of the nicest things to do on a farm. I like to sow seeds of any kind, but I especially enjoy putting in autumn crops that will soon look green and thrifty while every thing else speaks of death and decay. I like to see the wheat when it first pierces the surface of the mellow soil; and I like to watch it day by day as it shoots up the blade and puts out the root that it may get sufficient hold in the soil to stand the wintry frosts and the zero freezes. Very likely our friend enjoyed his work as much as I do, ordinarily. But there was no enjoyment in putting in his crop *this* time. No doubt he planned to replace the wheat, or settle with the owner, or something

of that sort, after he had got his crop in on time. But after the act was done, Satan kept whispering that the man was a terribly hard and severe man, and that, if he confessed he had taken the wheat without any sort of permission, he would be punished to the full extent of the law; and so he put it off, bearing the burden of sin and guilt and remorse that was harder to bear than any thing in all his experience he had ever been called upon to bear before. He lay awake nights, and went about in a dazed sort of way during the day. Of course, he could not tell his wife—or, at least, he *thought* he could not. Oh what a foolish blunder! *He* had lost his good sense and reason; his judgment was impaired; but had he decided to confess the whole matter to his good wife, she could have told him what to do, for *she* had committed no such sin or crime. Poor fellow! he could not do it. Had he only reasoned fairly he would have seen that, at the present low price of wheat, the few bushels he had taken amounted to only a very little sum of money, after all. If the owner of the wheat were ever so hard and severe, the penalty for his theft, according to law, would not have been any thing serious; but Satan persuaded him that it would never do to confess it and unload the burden from his heart. On the contrary, he kept urging his poor victim until he got him into a far more serious trouble. This old log barn was off by itself, and it could be set on fire, and burned up—then no one would know that the wheat had ever been taken at all. After more sleepless nights and weary days he yielded to the temptation, and burned the building. Of course, an investigation followed at once; and then it transpired that the poor goaded victim of unrest had *forgotten* to restore a portion of the wheat that he had taken away but had not sown. The owner's name was found on the bags, and one clew followed another, until his guilt was so clear that he was sent to jail. Like many another, however, Satan persuaded him to keep denying his guilt, even if it were folly to deny it any further. I met him shortly after he had, after a long conflict, decided to plead guilty. The consequences were, of course, the penitentiary. But even the thought of the penitentiary, and separation from his wife and child, was so much easier than bearing that awful burden of guilt that his countenance brightened up, and he even laughed and talked so unlike his former self, I could hardly believe him to be the same man. O dear friends! does anybody know what a clear conscience is *worth*? No one knows until he has exchanged it for such a burden of guilt. I presume his natural disposition was to be pleasant, good-natured, and full of animal spirits. This guilt that had rested on his soul had borne him down so long that, when the reaction came, it was like getting out of prison. It almost brought tears to my eyes to hear him, in his poor way, tell how he had suffered, and to see him contemplate the penitentiary and separation from his home in the light-hearted way in which he did. But he was right. The punishment of the law is as nothing compared to the remorse of a guilty conscience. He had been in bondage to Satan; but had shaken off the chains of the demon, and he was now free. "If the Son, therefore, shall make you free, ye shall be free indeed."

While I had been talking and exhorting, and reading the Bible to him, without, so far as I could see, having enlisted his sympathies at all, the spirit of God's holy word had been doing its work. Said I, "And now, my good friend, are you not almost ready to choose Christ Jesus, instead of the evil one, and to become a Christian?"

The vehemence of his reply almost startled me:

"To be sure, I am ready to become a Christian. If God will accept such a poor sinner as I am, I am his already. I am going to the penitentiary to read my Bible, and to keep with Christian people as much as possible; and when it is over with, I am going with my wife to church; and if they will take a man from State's prison into the church, I shall unite with them at once."

At my request he went over all the details of his crime. He did not spare himself at all. The mental suffering and anguish he had passed through seemed to have taught him a lesson that would last for ever. God grant that it may. You know how the outside world speaks of sin and crime. You know how folks laugh at a criminal when he is caught, and say it is just good enough for him, unless, forsooth, this poor criminal happens to be a *relative* or a friend, and then, oh how different!

But now, dear reader, please, for just one moment, take another view of the case. Look at this poor friend as I was taught to look at him. He was hard pressed by the feeling that many of us know something about already. His work did not pay. Perhaps he was getting more and more in debt, and Satan seizes the opportunity to poison his mind. Instead of turning to *Christ Jesus* as the burden-bearer of the world, he turned to Satan. Should we not have some pity for such as he? When I saw how happy and bright he looked after having decided to tell the truth to some one, and escape from this horrible burden, my heart was full of pity. I thought of the Savior when he said, with his loving heart full of compassion, "Go, and sin no more." We feel pity for the man who suffers physical pain. All the skill of our best physicians, and all the arts of surgery, are employed to relieve pain; but who thinks of the pain of a guilty conscience? who thinks of the *terrible* burdens of guilt and shame that many about us are called upon to bear? and at the same time I presume they look upon the great outside world as a world with no sympathy or pity—as a world that is always ready to say, "Why, that is their own affair;" "they brought it upon themselves;" "let them take the consequences—teach them better next time;" "no more than they deserve," etc. Now, friends, if I were a dentist, and could relieve a fierce toothache in a few minutes, how glad I should be to spend my time thus in doing good! But dentists and doctors do not always cure. Sometimes they do, and sometimes they don't. Now, these burdens I have been telling you of—this mental anguish—is a hundred times worse to bear, many times, than physical pain; but there is a remedy, that *never* fails. God has chosen you and me as messengers of his to *carry* his remedy. In fact, it can not be done without us. The responsibility falls upon us. If we do not do it, it will not be done. Some one is doubtless near you now who is suffering from the torturing anguish of sin—may be crime. Are you willing to carry to him God's remedy? Are you willing to be one of God's messengers who shall say to the suffering one, "Behold the Lamb of God, that taketh away the sin of the world?" When you have once seen the new-born soul as it steps from darkness into light, you will know all about it as you never knew before. Our country needs it. Statistics have indicated that sin and crime among our young men are on the increase. Shall it be cured by more stringent laws, and by putting still more of the culprits into our jails and penitentiaries? God forbid! The jails and penitentiaries serve a good purpose. We must have them to hold and

restrain crime, and to be a terror to evil-doers. But there is a more excellent way. The Bible tells us that way: "Not by might nor by power, but by my Spirit, saith the Lord;" and you and I, my friend, are God's appointed messengers to carry the glad news of the Savior, who *died* that sinners might *live*. Are you ready to take up the work? If so, go at once to the prison nearest you and inquire if some one is doing this work I have outlined. Go in the name of Jesus Christ; go and present *him* as the *friend* of sinners; and explain to these poor suffering friends and neighbors how it is that he who *commiteth* sin becomes, oh so quickly! the *servant* of sin.

