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GLEANINGS

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.

BEE CULTURE

ILLUSTRATED SEMI-MONTHLY
PUBLISHED BY A. I. ROOT.
\$1.00 PER YEAR MEDINA OHIO

Vol. XXI.

OCT. 15, 1893.

No. 20

STRAY STRAWS

FROM DR. C. C. MILLER.

KANUCKS have reason to be proud of editor Holtermann. He's making the *C. B. J.* shine.

THE PANIC has come and gone—at least it is going—and it seems to have troubled bee-keepers about as little as any other class.

YEARS ago we got big prices for honey; but a pound of honey then would buy no more calico or sugar than it will now, so where's the difference?

"LET NO ONE fear that apicultural experiment stations may be either too numerous or too well equipped."—*Experimenter Taylor, in Review.*

WASPS are talked about sometimes in England as something very destructive to bees. I never heard of their being troublesome in this country.

THE HONEY SHOW at the World's Fair has been brought to a high state of perfection, but the exhibitors are putting on finishing touches every day.

BEES in this part of the country will have little to do but to sleep for the next five or six months. Some of their owners would like to do the same.

HUTCHINSON thinks I ought to have mentioned that, when he takes bees out of cellar as soon as they can fly, he gives them protection. I think so too.

HEAVY RAINS have brought green again to the pastures that looked entirely dead two weeks ago, so we will hope that some of the white clover will be left alive for next year.

PHRENOLOGY, as applied to bees by Dr. J. D. Gehring, appears in *A. B. J.* Dr. G. has been examining the heads of drones, and finds they have bumps indicative of their usual character.

STRIKES have taken place among all classes of laborers, skilled and unskilled, except among the laborers of the bee-keeper. His laborers, skilled laborers of the highest class, never strike.

EARLY GRANULATION of honey, both comb and extracted, is making trouble in England this year. One man complains in *B. B. J.* that, early in July, honey was granulated solid while in the hives.

QUEER THING, how one country is all taken up with one thing, while something entirely

different is all the go in another. In this country it's non-swarmer and self-hivers, while in England it's the Wells system of running two colonies under one set of supers.

MAKE YOUR PLANS now, to keep rats and mice away from your bees in winter. If you can't fasten them out of the cellar, you can fasten them out of the hives, with wire cloth three meshes to the inch.

I DIDN'T THINK IT. I didn't believe Rambler was so hard-hearted as to deliberately tie a strap to a donkey to hold on by while he kicked the poor beast, as shown on p. 737. I wouldn't have believed it if I hadn't seen it.

DRONES are free and easy in their manners, entering other hives than their own with safety. Hasty thinks this may extend to their going to other apiaries, and thus a drone may by successive stages get 20 miles from home.

THE LOUISIANA HOTEL is the place which will seem like home to a good many bee-keepers. I spent the last week in September at the big show, and stopped at the Louisiana so as to get used to it before the convention. It's a good place.

HASTY, in *Review*, mentions my obituary in *Api.* and then forebodingly adds:—And as for the rest of us, we can fairly hear the grim editor humming softly to himself—

"Ye living men, come view the ground
Where you must shortly lie."

FRIEND ROOT, on page 754, tells how to make a dinner of mushrooms when you are out in the woods, by building a fire in a safe place. I know a heap easier and safer plan. Eat 'em raw. I've done it lots of times. But they're better fried in butter. Yum! yum!

FOUNDATION from bleached wax, says the *B. B. J.*, has become a chronic cause of complaint in England for the last few years. Bees refuse to use it, and, if forced to use space where it is, often make crooked combs beside it. Light yellow foundation is good enough.

Now COMES the time to put up stoves for winter. Before commencing the job, make a bandage of seventeen thicknesses of cheese-cloth, and tie it over your mouth. It will strain out the cross words before they reach your wife's ear. Wash out the bandage when you are through.

THE HONEY CROP in Central Europe, according to the *Revue*, has been more than average, but much darker than usual. The darkness is attributed to the dry season developing more than the usual amount of honey-dew. But as they get about 10 cents a pound for extracted they hardly ought to complain.

SMITH had some sections sent by freight;
He ordered them when 'twas too leight,
Some time in June.
Sad, sad, alas! then was his feight:
Next time he will not want to weight;
He'll order soon.

POULTRY-NETTING two feet high has served for several years to keep hens out of our flower-beds. This year we fenced in a poultry-yard of half an acre with poultry-netting three feet high. It isn't a big success. Many of the hens get over it, although their wings are clipped.

"PLACE HIVES in cellar a foot or two from the bottom" is the general rule. I suppose it's a good one; and yet for the sake of saving room I have always put the lowest hives close to the cellar bottom, and I never could make out that it made much, if any, difference. Still it may have made more difference than I realized.

IS POLLEN FED TO LARVAL BEES?

OPINIONS OF AUTHORITIES ON THE QUESTION.

A correspondent writes me thus: "Do larval bees, at any stage of their existence as larvæ, eat pollen, or is their food of some other material? I see it is claimed by some that the young bee in the larval state does not eat pollen, but its food consists of a purely animal secretion. Please tell us through the columns of GLEANINGS what you think regarding this."

I am very glad the correspondent wanted only "my think," for I am not posted in these matters to an extent sufficient to be considered an authority on this subject. However, I am glad this question was brought up, for it will be one of interest to most of us, and it will be a good time during the fall and winter months to discuss the same through the columns of GLEANINGS, with the editor's permission.

From many careful observations regarding the food of larval bees, I have been led to believe that such food was composed of about two parts honey or saccharine matter, four parts pollen or flour, when used in early spring as a substitute, and one part water, the whole being taken into the stomach of the nurse-bee and formed into chyme, after which it was given to the larval bees in the cream-like form we see it in the cells. Right here I wish to digress a little and give some other observations as bearing on the eating of pollen by the old or hatched bees.

The older readers of GLEANINGS will remember that, some years ago, I gave a description of how I starved some colonies of bees outright, and others partially so, in trying to make them eat pollen in the fall, and at other times when there was no brood in the hive; and that, so far as I could see, not a cell of pollen was touched. At another time some of the colonies had to be fed, when I again tried an experiment which I had formerly tried several times, which was to see if the bees in hives which had scarcely a cell of honey in them, but plenty of brood in all stages, would live if provided with pollen. As the weather at the time of this latter experiment was so bad that the bees did not fly for several days, it was with much anxiety that I waited to see what would be the outcome of the matter after the honey was gone. The first thing noted was that, as soon as the few cells of honey were gone, the larva was scamped for food, and the eggs were removed from the cells or eaten by the bees (I incline to the latter opinion), while a little later there was a general eating of the larvæ. A day or

two later the sealed drone brood was taken from the cells and sucked dry, while the harder parts were scattered about the entrance and bottom-board of the hive. At this time I noticed the bees putting their tongues together as they do when young bees feed the queen, this thing being continued till nearly all the pollen was used up, which lasted for several days, when it came good weather again, so new supplies were gathered. From these observations I formed the opinion that old bees partake of pollen only in the form of chyme, and that this chyme is prepared only when there is, or has been, brood lately in the hive.

I have thus wandered, to show that pollen can become a factor in our wintering troubles, as I believe, only in connection with brood-rearing, and that, where no brood-rearing is carried on, pollen can have nothing to do with the so-called disease, bee-diarrhea. But, to return.

That the larval bee subsists wholly on this chyme, or creamy food, I think no one will deny; and if from my observations I am correct, the largest element in this food is pollen. As the larva absorbs this food, the grosser part of the pollen forms itself into the yellow streak seen in the larva when taken out of the comb, but most plainly in the drone larva, which streak is finally inclosed by the intestines of the newly hatched bee, and evacuated on its first flight. If I had time it might be interesting to digress here again, and tell how I have found by experimenting that newly hatched bees which have not had a cleansing flight are practically worthless to ship with queens long distances, and that I always avoid, as far as may be, catching such bees when sending queens to Australia and other distant countries, because they are liable to daub the cage and queen with their excrement, or die from over-distended abdomens; but I will not take the time here.

To show that I am not alone in the belief that larval bees eat pollen, I wish to give the testimony of others who incline to a like belief. Gundelach says: "The larvæ are immediately fed by the worker-bees, with a pellucid jelly prepared in their 'chyle-stomachs' by the digestion of honey and pollen mixed with water." Neighbour says: "A portion of this pollen is taken at once by the nursing bees, which are supposed to subject it to some change before offering it to the larva." Kirby says: "With this pollen, after it has undergone a conversion into a sort of whitish jelly by being received into the bee's stomach, where it is probably mixed with honey and regurgitated, the young brood immediately upon their exclusion, and until their change into nymphs, are diligently fed by other bees, which anxiously attend upon them, and, several times a day, afford a fresh supply." Gallus says: "Every bee-keeper ought to know that bees do not feed pollen directly to their young, but it is elaborated in the stomach of the bee, into chyme to feed the young on." Quinby says: "How this food is prepared is mere conjecture. The supposition is, that it is chiefly composed of pollen; this is strongly indicated by the quantity which accumulates in colonies that lose their queens and rear no brood." Prof. Cook says: "The food is composed of pollen and honey—certainly of pollen, for, as I have repeatedly proved, without pollen no brood will be reared." A. I. Root says: "It is supposed that this larval food is pollen and honey, partially digested by the 'nursing bees.' Bees of this age, or a little older, supply the royal jelly for the queen-cells, which is the same, I think, as the food given to very small larvæ. Just before the larvæ of the worker bees and drones are sealed up, they are

fed on a coarser and less perfectly digested mixture of honey and pollen."