HIGH-PRESSURE GARDENING.

BY A. I. ROOT.

HIGH-PRESSURE GARDENING, AND SOMETHING STILL BETTER.

I like the department of gardening. I have out ten bushels of winter onions, some in cold-frames, and some out. I have several thousand lettuce-plants out, some under glass, and a big lot just covered with six-cent muslin, all doing finely. I can not see much difference between the glass and muslin. I don't think a plant is missing in either. I expect to have a greenhouse some day that I can work in. I have quit my trade, and gone to gardening. I bought five acres two years ago at \$150 per acre. I paid \$100 down. I bought eleven more last summer. I put out 3000 raspberry-plants this fall. I have about 1½ acres of strawberries for this summer. I will put out 3 acres more this spring. I plowed the ground last fall, and it is covered with manure. I will stir it well two or three times with the cultivator before planting. I have half an acre for onions, plowed in fall, and covered thick with manure. I will raise my plants in a hot-bed. I raised some last summer, and took some to the fair; 13 made a peck. Judges said that I had bought them.

I will tell you some day how I come out on my piece of ground.

Bro. Root, I wish you could stop off here some time when you are traveling, and see my garden. Please come this way, as we have two railroads—the Panhandle and Cleveland & Marietta.

I must tell you about our meeting. We have had a revival, and 125 have been forward to seek the Lord. We have one of the finest ministers you ever saw. I thought of you Sunday morning in church. How you would have enjoyed the sight, to see so many taken into the church—all young folks, from 10 to 20 years old. Our preacher's name is Fisher, and his son preaches in your county. J. W. NICODEMUS.

Newcomerstown, Ohio, Feb. 7.

[May the Lord be praised, dear brother, for the good news you bring; and I want to thank you for the great compliment you pay me in taking it for granted I should have enjoyed the sight you mention, of 125 young people being taken into the church. Why, I do not believe that even yourself, your good pastor, nor anybody else, fully comprehends what the outcome of such a work is going to be. Somebody has said lately, that our Ohio penitentiary would have to be enlarged to accommodate the *young men* of our State. Just give us a few more revivals like the one you mention, and I will guarantee that there will be a dropping-off in the "converts" for the penitentiary.

Now about your garden. I am pleased and

surprised to know that you have succeeded in making cotton cloth take the place of glass. You surely must have the cloth supported so that our heavy snows would not break it down. And then you must have fastened the frames so our heavy winds did not blow them away. I have just been purchasing more sash, because I felt so sure that cotton cloth would not answer until along toward, say, the middle of March. May I suggest to you not to be in a hurry to buy more land? What you already have will keep you busy, I tell you. Of course, I do not know how much money you have to hire help, nor how much experience you have had. But it is better to go slow and sure. You must have had something to do with that revival, even if you are not one of the new converts; and, dear brother, he who leads souls to Christ needs to be very careful that he make no failure nor mishaps in business matters. Better make garden on five acres all your life, than to undertake to manage twenty-five and even some *near* bankruptcy. We are to honor Christ, you know, by being prompt, reliable, and sure in every step we take.]

WANTED—CABBAGE SEED WORTH \$20 PER LB.

The seed I have bought from you has given me satisfaction, with the exception of some Ignotum tomato seed I got in 1891. I was afraid to plant any of that variety last season on account of it. I sell all kinds of plants by the hundred thousand, and guarantee them true to name; and you can understand why I want the best seed. I have tried cabbage seed from 10 different seedsmen, and your Wakefield were ahead last season. I should like to pay \$20.00 per lb. for cabbage seed, but I want it worth it. E. F. BUSICK.

Church Creek, Md., Jan. 25.

[Friend B., I would also give \$20 for a pound of cabbage-seed, providing every cabbage would make a good head, and all heal up pretty-nearly at the same time. I have never found any thing that would do this, although seedsmen in their catalogues give us pictures of such cabbage-fields. Our strain of Jersey Wakefield, from H. A. March, I think, comes as near to it as any thing I ever had.]

In regard to that Ignotum seed, I do not think we ever had more than a small quantity that was not true. My mistake was, in taking it for granted that all who received our first trial packages of Ignotum tomato seed would send to me only seed raised from the trial packet. At that time there was no other Ignotum seed to be had anywhere in the world; therefore we bought the seed back of hundreds of different individuals. Even now I am inclined to think some good friend made a mistake, rather than to think some one was tempted to be dishonest because I offered so large a price for the seed. Since then we have raised our own seed mostly. When we were obliged to buy I bought only of A. W. Livingston; and he certainly, with his life-long experience, would not make any mistake.]

THE ENGLISH POTATO ONION; ALL ABOUT THEIR CULTIVATION, PREPARING FOR THE MARKET, ETC.

Mr. Root:—You call for information in regard to the English potato onion. About a dozen years ago my father raised them successfully and to some extent. It is the peculiarity of these onions, that the large bulbs planted yield large clusters of small ones, while the small ones set out merely increase in size. The method of culture with us was as follows: The ground, well-enriched sand, was made mellow as soon as the frost was out in the

spring; then the onions were set in rows twelve inches apart and six inches apart in the row. Small onions were used for the most part, with a few of the large ones to provide sets for the next season.

The earlier they were set, the better. A little cold freezing weather did not hurt them. The ground was stirred occasionally, and kept clear of weeds. In from six to seven weeks, pulling began, by selecting the largest, which could easily be distinguished, even at some distance, by the foliage. They were then from two to three inches in diameter. To prepare them for market, the roots and outside skin were taken off, leaving the bulbs white; then they were tied in bunches containing from four to six, with the tops trimmed a little. At first the wholesale price was fifty cents, per dozen bunches; but other gardeners afterward crowded the market and the price fell to half that sum.

The season lasted from six to eight weeks, and then the foliage began to droop as the bulbs ripened. The length of time they remained green depended very much upon the weather, for we had no control of the water-supply. These onions were eagerly purchased, the small ones standing no chance beside them. EMILY E. WEST.

Flint, Mich., Feb. 6.

[Many thanks, my good friend, for the full and clear particulars you give us. Now, then, who among the readers of GLEANINGS has any of these onions for sale? I find them offered in some of the seed catalogues at about the price of onion-sets. If they are really worth this price in the market, what a splendid business it must be! It seems to me we ought to get some that will do for seed, for about five or six dollars a barrel instead of five or six dollars a bushel.]

A CHEAP IMPLEMENT FOR SCATTERING GUANO AND OTHER CONCENTRATED FERTILIZERS.

In regard to fertilizers, I am sure much depends on the way they are used. Even in the drill or row they should be well mixed with the soil. Roots do not and will not go into a concentrated body of strong chemical manure, as fertilizers are usually applied. Unless much rain scatters it, it's about all a loss; but if some will persist in *not* mixing it, I'll tell them a neat, quick, easy way. Punch $\frac{3}{8}$ holes, close together, all over the bottom of a 6-quart pail; nail a lath, 16 inches long, on each side (with clinch nails); nail a handle in at the top ends, and you can do more and better work in an hour than in all day the old hard way; no stoop, no back-ache; no blowing away; and it is spread even, and as wide as the bottom of the carrier. Just a little shake as you walk right along is all that is needed. I find no danger in dropping the seed right along without covering; but it pays to use even a wheel-hoe to mix it. This simple cheap rig is worth more than two men, all things considered. Ashes can be used, but the holes need to be larger. By tests I find the seed comes up better, and grows away ahead of the hand-fertilized seed, because it's so even, and covers more surface. Don't fail to try it. A pail 8 inches across is none too large, and the amount can be regulated by the motion, giving one or more shakes. E. P. CHURCHILL.

Hallowell, Me.

[Very good, friend C. Peter Henderson has again and again declared that guano and other similar fertilizers were worth fully a half more, if thoroughly mixed with as much more fine garden soil before applying to the ground. Your remarks come right in line with his advice; and from what experience I have had, I am quite sure you are right. Our plan has

been to shake the guano into the hill with a sieve; then have another hand follow with a rake, and rake it thoroughly into the soil; but even after that, I have seen the ground bake over the hill.]

IGNOTUM TOMATOES WITHOUT RAIN OR IRRIGATION.

Friend Root:—Seeing you are so much interested in gardening I will tell you just a little of our experience in that line in this land of sunshine, little rain, and less running water. We have a place in that most favored of spots, the warm belt of the foot-hills, where we have never yet seen frost enough to injure tomato-vines; but, alas! we have not a drop of water, save what comes from the heavens in rain; but there is water available for the place, if it is ever piped on to the ground. Last spring we concluded to see whether tomato-vines would survive the long drouth of summer; so we set out some 500 Ignotum vines, which gave abundance of fruit for our own use, while hundreds of pounds rotted on the ground. We picked and sold them as long as there was any market, then let them go. About a month ago they were cut back, leaving only the new shoots, with as much of the old vines as was loaded with fruit. Now, this twelfth day of January, these vines are in blossom, with quantities of green and ripe fruit, and this after having not one drop of water from May 1 till December 1.

MATTIE A. BONFOEY.

South Riverside, Cal., Jan. 12.

GLAZING GREENHOUSES; GROWING AND SELLING MUSHROOMS, ETC.

It is only recently that my wife has been interested in your Home talks. While cleaning house she came across some back numbers of GLEANINGS, and, having heard me speak so often of you, she began reading these Home papers, and now is as anxious to see GLEANINGS as I am. Should you have occasion to come to Toronto we should be most happy to have you at our home, and can assure you that no one would be more welcome. We think we could show you some things of interest—notably, a beautiful, clean, "sweet-smelling" baby.

We have about 10,000 feet of glass, devoted almost entirely to flower culture. Under the benches we grow mushrooms, and also raise Ignotum tomatoes and Grand Rapids lettuce.

I do not know how you glaze your greenhouses, but we have a system here that is being adopted by the largest and most extensive growers. Instead of using putty, and lapping the glass, a little care is taken in selecting the panes when glazing, and they are butted instead of lapped, so that they all lie perfectly flat in the rabbet of the bars. The cap is screwed on, and all is secure. We have heard it has been tried, though unsuccessfully, by some American florists. It works splendidly here. All that is necessary is a little care in glazing, to see that the joints fit well. One would naturally think that the water would drop through where the panes abut; but it does not nearly so much as in the old system of glazing; and, besides, when it freezes on the inside of the glass it seals the whole thing over perfectly air-tight; and unless the joints are badly made one can not find a crack anywhere.

I should like you to have seen a mushroom-bed we had bearing a while ago. I think you would have wanted to go in for mushroom-growing. To give you an idea of how people in Toronto appreciate mushrooms, I will give you an incident that came under my notice recently. A farmer brought to the market a basket of these, in all about 3 pecks, and sold them to

a dealer for 75 cts. I bought them from the dealer for \$3.00, and, after selling some of them for \$2.25, disposed of the rest to another dealer for \$3.00, who, in turn, sold them to a restaurant for \$4.00. The farmer had gone home happy at having received 75 cts. for a few mushrooms which he had found growing wild.

Toronto, Can., Feb., 1893. E. GRAINGER.

[Thanks for your kind invitation, friend G. Should I go to Toronto again, I shall most assuredly make you a call. We have tried considerably laying glass as you indicate; but unless the slope is considerable, as it would be in a greenhouse, we have found that the water drips through the cracks between the glass. By setting the edge in liquid putty, however, before pushing the glasses up tight together, we have made a beautiful tight job. The joint is sanded before the putty gets dry. At the same time, we sand the putty along the edge of the glass.]