In the above I have told what I think in the matter, and given the "think" of several others, who very nearly if not quite agree with me; and I for one should be very much pleased to hear from those who do not agree, but think instead that the larval bee is fed on an animal secretion.

G. M. DOOLITTLE.

Borodino, N. Y.

ENGLISH APICULTURE ILLUSTRATED.

A GLIMPSE OF THE MANNER IN WHICH OUR ENGLISH COUSINS MANAGE BEES; THEIR HIVES AND GENERAL APPLIANCES; AN INSIGHT INTO ONE OF THEIR LARGEST BEE-HIVE FACTORIES.

By E. R. Root.

The Hertfordshire *Illustrated Review* for June, 1893, published in England, contains a handsomely illustrated article entitled "A Noble Hertfordshire Industry." As this article describes in a delightful manner English apiculture, the manner in which bee-keepers in that country manage bees, and as it was accompanied by some beautiful half-tone engravings, we at once solicited the privilege of publishing extracts from the article, and at the same time asked for the loan of the plates, all of which was freely granted. We thought this peep into English apiculture would be particularly interesting to our American readers, as it shows just how apiculture is carried on in good old England. The author, Mr. Arthur Smith, after giving the natural history of the bee, the number of writers who had contributed to the

subject of apiculture from the time of Virgil's *Georgics* up to the present time, etc., goes on to describe minutely the large bee-keepers' supply



FIG. 2.—DRIVING BEES OUT OF A STRAW SKEP.

establishment of Mr. Thomas B. Blow, in Welwyn, Herts, England. But before giving what he has to say regarding our friend, we wish to call attention to some of the half-tone engravings from photographs furnished by Mr. Blow, showing how the English bee-keeper hives his swarms, how he "drives" them from one skep to another, etc. It may be interesting to our readers to know that Mr. W. B. Carr, a distinguished bee-keeper and one of the editors of the *British Bee Journal*, is the gentleman whose figure appears in these engravings. We take special pleasure in introducing him here right while he is at work among the bees.

The first engraving to which we call attention, Fig. 1, is somewhat interesting—the more so as almost every one of our readers at one time or other has had a similar experience.

The next one, Fig. 2, represents an operation that is much more common in England than in this country—that of "driving bees" from one skep or box into another. In England, straw hives are much more common than in this country. Indeed, in all our travels among bee-keepers throughout the United States, we have never yet seen a straw hive actually in use. They are a rarity indeed, even when empty. But the use of straw skeps in England does not necessarily mean that the bee-keepers of that country are to that extent behind the times. It simply means that those hives are used because of their cheapness. If lumber were as expensive here as it is in England, many of our bee-keepers of moderate means would probably be using straw hives. But the English—at least the poorer classes—use these

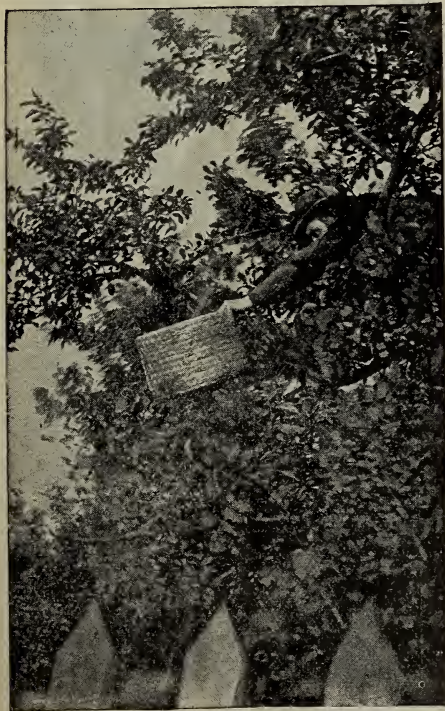


FIG. 1.—HIVING A SWARM UNDER DIFFICULTIES.

largely, we understand, and are very successful with them. Indeed, the most enlightened bee-keepers in this country are coming to acknowl-



FIG. 3.—THROWING THE BEES FROM THE SKEP IN FRONT OF THE BAR-FRAME HIVE.

edge that it is not so absolutely necessary to manipulate frames in the brood-nest as it was formerly considered; for it is now known that many of the operations, such as queening and unqueening, dividing and uniting, etc. (all of which was so ably explained by our friend C. J. H. Gravenhorst, in his article some time ago), can be performed, and very successfully too, without the use of movable frames. Well, our English cousins know just how to do this.

A very common illustration is a straw skep with an ordinary modern super put on top; and those English bee-keepers, we doubt not, produce just as nice and beautiful comb honey as their wealthier neighbor who has movable frames.

But, to return to the engraving where Mr. Carr is driving the bees from one skep to another. Whether he is transferring, or whether he is dividing one colony and giving its surplus strength to another, or whether he is giving the surplus of the first colony to another empty skep, matters not. But for various reasons, English bee-keepers find it very convenient to "drive" the bees from one skep to another. This is accomplished by inverting the skep from which it is desired to remove the bees, and placing on top of it another skep, so that the mouths cover each other. With a series of blows, either with the palm of the hand or with a stick, the apiarist can soon drive them from the lower to the upper one. Mr. Carr is driving the portion of the bees up, and possibly is now watching for the passage of the queen. Indeed, we understand that very often in this way queens are caught.

The next engraving, Fig. 3, shows our friend in the act of transferring the bees from a straw skep to a movable-frame English hive. This scene is, perhaps, more common to bee-keepers in this country, as essentially the same means are employed for getting the bees out of box hives, at least, on to a white sheet. This sheet enables the bees to crawl into the new hive, and gives the apiarist an opportunity to catch the queen if he so desires, as she makes her way along in the general procession toward the new home.

Fig. 4 shows a further stage of the same operation, and Mr. Carr is evidently enjoying the sight of seeing the little fellows tumble over each other in their glee, all turning their heads toward the new hive.

Fig. 5 is interesting, in that it shows the comparative size of the English frame and the typical English hive. Their frame is more nearly square than ours—the Langstroth. It is about the same depth but shorter; and perhaps, for their purpose, it is better adapted to their requirements. It is also interesting to note the prominent position of the Bingham smoker—or, at least, we judge it to be one—one of the old standbys in England. Indeed, as the manufacturer has advertised, it is a standard in every country.

Fig. 6 shows a few of the styles of hives used throughout Europe. There are no American hives in the lot, that we can discover. The oblong straw skep on the left, while having the same outward appearance, and made of the same material as the old straw skeps, has movable frames—said frames being removed by turning the hives upside down—an operation that to us Americans might seem to be very awkward and clumsy; but our friend Gravenhorst, editor of the German *Illustrirte Bienen-*



FIG. 4.—THE BEES RUNNING INTO THE BAR-FRAME HIVE.

zeitung, as well as his own countrymen, who, we understand, use this style of hive largely, succeeds with it very nicely. Indeed, there are many features in that hive to commend it. It

has no removable cover; and those who believe thoroughly in the idea of sealed covers get it perfectly in this kind of hive, because the cover is always fast. The top of the brood-frame (or what would be the bottom when the hive is turned upside down) is circular, to conform to the shape of the roof of the hive. Right next to it is a hive that is used largely in Italy. It is in this kind of hive, we believe, that the Italian queens are reared in their native home to be sent over to this country. The general appearance of the hive resembles very much our old-fashioned American box hive. Whether it has movable frames or not, we are unable to say. Just back of it is one of the standard English hives. We believe it is called the Cowan, because its general features were first devised by our esteemed friend, the editor of the *British Bee Journal*. Oh dear! we thought we might be able to tell you something about every one of the hives, but we are "up the stump" already. Those hives that form the center of the group may possibly be the shallow brood-chamber hives that are used so successfully in Germany, or, rather, have been used, for centuries back. The hives at the extreme right, we should judge, are other patterns of English hives—one of them, at least, being the Cowan that we have already mentioned.

Continued.



FIG. 5.—EXAMINING THE FRAMES OF THE BAR-FRAME HIVE.

CHIPS BY E. FRANCE.

BEE-BRUSHES: HOW MUCH MORE EXTRACTED THAN COMB HONEY CAN BE PRODUCED?

We think a brush-broom, made of broom-corn, is the thing. We go to the broom-makers and order them made out of the finest broom straw they have; make them thin, about one-third the thickness of a common brush-broom. Spread them out as wide, and sew them three times across; length about the same. That makes a good brush—light, easy to use—one we can brush fast, and not hurt the bees. It is much



FIG. 6.—GROUP OF ENGLISH AND FOREIGN HIVES.

better than a wing or any soft fibrous substance.