SPRAYING APPLE-TREES; REPORT FROM THE OHIO EXPERIMENT STATION.

So many inquiries have come in regard to the matter, we have decided to submit the following:

The heavy and continued rainfall during the spring and early summer of 1892 is thought by many to be the direct cause of the failure of the apple crop. No doubt this was true in many cases, as, when heavy rains occur at the time of blooming, the pollen may be washed away, and pollenization prevented. The bees, not being able to fly at such times, can not visit the blossoms, which fact alone is sufficient to account for the crop failure, in a great measure.

The opinion has been held by a few, that unfavorable weather is not, in all cases, the direct cause of failure; and some experiments, carried on by the Ohio Experiment Station, strengthen this opinion. An orchard of Newtown pippins, of nearly two hundred trees, was divided off into plots, none of the plots containing less than one row, and some as many as four. Several compounds were used; but the fact that some adhere to the foliage better than others renders comparison out of the question, nor is this matter of any importance in this connection.

The dilute Bordeaux mixture, which was found to be best last year, occupied the same place this season. The ingredients used in this mixture are sulphate of copper, 4 pounds; lime, 4 pounds; water, 50 gallons. Comparing the two plots where this compound was used, with the two unsprayed plots, the astonishing fact was observed that no marketable fruit could be found on the unsprayed plots, nor was there much fruit of any kind; while on the sprayed plots, which had been subjected to the same unfavorable climatic conditions, there was about half a crop.

There was sufficient bloom in the orchard for a full crop; and if we accept the old theory of crop failure in time of wet weather, we are forced to the conclusion that spraying aids pollenization, which is absurd. We are, therefore, forced to seek some other hypothesis. The most reasonable explanation that can be offered at present is that spraying prevented the apple-scab from attacking the young apples and blossoms. It is well known that scab attacks apples in all stages of growth, and that, if it appears very early, it may cause the young fruit to drop prematurely. When it attacks the blossoms, it of course destroys them. The first spraying was done before the trees had bloomed, and the supposition is that many of the fungus spores were thus destroyed and the apples were thus given a chance to develop. This theory is tenable, and consistent with well-known facts; but it must be admitted that a more careful study of the question is needed before it can be settled beyond controversy. This experiment also strengthens the theory that early spraying is essential to the best success in preventing the apple-scab.

The spores from which the scab-fungus develops live over winter on the trees, and begin growth in the spring at the same time the leaves start to grow. How rapidly the fungus develops, depends upon the weather. It follows, then, that the apples would be attacked earlier some seasons than others,

and it may not always happen that early spraying would show such striking results as above mentioned. It is true, however, that the fungus is prevented much easier than it is killed after once established, and to this end early applications of fungicides are far more effective than late; and it may sometimes happen, as in this case, that a crop is saved which would otherwise be lost.

No dates can be named for spraying; but a good plan is to make the first application just before the leaves open, and the second soon after the blossoms fall, at which time four ounces of Paris green should be added to each fifty gallons of the mixture, in order to kill the apple-worm. A third spraying with the combined mixture is to be given about ten days later, and still another after the same length of time, in case of continued wet weather.

NOTES OF TRAVEL

FROM A. I. ROOT.

THE HORTICULTURAL INSTITUTE AT JACKSON, MISS., ETC.

In our issue for March 15, of a year ago, I told about my visit to the home of J. W. Day, the author of the tomato book; but I did not tell you *all* about that visit. When I first arrived at Crystal Springs, Miss., they told me that friend Day was at Jackson, Miss., attending a horticultural institute; and it did not take me long to get on the train again and push ahead for Jackson, the capital of the State. It is a town of about 6000 inhabitants. The capital cities of the States in the South are not as yet able to compare very favorably with the capitals of Ohio, Michigan, Wisconsin, New York, and some others that I have seen. Of course, it is not to be expected; for agriculture, manufactures, etc., are not yet developed in the South as they will be a few years later. The people, however, are getting a good deal of enthusiasm, especially in the State of Mississippi, and a good work is going on rapidly in adjoining States. The buildings, although tasty, are small compared to ours in the North, and built mostly of wood. We should remember that, in these warm climates, it is not worth while, and it would not be in good taste, to make such preparations against the severity of the weather as we are obliged to make here in the North. The hotels of Jackson are very fair, although they were not built with the view of accommodating any such amount of custom as we often have here at the North.

The horticultural institute occupied the greater part of two days. In order to get the people out, and give the meeting enthusiasm, some noted speakers were invited from the North. In fact, Gov. Hoard, of Wisconsin, acted as chairman, and J. M. Smith, of Green Bay, Wis., was one of the principal speakers. The meeting was much like one of our real live farmers' institutes here at the North. Some colored students from one of the neighboring colleges gave us beautiful music; and Gov. Hoard was more than bubbling over with his many odd incidents, jokes, and funny stories. Every little while he would get up and say, "The remarks of the last speaker remind the chair of a little incident;" and pretty soon this preface to his story got to be so well recognized by the young Mississippians that they cheered him beforehand. In fact, there would be such applause before he began his story that it was hard to get them quiet so that he could tell it.

In the South, everybody raises cotton, very much as everybody raises wheat here in the North. They have fallen into a kind of rut. They know how to raise cotton, and don't know how to raise any thing else, and so they keep

going through the motions, year after year, in a sort of automatic way. It does not matter at all whether the streets of New Orleans, or the public squares, are so filled up with cotton bales (as they were when we were there) that in many places one can hardly get through, or not. They just keep right on raising cotton. Our Northern friends, Smith and Hoard, and others, of course protested against this sort of farming. Friend Day is a bright example of intelligent Yankee figuring and planning. I have told you how he engaged in the great tomato industry. I did not tell very much, however, about the *peach* industry that he is so deeply engaged in. If I should tell about the size and lusciousness of the peaches, the immense crops they get, and the prices the peaches bring in the North, you might all start on a stampede for Mississippi to raise peaches. Well, one of Gov. Hoard's incidents was something like this. He said that, while in the service, a colored boy who was waiter for one of the generals was so afraid of the booming of the cannon that he kept his ears stuffed full of cotton. As a consequence, he could not hear very well. One day the general gave him orders as to what he was to do; but, as usual, he did not do it. Pretty soon he was called up.