How much more extracted honey can we get from the bees than we can of comb honey? Much depends on the season and management. But I think we can get more than double—in fact, I am sure that is the case; and then, it is less work to handle the bees for extracted honey; and when we get it, it is easier taken care of. Just put it into a good barrel, and then it is ready for market. We can keep it if we don't sell right off; worms won't spoil it, and it is a great deal safer to handle. But, how much more can we get? Let me tell you what happened with us this year. When we extract, from the first hive that is opened in the morning, we take the combs and carry them all into the extracting-tent and shut the hive up without combs. Then we open up another hive, take out the combs, take them to the tent, then take the first set of combs, which will be extracted by this time, and put them into the second hive opened. We leave the first hive empty until the close of the day's work, then the first hive gets the last set of combs. Well, it just happened that we used up one set of combs more than we counted on in making new colonies, and one hive was left empty of combs. The bees were there. Now, when we came again all the hives were filled with honey—that is, the combs were. The yard averaged 25 lbs. of extracted honey to the colony. That empty hive had to build combs for their honey. They did not have 5 lbs of combs, all told—honey, bees, and all making a difference of five to one. It was as good a colony as the average—I think better. How is that, R. C. Aikin?

TWO OR MORE SWARMS IN THE AIR AT A TIME.

When two, three, or more swarms are out on the wing, with no queens among them, they are pretty sure to return to one of the hives that has cast a swarm. The question is asked, "What is best to be done to prevent them from all going into one hive, or on to it, as they can not all get in?" We have had just such cases happen with as many as six swarms at one time. When they began to return, all hovered over one hive and would all have gone there. But when we thought the hive had its share we drove the others away with smoke. Then they soon pitched at another hive. We let as many go in as we thought best, then drove them away from there with smoke. We kept smoking and driving until they were all settled, and were pretty evenly divided. You want a smoker and some one to use it at each hive, or they will get the start of you.

SMOKER FUEL.

We have used planer-shavings, both pine and hard-wood—old rotten wood, straw alone, straw and tobacco-stems mixed; planer-shavings and tobacco-stems mixed. I have tried almost all things that have been recommended, but have settled down to straw and tobacco-stems mixed. The tobacco-stems that I use are leaf-stems—the refuse from cigar-manufactories. We can get all the stems we want for nothing—in fact, we have hauled several two-horse loads of them for manure. The tobacco makes a strong smoke; the straw helps to burn the tobacco. If you use the smoke strong with tobacco, don't use smoke too freely. Just a little will make the bees scamper.

NO USE FOR BEE-ESCAPES.

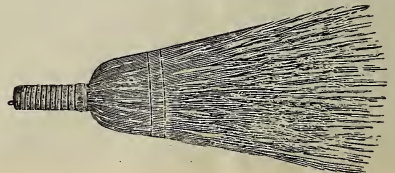
When the bees are run for extracted honey, can the escapes be used to advantage? Some say yes, some say no; and I say no. I have never used them and don't want to when working for extracted honey. Contrary? No,

I am not. There is no one more ready to take to any useful improvements than I am when I am convinced that the thing is useful. I have had something to say on this subject before, and one man who makes bee-escapes sent me some samples for trial. They came during the extracting season; but to use them I should have to make escape-boards, and I could not afford the time during the busy season. They may be an advantage when raising comb honey, but I doubt it even then. I should like to work against time with any man in taking off ten supers of sections of comb honey, he to use escapes and I use smoke. But it is only when extracting honey that I thought to direct my remarks. First, to use escapes we have to be bothered with and have the expense of escape-boards and escapes; then we must put those escape-boards under the supers; bees have to be smoked, super lifted, and board put under. How long will that take, and how many bees will be killed in doing it? I should call it a heavy job to lift those supers off and on again, full of honey. Mine would weigh, super and honey, 50 lbs., most of them more, after the boards are on; then wait awhile for the bees to get out. One man says, "Send a couple of boys the day before the extracting is done, to put on the escapes—that is, for an out-apiary." That is pretty good. Two boys and a team one day cost, say, \$4.00. That is nothing, if you think so; but I don't. When the extracting is done, the escape-boards must be stored away until the next time. All makes work, and takes up valuable time. We have in mind the L. frame when we are talking. Now, I will tell what I can do without the bee-escapes. I work my home yard in three-story L. hives. When I was extracting I took my tools, cart, and smoker. I would go to a hive, raise the cover, pry up the honey-board, give the bees a smoke, then scrape the burr-combs off the honey-board, then loosen the combs in the upper set, smoke the bees down again, then take the combs right out, brush the few bees off, put the combs into my carriers on the cart, then take off the upper super, and then smoke the bees down from the second story, and take those combs out, the same as I did the third story; put those into my carrying-boxes on the cart, ready to go to the extractor, 18 frames in all. I was particular to get every bee off. Now, how long does it take to do that? Just five minutes—that is all. I have done it by the watch, time and time again, and can do it any time. Once I got them out and on the cart in just 4½ minutes; once it took me 6 minutes; but some of the boys were talking to me about some other matter, and bothered me. I have timed myself on over 20 hives, and can do it in 5 minutes. Now tell me if it can be done quicker with escapes. I don't want to interfere with any man's business in making and selling escapes. That is not the object of this article; but let the truth be told.

Platteville, Wis., Sept. 18.

E. FRANCE.

[Our very practical friend Mr. France seems to describe exactly the Cogshall bee-brush, the implement recommended by W. T. Cog-



shall, of West Groton, N. Y., a prominent extracted-honey man of that State. We have

had some made on purpose, and have been selling them for a couple of years back. To give you an idea of what they are like, we herewith present an engraving which shows it to be an ordinary whisk-brush with the strands slightly thinned out, and selected especially for giving a soft gentle brush.

Friend France makes a strong argument against the use of bee-escapes. He makes his points so clear that one is almost inclined to believe with him that bee-escapes make more work and expense than they save, were it not for the fact that he says he has not tried them, and does not want to. We know that friend France is a practical man, and is ever on the alert for best methods and short cuts; but we are of the opinion that, if he were to apply those same qualities in testing the bee-escape, he might possibly modify some of his conclusions. A large number of quite extensive producers of extracted honey declare quite strongly in favor of the bee-escape. There are times, we think, when the escape will be found to be exceedingly convenient and a saving in time; and there are times when the bee-brush can be used more to advantage. By the way, suppose we have an expression from a number of those who are producing extracted honey, or comb either, for that matter, as to the value of bee-escapes.]

RAMBLE 94.

HOW BEE-KEEPERS TAKE AN OUTING IN THE MOUNTAINS.

In the morning the apiary, several rods above the cabin, was duly inspected. Eighty colonies are here neatly arranged upon terraces, with provisions for much expansion. The honey-flow has not been so bountiful in this locality this season as in other portions of the county; in fact, all along the north side of the valley the honey-yield was moderate as compared with the south side. Parties, therefore, who hear of the wonderful yields of honey in California will bear in mind that the yield is liable to be spotted here as well as in the East. From near the Marshall cabin, ranches devoted to fruit-production can be discerned in nicely watered niches further up on the sides of the mountain. One of these, attained only over a heavy grade which wound around a spur of the mountain, was a most lovely spot; and, the best of all, it was the abode of a bachelor. The cosy cabin was completely embowered in trees; and the water gushing from many springs gave fertility to the soil, and fruits are grown here that can not be grown with success in the valley below. Notable among these fruits is the apple. The altitude of the San Bernardino Mountains averages about 5000 ft. above sea-level, and almost any kind of climate can be found, suitable to almost any kind of vegetation. A certain altitude suits the apple, which can be grown here to perfection.

Our winding way up the canyon was interrupted by only two little incidents—the killing of a rattlesnake and being overtaken by a toll-gate. Toll-roads that I have hitherto traveled upon have a permanent toll-gate, and usually a lady in attendance. This one, however, was built in the form of an Irishman, and moved over the road whithersoever it willed. After observing his old patched overalls and dirty shirt and general forlorn appearance, I suspiciously remarked something about authority to collect toll.

"Be gorra, is it authority yez want? I have the authority of ivery mumber of the corporation; besides, it's meself that's living in the

cabin below, hard against the road, and it's a lonely bachelor I am too, so now."

Now, if I had any suspicions before, they were all dispelled when I learned that he was a brother-bachelor; and my comrade and I forked over our six bits toll without another murmur. We went our way rejoicing, and were soon in our new camp in what is known as the saw-pit. In this deep valley there was formerly a sawmill; but where, a few years ago, all was business, the forest is now silent, and there are only a few reminders of the former busy scenes. A goodly portion of these mountains is now set apart as a national park, and they will never be entirely denuded of their timber. We found but little game here, and less forage for our horses; and, after a night's rest upon a bed of sweet-smelling ferns, we climbed out of the saw-pit and leisurely followed the top of the mountains for ten miles, and about noon entered Little Bear Valley.