"Look here, Sam; what is the reason you don't do as I tell you? You certainly heard me, for you nodded your head when you spoke, as if you understood."

"Well, the fact is, I did hear you tell me something, but I could not hear very well just what it was. How can a poor nigger tell *exactly* what is said to him when boaf eahs am stuffed full ob cotton?"

Our Mississippi friends saw the point of the joke, of course, and they almost raised the roof with yells and cheers. The greater part of the friends in the South—colored men and all—have for years had their ears so full of cotton that they could not see nor understand any thing about peaches, tomatoes, early garden-stuff, nor any thing else. Most of the incidents that Gov. Hoard mentioned were from the late civil war; and some of his stories cut so close that some of the veterans near me, who once kept slaves, were inclined to double up their fists and show fight. Friend Day, however, exhorted them to be gentlemen, and to take a joke when it is intended as a joke.

To vary the exercises, some native colored minstrels, who probably had not had an over-amount of schooling, were called up to give us some native melodies, accompanied by the banjo, violin, guitar, tamborine, etc. They did it grandly, but somebody thought it was a good time for "Dixie's Land." Others suggested that, out of respect to their Northern friends, they should not have Dixie's Land just then. But the crowd clamored for Dixie again and again. Then somebody suggested Yankee Doodle, to kind o' bring things level. At first, some demurred, as before; but the call for Yankee Doodle was persistent; and even the Southerners themselves, one after another, fell into line and demanded that we have Yankee Doodle also, if for nothing else than to let the Northern people see that the Southern folks could be generous, especially while they were entertaining guests; and finally a great hurrah arose from hundreds of voices for Yankee Doodle; and it ended up with a big hand-shaking between the North and the South. When it looked as if there might be jangling over old-time troubles, I know at least one individual in that big crowd who did some most earnest praying. May be there were a good many earnest prayers sent up at just this crisis; and the prayer was answered.

I do not know that I ever enjoyed any horti-

cultural meeting much more in my life. Friend Day, as a matter of course, was backward about taking part, and telling what he could tell so much better than anybody else. I say, "as a matter of course," for it is a lamentable fact that the real skillful, intelligent, and successful cultivators of the soil—the real experts and old wheel-horses in nearly all rural industries—are very modest men. A good many of them think they can not talk. The reason is, they have all their lives sat in the background, and so have got an idea that they can not help in such gatherings. Of course, that is not one of my troubles—not now, anyhow. In fact, I am afraid I have sometimes pushed myself forward a little *too* much. As the program was already quite full at this gathering, I decided not to say any thing; but I am sorry now that I kept still. I came in during the middle of the exercises, and there was not much time for introductions; yet I am now sorry that I did not crowd in with at least a few brief remarks. There was something in my mind that I wanted to say to the four or five hundred people there assembled. Well, there is one consolation—I can say it yet to perhaps twice as many thousands; but I wanted the Southern people especially to hear it. I wanted the colored boys of that horticultural meeting to hear what I had to say. I am now going to give my little speech here; and my good friends in the South may scatter it about. Here it is:

Mr. President, Ladies and Gentlemen, of this Horticultural Society of the State of Mississippi:

In Ohio, where I came from, we have a man whom we delight to honor. Not only does the whole State of *Ohio* delight to honor him, but the whole *United States* is beginning to do so; and before he dies we expect him to be held in grateful remembrance by the people who till the soil, from all over the world. His name is Terry. He is teaching the people of the North how to raise potatoes; and not only *more* potatoes, but *better* ones than the world ever saw before. Now, dear friends, you have a man here in the South, right in this State, in this county—yes, here in this *room*—who is in a like manner teaching the Southern people to raise tomatoes—better tomatoes, and more of them, and earlier in the season—than they have ever had them before. In fact, he has developed a great industry where nothing of the kind was ever known before. You doubtless looked out of the car windows, as you came here to this gathering, and saw the white cotton sheeting that covers the hot-beds. In fact, these cloth-covered hot-beds are at this very moment dotting the landscape with this very industry until it calls forth question and remark from the traveler who passes through on your railway trains. The man you are neglecting and overlooking is my good friend J. W. Day. I know we are told in the good book, that "a prophet is not without honor save in his own country;" but with all due respect to my good friends Gov. Hoard and J. M. Smith, and others who have come from the North to talk to us, I want to remind you that you have home talent that needs recognizing and encouraging. Now, boys, there has been a good deal of cheering here to-night. I want you to give three rousing cheers for the home talent of the State of Mississippi. May God bless you all.

After the meeting was over we adjourned to our lodging-places. The unusual number of visitors in the little town of Jackson was so great the hotels and boarding-houses were full, and extempore beds had to be rigged up all over the city; and it was my exceeding good

fortune to be permitted to sleep in a bed with friend Day, and this bed was only one of half a dozen or more that occupied the same room. As the weather was a little frosty, a big blazing fire of pine knots was kindled in the spacious fireplace, and we all got around the fire and told stories. Friend Day was inclined to apologize a little for the way he entertained a Northern visitor; but I look back to that evening, and the friendly chat we had by the fireside there, as one of the most enjoyable evenings of my life. It gave me just the glimpse of the Southern people and Southern customs that I wanted. Most of the friends who sat around that fire had been slave-owners in former days; and they were just as free to talk it all over, and tell stories, and answer any questions I might ask, as if they had been my next-door neighbors all their lives. Of course, there was fun and merriment; but there was a real hungering and thirsting after righteousness. The matter of the morals of the colored people was discussed; their value as farm-hands and mechanics; their capacity for education, etc.; and the report I received was certainly encouraging. I know there are drawbacks—terrible drawbacks; but, my dear friend, there are drawbacks with the white people too. It took a good deal of hard, earnest work, and much patient forbearance—much kindness and long-suffering—on the part of earnest Christian workers before you and I were brought into the fold of Christ Jesus.

These horticultural meetings and farmers' institutes are going to be great agencies for good among the colored people. A great part of them take kindly to gardening, fruit-growing, and kindred pursuits. I have no idea *how* many features of the problem are to be solved; but I am sure that education, manual training, etc., are right and proper at the present stage.

I did not get a chance to shake hands with Gov. Hoard; but I wish to say a word of encouragement to him, if he will accept it; and I want to suggest to the good friends of the State of Wisconsin, that, if they have not already thanked God for such a bright, happy, and, at times, almost inspired leader in the cause of agriculture and every thing else that is progressive and good and pure, they want to do it now. Our friend Smith, who had the wisdom and good sense to take his wife along when he went down among the Southern people, also deserves a vote of thanks. And we may thank God that he, too, has been raised up at a time so opportune—that is, when there is such a general disposition to say that farming does not pay; we may thank God that J. M. Smith has come on to the stage to show us that intensive agriculture *does* pay, and pays *tremendously*, where one gives it brains and energy—the same kind of brains and energy that are given to almost all callings to make them successful. Not only in the North is it possible to make agriculture pay; but industries are springing up here and there all over the Southern States that are enough to startle the whole world. There are possibilities along this line, and possibilities, too, that people right in these very neighborhoods never dreamed of. Let us get the cotton or wheat, or whatever else it may be, *out of our ears and eyes*, that we may see and hear, and profit by seeing and hearing.

I was very much interested in an address on growing strawberries in and around Crystal Springs; and the speaker had in his hand a box of ripe berries while he spoke. They do occasionally, in favored localities, get a few strawberries in February; but it seems to me as if they must be something a little irregular, about like the small crops of berries we sometimes get

here in the North in the month of October. I was especially interested in an account of an immense crop of strawberries gathered in only six weeks after setting the plants in the ground. It was done by selecting the strongest plants with the largest fruit-crowns, taking some of them at a time when they were so far along as to show occasionally a blossom. These were set in very good ground, and given extra cultivation, and made a fine crop in the time I have mentioned. Of course, all runners were kept off. During the past season I myself succeeded in getting something of a crop in just about the same way. Of course, the wet weather was against it. By moving the plants with the transplanting-tubes, I think it could be made quite a success, when we learn by careful experiment just how to manage.



Blessed are the pure in heart, for they shall see God.—MATT. 5: 8.

THE pure in heart shall not only have a clear, unbiased understanding, but they shall have wisdom given them from on high: while "he that committeth sin is the servant of sin."

Be sure to read Langstroth's Reminiscences in this issue.

THE demands upon our space are so great that we are obliged to add eight extra pages.

THE *Progressive Bee-keeper*, published at Unionville, Mo., is again making its regular monthly visits. It is a good paper, and we should have been sorry to know that the heavy loss by fire which it sustained was too much for it.

OUR bees are wintering nicely so far, and only four are dead this exceptionally cold weather. Two of this number were very weak in the fall; but summer is not here yet, and we won't count our chickens till then. So far the winter cases appear to be doing as well as the large chaff hives. As to the hives with sealed covers, the difference appears to be a little in favor of the sealed-cover idea.

WE hope the Rambler will urge upon the bee-keepers of California the necessity of joining and supporting the Bee-keepers' Union. That the bee and fruit men in that great honey State are and have been coming into conflict is becoming painfully evident. See Rambler's article in this issue. There never was a greater need for the Union than now; and unless it has a large membership it will fail of a great work.

WE now put up all our sections by the thousand, in potato-boxes holding just a bushel and a half, and worth about 25 cents alone. Instead of having a useless crate lying around as formerly, the purchaser of our sections will have a useful implement. Even if he does not live on the farm or raise potatoes, the potato-box crate will be very handy for storing apples, potatoes—in fact, any sort of vegetables—in the cellar. This is in the line of the request of Dr. Miller and others, that supply-dealers make such boxes and crates as will be useful for other purposes after they have subserved their first mission as a carriage crate while in the hands of the railroad companies.

IN one of our exchanges a writer thinks GLEANINGS has not given enough attention to that fearful bee-disease, "bee paralysis." It really seemed to us, if it did not to many of our readers, that we had allowed the discussion to proceed to an *ad nauseum* extent. No new or peculiar development has occurred, except in the case of J. A. Golden, and in our next he will answer some questions in regard to it. It is evident, as Dr. Miller says, that in some cases the disease appears to be much more aggravated and serious than in others. Why this should be so we can not say, for all the dead specimens of diseased bees that we have examined from all parts of the country appear about the same; viz., swollen, hairless, with a general greasy appearance.

WHERE bees have insufficient protection, or were neglected last fall, the indications are, from the letters, that there will be great losses. Colonies that were properly cared for will winter well. We are afraid there are too many of the former class, as so many bee-keepers have been sort of neglecting their bees in the fall because the winters of late have been comparatively mild. It is always safer to prepare for a cold winter every fall. It is rather poor policy to send a hundred or so dollars to your supply-dealer, and then lose all your bees the following winter through neglect. It is bad enough to have a series of poor seasons; but there is no excuse for cutting down the small profits by winter losses through carelessness.

HONEY CARAMELS.

OUR veteran friend in introducing honey to the people in popular packages, C. F. Muth, has sent us a sample package of honey caramels. We passed them around, and they were gone so quickly that Ernest, it seems, did not get even a taste of them. They are pure honey, without question, and friend Muth has succeeded in giving us a honey confection that is just as neat and clean to handle as the best and finest candies to be had. We have been waiting, thinking he would give us prices. They certainly should be advertised through the bee-journals, any way. My opinion is, that honey candy will be found to be more wholesome than even candies made of pure sugar; and you know that, sometimes, we do not get the pure sugar. A. I. R.

OUR BRITISH COUSINS AND THE NORTH AMERICAN.

THE British bee-keepers are making extensive preparations for a grand honey display at the World's Fair. If we don't look out, Canada and England will "beat us all to smash." We are glad that our Canadian and English cousins are coming over, and the bee-keepers of the United States mean to give them a hearty welcome. We hope a large delegation from both countries will be present at the next meeting of the North American, at Chicago. It is expected this will be the largest and grandest meeting in the history of the association. Let the date be fixed early, that all may be making their calculations. It was approximately fixed for about the middle of October, at the Washington meeting.

A FEW HARMLESS LIES ON THE BEE.