It was quite interesting to note that bees were at work in great numbers upon the vari-



ous mountain flowers; and as no apiaries were located here, they were wild bees from the rocks and trees. It would be very easy to practice migratory bee-keeping in this region, between the valley and the top of the mountain range. In certain seasons the honey-flow is quite abundant in these higher altitudes, and it comes, too, after the flow has ceased in the valley. The bee-keepers I have conversed with in relation to this migratory matter nearly all think it would not pay to move bees over these troublesome roads; but it might pay to establish a permanent out-apiary in the mountains, and the bee-keeper do the migrating between the two or more apiaries.

There are many oak-trees on the mountains; and during certain seasons there is a great abundance of honey-dew. As this dew exudes from the leaf instead of from an aphid, the honey is not of a bad quality.

In Little Bear Valley there are several sawmills, which give employment to a large number of men. The immense logs are drawn in from the surrounding canyons with a number of oxen and huge trucks. After being converted into lumber it is four and six horse teams

that convey it to the valley below, where the beautiful sugar-pine is converted, to a large extent, into dwellings, and in a small way into bee-hives. At this elevation it is very comfortable working. The days are most agreeable, and the nights cool, almost to a frost. The Little Bear Valley is, consequently, a great resort for campers from the lower and infernally hot and dusty regions of the plains.

Upon our arrival we found Mr. Ferguson had arrived just ahead of us. His family had been occupying a cottage here for several weeks, and he migrated often from ranch to mountain. By the side of his cabin was a neat striped tent, occupied by Mr. Raynor and family. Messrs. Ferguson and Raynor were neighbors in the valley below, and thought it fitting to keep up the intimacy here upon the mountain, as all good bee-keepers should do. The camp bore the odd cognomen of O. de Swine.

The authorities who run the mills had an abundance of well-watered grasslands, and hundreds of cattle and horses were grazing therein.

sober, decorous men, it wouldn't do to say that Deacon Raynor would do such a thing as to stuff a pair of old overalls into the stovepipe that projected from Deacon Whitcomb's cabin. Nevertheless, when Deacon W. started a fire one morning the smoke persisted in filling every corner of the cabin, and driving the occupants all outdoors with more or less tearful eyes. A glance at the top of the stovepipe revealed the state of affairs; and it is said that the worthy deacon, while removing it, made several strong remarks in which mildams and Ed Raynor were more or less mixed. A mild revenge, however, was gleaming in the deacon's eye, and something was expected to happen. That was the state of affairs when we two wandering bee-keepers arrived upon the ground; and when we spread our bed under the big oak-tree in the rear of Mr. Ferguson's cabin we were told to take our guns to bed with us, for we might need them for defense before morning. The advice was taken; but we were not very anxious over other people's jokes, and were



The sloughs from the various springs made fine wallowing-places for swine; and, from the number of pigs of all ages that were roaming at will, it was a healthy place wherein to rear them. O. de Swine, therefore, meant that swine were plentiful all around the campers' tents, and an intolerable nuisance. The feminine portion of the camp had just a few good words for the pigs, for they were great scavengers, and, above all, they were death to snakes, including the dread rattlers. The half-grown swine were also useful for the boys to amuse themselves with. The chief amusement in this line was the throwing of the lasso; and, when the pig was caught by the leg, there was music in camp. We found that California people, while out camping, act much as they do under such circumstances in the far East. Some of the restraints of decorous neighbors are thrown aside, and the practical joker comes to the front. Owing to this there was a smouldering commotion in camp upon our arrival. Our good friends Ferguson, Raynor, and Whitcomb, were deacons in the San Bernardino Unitarian church. Now, as deacons are known to be

soon sound asleep. It must have been after eleven o'clock when we were both suddenly awakened by the report of a gun and the rattling of a score of pans and cowbells. We sat upright, guns in hand, on our blankets, and found ourselves almost in the midst of a genuine charivari. The attacking party of men and women had set out to cut down Deacon Raynor's tent; but our presence upon the picket-line, as it were, and the rapid firing of our guns, with several others from the cabin, caused the attacking party to abandon their designs. Of course, the guns were pointed upward, and no harm done; but the pandemonium was such as to stir up the whole camp. Things quieted down again after a time, and nothing occurred to mar our slumbers until near morning, when a pig tried to get away with the Rambler's shoe.

Sunday dawned light and beautiful; and if our minds were in a frame for worship we should have to do so according to the dictates of our own consciences, and under the big pine-trees, for there was no preacher on the ground to edify us. The three deacons before mention-

ed proposed that a few of the most intimate families each put up a little lunch, and that a few hours be spent in a social way in a beautiful park about a mile up the mountain. The project was put into effect; and when upon the ground, a clam chowder was prepared, with Deacon Whitcomb as master of ceremonies; and, owing to our climb, we mastered the chowder without much ceremony. When the chowder had been duly disposed of, a few hours were spent in social converse, the woods resounding now and then with vocal music, led by Mr. Squires, the gentleman with a guitar and the big green spectacles.

The pine needles beneath the noble trees made a couch upon which to recline; and, but for so much feminine talk, the Rambler would have tried to regain some of the sleep lost during the previous night; but it was out of the question, with a dozen women talking all at once.

That night, when we had all gathered around the big camp-fire in front of Mr. Ferguson's cabin, we concluded that at last on this Sunday night we would have a quiet time. It was, however, hinted that the parties who were foiled in their designs on the tent-ropes would seek revenge upon us for helping to defend them, and that we might be served to a few buckets of water or some other disagreeable experience. It was suggested that we move our bed; but we finally concluded to stick to our post, come what would, and retired quite early. Now, it happens that there is a large number of young men employed in the saw-mills, and others in the construction of an irrigating-tunnel. These young men, hearing the shotgun fusillade the night previous, made up their minds to outdo all efforts previously made. Therefore, promptly at 12 o'clock, after Sunday hours, an explosion occurred that shook the solid earth for miles around, and it was followed by another and another. Mr. Wilder and I were enjoying a sound sleep; but with the first explosion our dazed senses realized that a dozen water-buckets might be in the air, and, with one spasmodic motion, my comrade grabbed all the clothes that were over us, and plunged up hill into the bushes. I grabbed what was under us, and went down hill, among the bushes that way. What a racket those mill hands made—Indian yells, gongs, and dynamite! Thirty sticks of the latter were exploded, and every one of them made a report like a ten-pound cannon. It is needless to say that Camp O. de Swine was thoroughly aroused. A half-hour of such a racket exhausted their resources, and quiet again reigned. Comrade and myself perched ourselves on stones, rubbed our eyes open, and found our limbs all intact; got back to our couch with our wraps, and got a little more fitful slumber. Toward morning, another foraging pig, seeing the disheveled condition of our heads, tried to put bangs on us; but instead the pig was banged with a stone. I have thus tried to describe how bee-keepers sometimes spend their outings in California.

A tragedy, and the sad end of a bee-keeper, will be the next theme of the

RAMBLER.

CHALON FOWLS AND HIS NEIGHBOR.

SEASONABLE HINTS ON WINTERING, ETC.

"Hold on, neighbor Fowls, I want to pump you a little on bees."

"Well, pump away if you think you can get enough to satisfy your thirst. Neighbor John, what is it?"

"Why, about wintering. Just come and look

at some of these swarms, and tell me how you would fix them if they were yours. Now, here is a big swarm in a chaff hive. Would you contract the brood-chamber?"

"No; there are bees enough to cover eight frames heavily. They won't feel the cold any more than a big fat Newfoundland dog."

"Now, here are some combs of sealed honey in the upper story. I guess they'll need some of this. The frames are rather light below."

"How many frames have brood in?"

"Four in the middle."

"Well, take the others out; shove the brood all to one side, and replace the others with frames of honey. There—but, hold on!—those sealed clear to the bottom on the very outside, and those with the lower part unsealed next to the brood."

"But, now, we have changed the brood-nest to one side; wouldn't it have been better to leave it in the middle and put the honey both sides?"

"I think not. During a long cold spell they might cluster on the honey on one side of the hive, and, after consuming it, starve without being able to reach the honey on the other side of the hive."

"Your idea is, to get them started on one side of their stores so they won't miss any."

"Yes, so they'll take a clean sweep, like the old long potato-bugs."

"Shall I put any thing across the frames for winter passage?"

"Yes, some sticks will do, and a piece of bur-lap or old carpet, and you are ready for the cushion."

"Well, here is another swarm in a two-story chaff hive, that is queenless, and has been so since the fore part of July, when they cast a swarm, and the young queen was lost in mating."

"Did you give them any brood in that time?"

"No; as the top story was full of frames of honey that I was saving for winter stores, the lower story was not easy to get at, and I took it for granted they were all right without looking to see. They are strong in bees, but rather old, as they were all hatched before August. Would you introduce a queen now?"

"No; I think not. Her eggs laid in October would hatch in November—too young and tender for wintering, and the July bees are too old. They are a bad case."

"How would it do to unite them with a late second swarm having a good queen and brood hatching since July?"

"The second swarm is all right as they are. Even if it is not a large one, you can easily give them their winter stores if lacking. But this old swarm is all wrong. They would just be a damage to the young swarm."

"But these bees don't look like old wornout bees; in fact, there has been nothing for them to do for two months."

"Well, I don't know but they would be all right if the swarm was in a normal condition; but they are not; and, if given a queen now, they would wear themselves out, either by unseasonable breeding this fall or too early in the spring."

"So you would brimstone them now and avoid spring dwindling?"

"Exactly, and save their winter stores."

"See here, what a nice lot of brood-combs I have that I am going to put in where they are needed."

"Yes, they are a good thing to have—almost too good."

"Ha! ha! ha! too good! how is that?"

"Why, they are all solid with honey, clear to the bottom—no empty cells for the bees to cluster in."

"But, won't the bees eat out a semicircle in the lower side before cold weather?"

"Possibly; but, likely as not, they won't, especially as they are not breeding much late in the fall."

"I might uncap a semicircle in the lower part of the combs, and extract before putting them in."

"Yes, I have done that in some cases; but you can accomplish the same object by mashing the capping, and you will then have the honey all in the hive, as the bees will remove it and store it elsewhere. But I must be going. Come over to my place some time, neighbor A., and we'll compare notes again."

"Thank you, neighbor Fowls. I believe I will, for I like this kind of bee-keepers' convention in which all take part."

"Yes, so do I; and think we remember ideas picked in this way much better than if simply read over in a journal. CHALON FOWLS.
Oberlin, O.

THOSE OLD BEE-BOOKS.

ANOTHER PEEP AT THE "GOOD OLD TIMES."

In 1796 there appeared in London a bee-book entitled "The Ancient Bee-master's Farewell." It was written by John Keys, and printed in Paternoster Row, as might be presumed. It contains 273 pages the size of this. The print is excellent, and a real relief to the eyes after reading some of the very shiny magazines. The cuts used are the old-fashioned copperplates; and for distinctness and beauty they are ahead of any thing now in vogue. They are not numerous, however. The writer comprises in this book the best conclusions of all the authors whose works I have so far reviewed. This book is marked on the titlepage as "very scarce," and the price is high. Probably that accounts for the fact that two copies of it have tumbled into our sanctum here, just back of where Ernest sits. What lover of old books wants one?

There is an air of freshness about Mr. Keys' style that is pleasing, for it combines good sense with vivacity. How's this?

"The most likely means to establish the bee art, I believe, will not be accomplished without the patronage of agricultural societies."

The idea is, apparently, to have apiculture recognized as a handmaid to agriculture; but the trouble now is, in some parts, to get the agriculturists to see it in that light.

Here is a vigorous and well-deserved slap at the misers of 1796 as well as those of to-day:

"Rural curates might considerably augment their two frequently *niggardly* stipends by the cultivation of bees, and act at the same time consonantly with their clerical profession, as it is an innocent amusement, both healthy and profitable."

It may be interesting to notice some of the terms used by Mr. Keys: "Apiator" is now called apiarist; "bee-herd," one who watches the rising of swarms; "casts," second and third swarms; "duplet," the hive set over or under another; "fume-box," now called smoker; "hacker," or "coppet," a straw covering set over a hive to shelter it; "nadir," the hive which is set under another; "storify"—still used in England, but called "tiring-up" in the United States; "triplet," a stock that has three hives.

One paragraph shows how strangely men sometimes change their mind, and that, too, for the worse. The suffocation of bees had, at that time, been almost universally condemned; but Mr. Keys says, "The suffocation of bees in

common [single] hives is not prejudicial to the interest of the owners." This was contrary to his previous principles, prejudices, and practice; but he condemns the practice very severely where tiered-up hives are used. In the single hive, he says, but few bees would be left till winter, and they would die anyhow. Surely we have improved since then.

By a happy coincidence, straw hives are spoken of and shown in another part of this number in a very conspicuous manner. It may be of interest to quote a few words from what Mr. Keys says of them. Of course, they may not apply to those Mr. Carr is using, but yet assist us somewhat. He says straw is a good material, as it is a practical non-conductor of heat, and keeps dry if exposed to the air. Unthrashed rye straw is best, cutting the heads off in a straw-cutter. Bees dislike shaggy straw. These hives are the shape of a half-bushel, 9 inches high and 12 wide in the clear. Three of these are used for each stock.

Mr. Keys says he lost bees heavily in Hertfordshire (see cuts on page 773), but in Pembroke-shire (Wales), near the sea, he never lost one from dysentery in winter.

Just here I discover that Mr. Keys winds up his book with a review of Mr. Bonner's work, which I described in the previous issue. Now, please turn back and see what Mr. B. said about doubling colonies every year for a certain number of years, and then read the following as to what Mr. Keys says:

"On the supposition that bees will increase double every year, and therefore that five hives the first year may increase to ten the second year, etc., I will not dispute; but will there be *double the quantity of honey and wax*? I doubt it; for, supposing the five hives (the bees of them) can collect from the vicinage, as far as their flight for pasturage usually extends, only enough to fill their five hives; the second year being increased to *ten*, the same quantity of flowers will yield only the same quantity of honey, admitting the season similar to the first. I infer, therefore, that the produce will be no more, though double the number of bees. To this we may add (which friend B. acknowledges) that seasons are often bad; rendering hives impoverished instead of increasing, and they often die in winter. The second link of this golden chain being broke, down falls the whole mass of honey and wax appending thereto, and there I leave it.

"No! say its advocates, that is not fair! We can increase the flowers in proportion to the number of bees. Can the cottagers extend their land? or will they extirpate from their little allotment the vegetables of their daily support, to give place for bee-flowers? Will gentlemen (whom B. chiefly addresses) plow up their grass and corn lands, to cultivate such flowers? Surely corn and cattle are of more value than honey! We had better be without honey than bread. But B. has a resource in heath, which covers, he says, *more than half of Britain!* If true, I am sorry to hear it; and hope most part of it will speedily be plowed up for corn, though it should prove the ruin of this *new plan of increasing of bees*. I should sooner prefer Virgil's method of raising bees from a dead heifer, or of Samson's procuring honey from a dead lion.

"I sincerely hope, as Mr. B. has been a practitioner for twenty-six years, he has accumulated a snug fortune, to compensate for his labors and ingenious discoveries. But as his native land so much abounds in white clover, heath, furze, etc., it is wonderful that honey sells at ten-pence and twelve-pence per pound, at Edinburgh. It is also observable that he gives no account of the produce of his own apiary,

and only five instances of other persons of whom he bought honey and wax. To one, in particular, he paid five pounds for ONE HIVE, which was weighed in the market-house of Edinburgh; but unluckily he omits the weight or dimensions of the hive. The reader is therefore left to his own calculations. Mr. B., besides his grand resource of flowers, relies on *preserving the bees* of the stocks taken, and uniting them with the stocks left."

Later experience fully vindicates what Mr. Keys says.

The matter of decoy hives has been discussed in these columns. Mr. Bonner claimed it is a fraud to put out empty hives with combs, even in our own lot, to entice bees. Mr. Keys makes the following points, which, I believe, cover the entire matter righteously:

"It is proper here to remark, that Mr. Bonner represents the setting of an old hive of combs in a person's own garden or apiary as a fraudulent practice, as such hives may allure his neighbor's swarms to settle therein. So may a field of good pasture allure his neighbor's cattle or sheep to feed therein. What then! must he not have better pasturage than those in his own vicinity? If strange bees visit his hive, which he set, *bona fide*, to entice his own swarms, should any escape unperceived, and his neighbor's bees take possession of it, *without* being followed by a person who saw them rise, he seems to have a *good title* to keep them; for who can swear *whose* property they were? They should have been better watched. The loss they deserve for their negligence, which I hope will make all bee-owners more careful in this point, if for no other reason. No honest person will refuse the restoration if they can make good their claim. If a person sets such hives with a view of trepanning his neighbor's swarms, it is certainly wicked. The *motive* constitutes the crime."

Medina, Oct. 9.

W. P. ROOT.

EASTERN IMPRESSIONS OF CALIFORNIA CORRECTED.

YELLOW OCHER IN CALIFORNIA.

We Californians are given the credit of having a hot climate, one that will melt wax without much trouble. At times some parts of the State are pretty hot; even sometimes here, opposite the Golden Gate, we have a few days of very hot weather. This year we had some glorious days when the thermometer climbed up to the ninety mark. This has been quite a warm summer any way, for we have not had the usual dash of rain in the latter part of spring or during summer. Now, though some twenty or more of our hives are painted with a mixture of yellow ocher and white lead, there has not been the least trouble with the paint making the interior of the hives uncomfortable for the bees. In fact, here in California where the salt air of the Pacific is so destructive on white lead, we want a paint that can resist the action of the atmosphere. This we get when we use the mixture I have just mentioned or one composed of some of the mineral paints and white lead. As far as our climate is concerned yellow ocher is not any too hot in summer for the bees; then in winter and spring it will draw enough heat to make it better and more comfortable for the inmates than any white paint. During the past year I notice that many people have been painting their houses a straw color, ocher being largely used in the mixture. The fashionable style in house-painting hereabouts is to have the body of the house in some shade of straw and the trimmings white. These colors make a building look very pretty.