THAT old canard that originated somewhere over in Canada, that bees use their sting as trowels to cap honey, etc., is still trying to go the rounds of the press. It gets a little encouragement, hence it is kept alive. There is another yarn of the same ilk, to the effect that flying bees often carry little tiny stones to prevent the heavy winds from blowing them away;

then the reporter tried to moralize on it, and adds, "Here is a lesson on what we ought to do." Do what? Can any sane person tell us? We might add that the probable foundation for the story is pollen on the bees' legs. Friend York, in the *American Bee Journal*, says that a statement is made in a religious journal, that "two larvæ, the drone and the worker-bee, placed together in the queen-cell, will so blend as to develop an impregnated queen-bee." This is on a par with the stupid nonsense given out years ago as science by Professors Agassiz and Tyndall, wherein they tried to show how the bees made honey-comb by scooping the cells from *chunks* of wax. Such lies are harmless, but they disgust practical bee-keepers, and we are heartily tired of trying to refute them.

A COUPLE of years ago, when we visited at the home of the Dadants, during the International convention, we met one of their faithful employes—one who had been with them for many years—a colored man by the name of John Hammond. John's open and honest countenance showed that he could be trusted with important duties, and he was. When we came to bid good-by to the Dadants, we shall never forget the kindly hand-shake of John. A few days ago we received a letter from the elder Dadant, accompanied by a newspaper clipping, to the effect that this same John had recently got track of his mother, whom for 36 years he had not seen or heard of; and who, to his great joy, was still living, and that he was now to take a trip to the South to see her. The article winds up with this touching paragraph:

Try to imagine, if you can, that you have found your mother after thirty-six years of ceaseless search, and then anticipate the joy that will come to John and his mother on Christmas day.

BEE-KEEPERS' UNION, AND THE RESULT OF THE VOTE.

The General Manager has kindly furnished us the following:

OFFICIAL STATEMENT.

Chicago, Ills., Feb. 3, 1893.

To the Members of the National Bee-keepers' Union:

I hereby submit the following statement of votes received up to the time of closing the polls, on Feb. 1, 1893. There were 348 votes cast.

For President.—Hon. R. L. Taylor, 141; James Heddon, 136; scattering, 50; blank, 21.

For Vice-Presidents.—C. C. Miller, 272; G. M. Doolittle, 270; A. I. Root, 265; A. J. Cook, 242; G. W. Demaree, 228; scattering, 248.

For General Manager, Secretary, and Treasurer.—Thos. G. Newman, 321; scattering, 3; blank, 24.

For Amended Constitution.—289; against, 28; blank, 31.

For Salary of Manager.—20 per cent, 342; scattering, 6. Back salary voted, the years being added together, amount to 566. This, divided by the number of votes, lacks a little of being twice—carrying for one year, and leaving votes for 218 over. It will, therefore, commence with Jan. 1, 1892.

THOMAS G. NEWMAN,
General Manager.

All the members of the new Advisory Board are a unit on the matter of suppressing glucose adulterations of honey, and they will soon be ready for business. But for the unfortunate convention speech of Mr. Heddon, there might have been a thousand members; and now that the Union is reorganized with an efficient corps of officers, there is no reason why any one should hold back. Let the list swell up to a thousand. Send in your name, with one dollar, and you will be entitled to all the rights and privileges of the organization, besides helping to suppress honey adulteration. To deal with this great question of adulteration, the

Union must have a larger membership. There are many who, *expecting* to carry out the line of these suggestions, will put it off. Don't do it.

HONEY-PRODUCING LOCALITIES OF THE UNITED STATES.

It has been evident for some time, that the honey-producing localities of the United States were narrowing down. The great pasturelands, with their abundance of white clover, either have been or are now being turned into extensive fields for the cultivation of agricultural crops. Basswood is being cut away at such a fearful rate, by furniture-dealers and others, that in a few years there will be only a few localities where much basswood honey may be obtained. But, happily, there is another side to this. Alfalfa is just beginning to develop in the West. If its cultivation continues, as we have reason to believe it will, it will more than make up for the loss of honey from white clover, both in quantity and quality. Besides this, there are certain mountainous districts in California that are absolutely unfitted for any form of agriculture. These will probably always be wild; and in these places the mountain sage and other honey-producing flora will continue to flourish. Again, there are many other places in the United States, east as well as west, that would make valuable locations for bees, that are not yet discovered. But the time will come when their golden sweets will no longer go to waste. The quantity of honey will increase, although the area from which honey may be gathered may be lessened.

THE EVOLUTION OF THE LANGSTROTH SYSTEM.

ELSEWHERE we present a picture showing a rear view of some of the buildings that comprise a part of our manufacturing bee-plant. In the foreground is a part of the apiary; and conspicuously in front will be seen the figure of an old gentleman. It is no other than our old friend the Rev. L. L. Langstroth. He is standing in the apiary, and in front of the buildings from which the Langstroth hive and system have received such wide publicity and popularity; and as the combination, one that we probably could never make up again, was not altogether an inappropriate one, we concluded to preserve it in permanent and tangible form, and requested our old friend, one pleasant afternoon, to sit near one of the hives, while we, with a camera, took the view. He kindly did so; and it is with pleasure that we present the result. If it was a gratification to him to witness the outgrowth of his invention, we trust it will be equally so to his admirers.

The first building shown in the view is the machine-shop, which we erected in the summer of 1890. It is in this that the comb-foundation machines, extractors, and, in fact, all the metal work, all after Langstroth sizes, are made. At the right is a partial view of the wood-working building, where hives, frames, etc., after the Langstroth dimensions, are turned out by the carload. Back of the machine-shop, and shut off from view, is the packing and storage building; and at the extreme left a partial view of the office, together with the water-tower, wherein one of the Grinnell tanks is stationed ready for fire purposes. In this vicinity are four buildings, two story and basement, each about 40 x 100, all with metal roofs, and solid brick from the foundation up. Of course, the tall chimney stands directly over the boiler-house and engine-room. This does not include all of our buildings, but it shows fairly well the evolution of the Langstroth system; and while our bee-plant, large as it is, sends off hundreds of carloads every year, of

bee-supplies, on the Langstroth system, there are other establishments that are doing their share; and as we think of the results that have followed the invention of the Langstroth hive and frame, it will be interesting to read just exactly how this invention came about. All this, and more, Mr. Langstroth tells in his usual charming manner on page 116. Be sure to read it.