CUCUMBERS AND HONEY.

The article on page 635 is a little too colicky for me to pass unnoticed. I do not believe that cucumber honey can resemble the orange-blossom honey of the two leading orange States of America, and I say this with all due respect to the opinion of Mr. Cullinan. As the most of the orange-blossom honey of this State is gathered at a time when the bees use most of it in brood-rearing, I am afraid that the denizens of the East have not yet got much of a taste of our honey of the kind I have been referring to. Much of that bearing the name of "orange-blossom honey" is not orange-blossom honey at all. It is a very nice name for canners and adulterators of honey to place on a label in order to make the contents of the package sell the faster.

I am aware that bees do gather honey from the blossoms of cucumbers, for there were great fields of this vegetable raised here a few years ago to supply one of the largest fruit and vegetable canneries in the world, and which establishment was located at this place. Our bees gathered some honey from the flowers of this plant, but it did not amount to any thing, though, as I have said, there were big fields of the vegetable right near us. If cucumbers were great honey-yielders this county ought to be as great a cucumber-honey county as Ventura County is a bean-honey-producing locality. I think there are more cucumbers raised in this county than there are in any other county in the United States; for nearly all of these vegetables that are consumed in San Francisco and on this side of the bay, as well as all that are used in the pickle-factories in three counties hereabouts, are raised in this county. Perhaps if the vegetable yields much nectar the bees do not gather much of it, as they may be afraid of taking cholera morbus. Perhaps Dr. Miller knows something on this point. What say you, doctor?

CRACKED COVERS.

I have not been troubled with the covers of your hives warping, as some of your patrons have been; but I find that a few crack badly. It is possible that your Eastern pine is not adapted to our climate. I think I will substitute some of our native redwood covers for the ones that came with your hives. We can get such nice wide boards here, free from knots, at a cheap price, that I think it better to have covers that project over the edges of the hives on all sides. This your covers do not do, I am sorry to say.

CALIFORNIA HAY.

Your remark about barley, etc., on page 638, is not correct, please let me say, so far as the kind of hay that is used in this State is concerned. You speak of its being the great hay crop of California. I know not where you got your information; but I do know that the hay that is used, almost to the exclusion of all others, is oat hay. I have traveled nearly all over the agricultural portion of this State, and I have seen very little barley hay raised. Barley is cut for hay only where the land is too dry to raise any other cereal. It matures earlier, as is well known. All through Central and Northern California, which is really "Agricultural California," and where the great bulk of our population is, we find the great wheat-fields of America; there, too, is grown nearly all the hay that is used to supply the markets of the big cities in the vicinity of the bay of San Francisco. Large quantities of hay are used to feed the horses in those cities. As I have said, this hay is chiefly oat hay. The best hay that goes to market is a mixture of oats and wheat. This sort of hay is cut when the

grain is in the "dough" state, and is raked into winrows as fast as it is cut. A day or two later it is cocked. Some farmers let it remain a couple of weeks in the cock and then stack it, where it may remain several weeks ere it is baled. Other farmers do not stack it, but carry it direct to the hay-press, and bale it without sweating it in the stack. Oat hay brings about \$12 a ton.

We have a fine hay that is used mostly as a fodder for neat cattle, but seldom for horses. It is a native oat. In the early days of our history it was nothing to ride for days through our valleys and rolling hills through the wild oats, the tops of the grass being above the tips of the horses' ears. Strange as it may seem, this native oat vanished before the foot of the new comers. It is seldom that a person meets with a field of this grass nowadays. Still, there are some places where it is grown extensively. Where it is raised, the farmer does not have to sow the ground with its seed, as it is self-seeding.

There is another sort of hay we have, and one that is largely grown, and profitable alike to the farmer, stock-raiser, and the bee-keeper. It is alfalfa. As you are aware, several crops are harvested a year. It is grown almost entirely upon irrigated land—the great alfalfa districts being in Kern and Tulare Counties, in the upper San Joaquin Valley. I am sure there is a great deal more alfalfa hay raised than there is barley hay, and yet you have got the idea that the latter is our chief feed for horses and cattle.

It seems to me that in one of your interesting "Notes of Travel," published some few years ago, you spoke of the coarseness of our hay. True, we have some hay that is coarse at times; but the most of the oat or wheat hay that one sees in our hay markets is not so coarse. It is not as fine as the timothy or clover hay of the East. Withal, we have what appears to you to be little better than straw. We raise the *fastest horses in the world* upon this very "straw." It seems strange, does it not? Our hay, with the exception of alfalfa, is raised without irrigation. If we were to irrigate our hay-fields the stalks of hay would be as large as bamboo fishing-poles.

WHERE DIFFERENT CALIFORNIA CROPS ARE GROWN.

The average Easterner, when he thinks or talks of California, does not consider that, as a general thing, different sorts of crops are grown in different portions of the State. The only exception to this may be said to be in regard to oranges, which are generally believed to be grown in the lower part of the State. This fruit is grown as far north as Mt. Shasta, in the extreme northern part of the State, some of the finest orchards being in some of the counties above Sacramento; yet the great orange district is in the lower part of the State.

Grapes are grown all over the State with perfect success; yet the products differ in this way: The finest dry wines are raised in the vicinity of San Francisco; that is, 40 miles to the north, south, and east of that city. This radius may be extended 100 miles to the east and south, and a good deal more north. From the Fresno district south, the best sweet wines are produced. The best raisins are grown in the Fresno country, though excellent raisins are grown in the more southern and even in the northern counties. The great French-prune district is in lower Alameda County and the whole of Santa Clara County.

The great bean district is in Ventura County. The honey region is in the southern counties, as is pretty well known; it is there, too, where

most of the yellow corn is raised. The vast onion-seed fields are in Santa Clara County; the hop-fields are in Lake and adjoining counties in the north-central part of the State. Cherries come to the greatest perfection in Alameda, Santa Clara, and Solano Counties. They can not be grown with any degree of success in the southern part of the State; while, on the other hand, apricots do better in the southern counties than they do in most of the counties further north. The finest peaches are raised up in the foothill regions in some of the old mining counties. The great strawberry-fields are in Santa Clara and Santa Cruz Counties, where they are irrigated by means of artesian wells. The growing of English walnuts is mostly confined to the lower counties, while almonds are mostly grown in the counties adjacent to the bay of San Francisco or those bays running out from it on the north. The Livermore Valley, in Alameda County, is said to produce the finest almonds. The best apples come from the Sierra Nevada foot-hills, above Sacramento County. Though potatoes are grown abundantly about the bay of San Francisco and on the islands of the San Joaquin and Sacramento Rivers, still the finest potato country is to be found in Humboldt County, while Marin is not far behind it. These counties lie north of the metropolis. The great dairy ranches are along the coast above the Golden Gate. The sheep ranges are to the south.

This list could be extended; but the above will suffice to show that certain localities seem to be better adapted to the successful growing of certain products than others. While this is so, still a crop that may be raised in one part of the State may be found growing in every one of the counties of California. Dates have been known to ripen in San Diego as well as in Solano County, which is well north of the Golden Gate. Oranges may be seen growing and fruiting in almost every part of the State, yet they do not do well for general purposes except throughout the celebrated "orange-belt" of the south, and that in the northern section already referred to. W. A. PRYAL.

North Temescal, Cal., Aug. 28.

NATIONAL GOVERNMENT APICULTURAL STATIONS.

THE OTHER SIDE; AN ANSWER TO W. C. FRAZIER, RELATIVE TO THE SUBJECT.

I should like to say a few words in reply to W. C. Frazier, page 700. It seems to me this government has all the expense it can well bear, without further burdening it with the expense of swarm catchers, self-hivers, non-swarming attachments, etc., which are not only as a rule useless, but an expensive nuisance to the practical apiarist. I would not give a dollar for all this class of articles ever manufactured. If bee-keepers would let Nature take her course, as far as practicable, I think the financial result would be quite different, aside from saving the expense of these patent humbugs, which are manufactured, not for the advancement of our chosen pursuit, but for the money there is in it for the patentee. What the government has done for the farmer is for the protection of domestic animals against contagious diseases, which is perfectly right, and of general benefit, not only to the farmer but also to the apiarist. It takes no action as to the kind of barn, saddle, harness, collars, pads, or other fixtures best suited to the proper manipulation of our domestic animals. As to the number of pounds of honey consumed in a year, it depends on the strength of the colony, and especially the locality. The

number of pounds of honey required to produce a pound of wax would depend on the honey-flow, the same as feeding corn to a hog produces fat. If fed scantily, the gain will be very slow; but if fed all they can eat, the gain will be larger in proportion to the feed. As to workers removing eggs from one cell to another, or mating with drones, or drones from such, or mated queens, fertilizing queens, or the degeneration of inbred bees, if correctly answered would only satisfy our curiosity without bettering our financial condition a particle. The amount of foundation to use depends also on the honey-flow, the same as the wax production. If you wish to decide the question as to the difference in amount of honey production, take two colonies, of the same blood and equal strength, and perfect queens. Run one for comb honey and the other for extracted, and I think we can satisfy ourselves on this point. The fact of our knowing so few things is due largely to our depending too much on others; or, in other words, jumping at conclusions of ourselves and others. Let us prove all things, and hold fast to that which is good.

THE VARIATIONS OF E. E. HASTY'S SECOND SWARMS.

I should also like to say just a few words in regard to the variations of second swarms as recorded by E. E. Hasty, page 700. As to the seconds cast on the 6th, 7th, and 8th days, I would say that the first swarm is delayed either by bad weather or else some trouble with the old queen; those on the 9th are natural, and, I believe, in accordance with the rule; those on the 10th to 17th are those where the first swarm issued ahead of time, varying from one to eight days. The better way, I think, is to avoid second swarms, and not be bothered with this record. I had over 30 swarms this season, and no seconds, without cutting out queen-cells. I had a honey-crop of 4600 lbs., extracted, from 32, spring count. ELIAS FOX.

Hillsboro, Wis., Sept. 28.

[There is much of truth in what our correspondent says. We should take account of Nature's ways, and then adapt our appliances so far as practicable. As to the national government testing appliances, we quite agree with him. For the government to indorse one manufacturer's goods over another's would hardly be just the thing, although the goods of the first mentioned were actually better.]

Perhaps more discussion on all these questions may not come amiss.]

WILL TWO QUEENS FIGHT ?

DR. MILLER DEFENDED, ETC.

I see in the Sept. 15th issue of GLEANINGS that Dr. Miller has been taken to task for the statements he made in Stray Straws, to the effect that he never saw two laying queens fight. Now, I hardly think that Dr. M. has lost the good opinion of the bee-keepers up here (at least not all of them), regardless of the fact that he never saw two laying queens fight. Perhaps the circumstances under which the queens were put to test, that Dr. Miller witnessed, were not the best to make them fight. Queens that have been caged for a day or two are less liable to fight than queens taken direct from the hives. Virgins one day or more old are as liable to fight as laying queens. Dr. M., to sustain his claim, asserts that he has no less than three colonies with two queens in them; and, by his article, I take it for granted that he did not put them together, but that *nature*

brought it about. Bless the doctor, he wouldn't expect either queen to show fight in such a case, more than he could expect a honey-flow at Christmas in his locality. Say, Dr. M., suppose, when you unite nuclei, you watch and see how long two queens will remain together.

AN EXPERIENCE WITH FERTILE WORKERS.

Along in midsummer I had a colony that lost its queen. I can not say positively, but I think it was presumably from old age. The bees, at any rate, built queen-cells, and therein were deposited eggs; and in due time there were two capped cells in the hive; but when, within two or three days of maturity, the cells were destroyed by the bees, I in turn gave them a caged queen-cell; but I suppose the queen was killed on emerging from the cell. I again gave them a caged cell, which hatched, and the queen was allowed to live for about four or five days, when she must have been killed, as I could not find her.

At about this time fertile workers made their presence known by eggs appearing in the cells. I now left the fertile workers alone until the bees began to cap the cells, when the combs the cells were on were taken from the hive, and three combs with bees and brood were put in their place, with a laying queen. The fertile workers were shaken off their comb in front of the hive, and left to unite with the bees having a fertile queen, which they did without any fighting, as no bees were killed through the union. Four days afterward I examined them and found the fertile queen all right, and laying; consequently I supposed that the fertile worker was no more in the land of the living. In two more days the queen was removed, and a caged queen-cell was given the bees, which hatched, and the queen was allowed to live three days, when the queen was killed by the bees. Now comes what causes me to write this article on fertile workers. I soon found that a fertile worker was present, and had been from the time I united the bees with the fertile worker and the bees with the laying queen. Of course, the fertile worker was never killed, but continued laying right along with the laying queen. This I can prove, as drone brood was scattered miscellaneously over the combs, in the ratio of one-third drone-cells to two-thirds worker. Now, why did the bees harbor a fertile worker when they had a good laying queen? This latter part overthrows Dr. Miller's plan of giving pulled virgins to colonies having fertile workers, but seems to be in harmony with his experience as regards laying queens not showing fight.

I see there are some reports quite discouraging in GLEANINGS of Sept. 15th, even from the good old State of Ohio. The honey crop in my section has been somewhat better than usual this season. My colonies run for extracted have yielded about 210 lbs. each, and for comb honey 165 lbs. The queens in these colonies were reared from one of Doolittle's breeders, and crossed with drones from leather-banded stock. There is no linden, in my locality, the honey being gathered mainly from white clover. We also have an abundance of clover growing along the roadsides and ditches. This is the kind which A. I. R. and friend Boardman have been accused of going out at midnight and scattering the seed along the roadsides. Of this there has been more this season than any year that I know. □

Along in the spring Dr. Miller made some remarks about dandelions opening early. Well, they have not only blossomed early in my locality, but they are still open—that is, about a square rod of 'em. They have been in blossom a few days only, while it was warm enough for

the bees to work on them, in which time they gathered pollen, and no doubt honey as well.
Bellevue, O., Sept. 28. H. G. QUIRIN.

TWO PROLIFIC QUEENS IN THE SAME HIVE.

A PECULIAR CIRCUMSTANCE.

Perhaps a very recent experience of my own in this particular will be worth relating, as it occurred under circumstances a little out of the ordinary, and will serve as additional proof, did he need it, of Dr. Miller's position that such exceptions to the rule are by no means rare.

Some untested queens had been ordered from Rouse & Co. early in the summer; but they had had so brisk a trade that it was found impossible to send mine till the last week in July, the queens arriving on the 28th, and were introduced on the 29th. The time happening to be under conditions about the very worst possible for introducing, and robbers rampant, I decided, after introducing all but one very yellow queen, by the ordinary plans, to make a "dead-sure" thing of her safety by making a nucleus of sealed and hatching brood, according to the plan laid down in the A B C book, page 157, and which I had always been curious to see worked out. She was accordingly turned loose on three such frames, after every bee had been brushed off; and during the process her escort all escaped, so that the beginning of this colony was a queen *absolutely alone* for a few seconds, in a hive containing mostly sealed brood in three frames between division-boards. Young bees hatched rapidly, of course, but it was some little time before there seemed to be much evidence of a community interest or acknowledgement of the one sovereign authority. Nor was it all as "plain sailing," as at first supposed. The weather permitting it, the hive had been placed on the stand where it was to remain, and ants took possession, killing young bees and worrying the queen. Getting rid of this nuisance, and placing the hive on legs in cans of water, things progressed satisfactorily, and from time to time brood was added—a small entrance, of course, having been opened up about the fourth day. About this time the queen was known to be laying; bees were going to the fields, and in a short time there was a fair-sized colony with six frames and a division-board; honey was beginning to come in, and, as the frames were well covered with bees, the entrance opened half width, and was well defended. The hive was not looked into till the 24th of August, when a dead queen was found in front of the hive. On looking in, queen-cells were seen, in different stages, one or more having the appearance common after the young queen has crawled out, and drones were nearly ready to hatch.

It will thus be seen that preparations for swarming had begun very early in the life of this colony, and escaped my notice until the dead queen was found; but I can not be positive in regard to the source from which these preparations to swarm began, because both drone and worker eggs or young larvae might have been present before the new queen laid an egg; yet I feel sure the eggs that hatched drones and queens were all hers, from the fact that the drones (which required the longer time to hatch), when they began to fly, proved to be of the beautiful solid golden color claimed for R. & Co.'s golden queen's progeny, and entirely unlike any ever before seen in my apiary.

The queen-cells having been cut out and used, and more room given, no further attention was given the colony, other than a glance in, once or twice, to make sure the queen was

there and laying. The disposition to swarm was apparently over with.

Sept. 20 a drone-laying queen was discovered; and, to save the colony, after killing the queen I went to the hive above mentioned, to get eggs for them from which they could raise a queen, expecting to have to help them along with brood from other hives, or at least get them started with a new queen before cold weather. The first frame lifted had a queen on it, and it was put back, one frame skipped and the next held up, when there, too, was a queen. Holding the frame in one hand I lifted out again the first one, and there was no mistake. With a frame in each hand, and a queen on each frame, I saw a better thing for my queenless colony than eggs and the long delay before workers could hatch. Knowing the old queen at sight, I put her back and at once introduced the other into the queenless colony, and she began laying at once, proving, if her shape had not (the full rounded abdomen of a laying queen), that both mother and daughter had been laying together in the other hive. The mother in the artificial colony is very prolific, and, like the others purchased, was untested, hence young. Why did this colony want to swarm this late in the season? Did the artificial formation of it instigate the impulse? Who "raised the row"—the queen or those young white baby-bees? Why did the queen permit one daughter to live and lay after one or more had been killed? If both had been left in the hive, would swarming have taken place next spring without further preparation? These are some of the questions that arise which, may be, that "experiment station" will solve and answer.