A VISIT TO H. R. BOARDMAN.

We used to call him "the man who never loses bees in winter," and I rather think he is going to come through the present severe winter as usual. It was my good fortune to spend a couple of days at his home while attending a farmers' institute. He winters his bees mostly in long narrow buildings above ground—see page 319, April 15, 1889. I do not think I ever saw a more tidy and pleasant apiary; and his tasty little home is just in keeping with the apiary. Of course, friend Boardman is somewhat of a gardener, for he could not very well be a particular friend of mine without at least having the subject well presented to him. Now, he has some cold-frames and glass sashes. Instead of his sashes being 6 feet long, however, they are only 4. When I commenced remonstrating, he said: "Look here, friend Root; I have no boys of my own; and a good many times there are not anybody's else boys handy; therefore I adapt my tools and implements to the circumstances." Then he picked up one of the four-foot sash, took it off the hot-bed, and put it back again with ease. There were no vegetables under the sash, for it was about the first of February; but what do you think we did see? Why, White Brahmas and Plymouth Rocks, scratching and having fun right under the sashes, and laying eggs every day right straight through the winter. His beds are pretty nearly as wide as the regular hot-bed—say about 5½ feet inside; and to make his sash "catch on" he has a one-foot board along the north end and another along the south end. These boards are nailed down permanently, so when he handles the sashes all alone he has a one-foot platform to rest on while he is swinging them up on one corner. The arrangement is much like the new celery-culture bed you saw in the picture on page 26.

Friend Boardman is an enthusiast on sweet clover, as you may remember. He raises it by the acre every year, gets honey from it for the bees, and food for his Jersey cow and horse. Said Jersey cow, and horse too, will take sweet-clover hay in preference to any other kind of hay or clover you can give them. They are educated to it; and they will even reach for the dry seed-stalks, and chew them up with avidity, if you give them a chance. He keeps his ground seeded permanently to sweet clover by letting the seed drop on the ground and come up of itself. But he says it is quite a hard matter to get a good stand by sowing seed in the first place. The plant seems to have a queer fashion of growing better on hard roadsides and hillsides than it does on fertilized ground.

I can not begin to tell you of all the things we went over in regard to bee culture and gardening; but my impression is, that friend Boardman is one of the most thoroughly posted bee-men we have living at the present day; and it is not theoretical only, for he practices as well as talks, and succeeds in his practice. He has made quite a fair crop of honey during this past season, when everybody else for miles around him has made an utter failure; and, by the way, there are some very nice people around East Townsend, Huron Co., O., besides friend Boardman.

A. I. R.

SPECIAL NOTICES.

LEE'S FAVORITE POTATOES.

Have any of our readers any of the above? If so, how many, and what do they want for them? Just now there seems to be a demand beyond the supply.

JAPANESE BUCKWHEAT.

It is a little early in the season for this; but we should like to be getting in a larger supply of seed than we have ready for the season when it comes. If any of our readers not too far distant have a supply of seed for sale we should be pleased to receive samples and offers.

POTATO ONIONS.

Since our remarks on another page, in regard to potato onions, we have found where we can get some so as to sell them as low as a dollar a peck. May be some of our friends, however, will furnish them so we can do a great deal better than this. Price 15c per quart; by mail, 25. If the subscribers of GLEANINGS can not furnish potato onions cheaper than this by another season, it will be because there are not any good onion-growers among us.

ONE-POUND CARTONS CHEAP.

We have secured a lot of cartons, or pasteboard boxes, for 4¼x1½ sections, *without* tape handles, at a low price, so that we are able to offer them at \$1.00 per 1000 less than the prices given in our catalogue for cartons *with* handles. At this rate the price would be, without printing, 100 for 50c; 500 for \$2.25, or 1000 for \$4.00. Larger quantities at a lower price. Orders may be sent here or to F. A. Salisbury, Syracuse, N. Y., if more convenient. These are not inferior in quality in any way; but the factory got 25,000 made up without tapes when we ordered them with tapes, and they could not put tapes in afterward without great expense; hence we got them at our own price.

ALSIKE CLOVER SEED.

We are getting now for choice alsike seed, \$10.00 a bushel; \$5.10 for ½ bushel; \$2.60 per peck; 22c per lb. Peavine and common red have been advancing so that they are now worth \$1.00 a bushel more than alsike. As it takes only half the amount of the latter to seed an acre that it does of the large seed, the high price of the latter is bound to stimulate the demand for alsike, and we may have to advance the price of this before the season is over. Now is the time for seeding in some localities; and during the next six or eight weeks, as you get further north. If any of our readers have a surplus of choice seed, we should be pleased to hear from you, with samples, and the price at which you hold it.

HOT-BED SASH.

As one of our near neighbors has a lumber-yard and sash-factory, and makes a business of making hot-bed sash, we may be able to help you by furnishing you with a *sample* of just the kind we prefer, if nothing more. One sample sash, without glass, size 6 feet by 3½ feet, 1½ in. in thickness, 75 cts. In lots of six, crated together, 70 cts. each. The same painted and glazed, single sash, \$2.00; 5 crated together, \$1.75 each. However, we do not recommend them to be shipped with the glass set; and we could in no case be responsible for breakage. Better buy your glass by the box, and paint and glaze them where they are to be used.

COMB FOUNDATION AND MACHINES.

We have just supplied the W. T. Falconer Mfg. Co. with an outfit of four of our foundation-machines for making the different grades of what they style the "Falcon" brand of foundation. We furnished them also a power-frame, whereby they can run their mills by steam power, as we do in the manufacture of foundation. If they are careful in purifying their wax, they are in a position to furnish foundation equal to that we are now sending out. That is saying a good deal. If you don't believe it, send for a sample of our foundation and see for yourself. There are two reasons why our comb foundation is so superior. One is, that the wax is all purified and made a bright yellow, or corn color, even for brood foundation, before it is made up into foundation. Another is, that the mills we are now turning out