C. P. COFFIN.

Pontotoc, Miss., Sept. 26, 1893.

FLORIDA.

SELF-SPACING FRAMES; BEE-ENEMIES, ETC.

This is a decidedly off-year for honey, around Orlando. The bee-keepers here report little or no surplus gathered, and many colonies have been destroyed by worms, ants, etc., which loss, I suspect, is due mainly to short stores and loss of queens. However, my own bees are in excellent shape. I have lost no colonies, and all have sealed stores, except two or three. From 24 colonies, spring count, I have taken to date about 600 lbs. of honey—500 lbs. of which was extracted, being an average of 25 lbs. per colony, which I consider, under the circumstances, a most gratifying result. My present number of colonies is 37.

THE BEE-HAWK.

I have found a new and destructive enemy to the bee; and that is, the bee-hawk. These pirates come by the hundreds around the apiary, late in the afternoon, and catch and swallow the bees in great numbers. I have had to arm with paddles, and open war upon them.

A SUGGESTION FOR SELF-SPACING FRAMES.

If those who object to self-spacing frames would try having the projections, or spacing-strips, in *one piece* attached to one side of the frame, instead of projecting on both sides of the frames, I am satisfied they would find less cause to complain of glue, by reason of the angle being less acute, the connections being more at right angles, which prevents them from being so badly propolized.

PINKVINE A HONEY-PLANT.

I send you by mail a specimen of the *Antigonon leptopus*, or pinkvine, the queen of vines, unrivaled in grace and beauty. The vine covers 80 to 100 square feet, all this year's growth,

the top a perfect mass of pink blossoms; and over this sea of bloom the bees swarm by tens of thousands, from morning till night, for six to eight months in the year. Its attraction for the bees is wonderful. I have stood, with watch in hand, and counted 27 bees in 5 minutes seeking nectar out of the same flower. I have done this several times, and found the average to be a fraction over 5 bees a minute. I believe this is ahead of all other records of the kind, and marks the *Antigonon leptopus* as foremost among honey-plants, in point of attraction for the bees, by the bountiful secretion of nectar and duration of period of bloom.

JAMES K. DUKE.

Orlando, Fla., Sept. 22, 1893.

[You will find the bee-hawk mentioned under "Enemies of Bees," in the A B C of Bee Culture, and also in "Cook's Manual." We do not often hear of their depredations, however, and we understand they can easily be driven away.

Regarding the self-spacing frames with projections on one side, we would say that we advertised them for sale, but there was very little call for them. The trade is wholly for projections on both sides. There is no difficulty in handling either kind, so far as propolis is concerned, when you once know how; and the many advantages they possess over the non-spacing kind place them clear at the head.]

CAN HONEY BE CORRECTLY TESTED?

EXAMINATIONS BY DIALYSIS, ETC.

The adulteration of honey has for a long time been a question of great interest to all bee-keepers, and a ready means of detecting it, is anxiously looked for by all those having the interest of the industry at heart. In the *American Bee Journal* of July 4, page 105, Professor Cook gives a summary of the conclusions he arrives at from the experiments made under his directions at the Michigan Agricultural Experiment Station. The Bulletin 96, "Honey Analysis," contains experiments made with about 60 samples of honey by Prof. H. W. Wiley, of the Agricultural Department at Washington, by Prof. M. S. Scoville, of Kentucky Agricultural Experiment Station at Lexington, and by R. C. Kedzie, Chemist at Michigan Agricultural College. These experiments show that professional "chemists can easily distinguish honey adulterated with glucose," and that they detected two samples which were adulterated "purposely."

This is certainly so far very satisfactory; but had the analyses been made from some of the spurious honey, said by some to be on the market, and the source of the adulteration detected and exposed, it would have been much more to the purpose. Chemists are, no doubt, able by laborious processes to detect adulteration in almost any thing; but what bee-keepers, and those interested in pure honey want, is some ready method by which a person of ordinary intelligence can detect adulteration for a certainty, never mind the source, when this is ascertained; then the chemist can be applied to for confirmation and details.

EXAMINATION OF HONEY BY DIALYSIS.

Dr. Hænle, of Strasburg, has experimented with various samples of honey, and has given the public the benefits of his research. He describes the process, and the apparatus required, and appears to think that dialysis is a sure and simple method by which the purity of honey can be ascertained. That the process is simple will readily be conceived when we

find his fee was only two marks (50 cts.) for the analysis of a sample of honey sent him. This honey had been purposely adulterated, and in his report he says, "There is an adulteration of 23 per cent with glucose." This was practically correct, I believe.

But chemists generally do not accept his process, as will be seen from the following, taken from the *Chemiker Zeitung*:

REPORT OF TH. WEIGLE, OF NUREMBERG, ON "THE DIALYTIC EXAMINATION OF HONEY," PRESENTED AT LINDAU AM BADENSEE, AUGUST, 1893, AT THE ANNUAL MEETING OF THE ASSOCIATION OF BAVARIAN REPRESENTATIVES OF APPLIED CHEMISTRY.

Weigle concludes from various experiments conducted by him, in an apparatus made at Strasburg, precisely according to Hænle's instructions, with careful observation of the conditions given by the latter in his book, that the dialytic examination of honey is applicable only in cases in which there has been considerable adulteration with impure starch syrup (glucose); and even then, only when the absence of coniferous honey is assured, as this behaves dialytically in essentially the same manner as honey adulterated with impure starch syrup. Additions of cane sugar, or invert sugar, as they occur at present in the market under the names of fruit sugar (*Frucht-zucker*), or honey sugar (*Zuckerhonig*) are not to be detected by dialysis.

A quantitative determination by dialysis, of the extent of the adulteration with impure starch syrup, is, according to Weigle, quite impracticable.

Weigle concludes that the dialytic process does not, under any conditions, possess any such decided significance as attributed to it by Hænle—a view which was unanimously joined in by the association.

After this report of Weigle's, and the consensus of opinion expressed by a large body of the Bavarian association, experts in applied chemistry, bee-keepers can hardly accept Hænle's process as conclusive; and the simple plan by which we can with certainty detect spurious honey has not yet been made plain to us.

JOHN M. HOOKER.

Philadelphia, Pa., Sept. 15.

[We think there is a simple way of detecting glucose: see GLEANINGS, p. 103, for particulars, this year; also pages 254, 275.]

WATER-CURE, GRAHAM BREAD, ETC.

HOW TO MAKE GENUINE GRAHAM GEMS.

I have often felt a desire, as the years have come and gone, to thank you for the outspoken words of GLEANINGS in behalf of water-cure. It is nearly fifty years since Henry C. Wright, an American, a public speaker and a co-worker with William Lloyd Garrison, lost the use of his voice. He placed himself under the care of Pressnitz, the founder of water-cure, at Grafensburg, Germany. During his stay at this wonderful cure (from which he returned home with health and voice restored), Henry C. Wright wrote letters weekly which were published in *The Liberator*, the paper then published by the immortal Garrison. In all the years since the initial education of the American people in water-cure by those letters in the *Liberator* I have taken a quick and increasing interest in it. Water-cure implies letting alone all manner of pills, big and little, as well as all sorts of bottle stuff. It embraces good air and wholesome food.

I should like to tell you about graham flour. It is the product of the whole wheat. Dr. Graham, in "Science of Human Life," devotes forty pages to bread-making, where he tells the reasons why the whole-wheat flour is better. That which is made at Akron, and sold by grocers everywhere, is not to be compared with

real graham flour. The real graham flour will not keep long. Better to procure it 25 lbs. at a time. Have the miller catch it as it comes from the roller. The graham by the roller process is vastly superior to that by the old way. Try this and verify my words, and then publish good words for the plain graham flour in every issue of GLEANINGS for a year.

TO MAKE GRAHAM GEMS.

Take graham flour, and water sufficient so that the mixture will flow very freely; add a tiny pinch of salt. Have the cast-iron gem-pan on the top of the stove, and made very hot; grease with a swab and a bit of butter, and quickly fill the gem-pan with a spoon, and place from the top of the stove in a hot oven. Serve hot.

TO MAKE GRAHAM RUSK.

With water and graham flour make a pretty stiff dough; knead, and roll as for biscuit; cut out with a cup, or slice in strips; bake. These served warm are preferred by some persons to the gems. But to make the rusk, after baking, place in a warm oven, not hot, for half a day, or until all the moisture is dried out. Now break these dried crackers or strips in pieces, and grind in a hand-mill. Serve with cream and milk.

J. CADWALLADER.

North Madison, Ind., Sept., 1893.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

HONEY-DEW IN IOWA.

After looking GLEANINGS for Sept. 1st over, and seeing no report from this part, nor from the State, and also your statement on page 668, Sept. 1, that there were no reports of honey-dew in the country, I thought I would try to put you right on this question so far as this section is concerned. I will give a short report of my own apiary, which is about an average of the country up and down the Cedar River for 25 or 40 miles. The timber skirting the Cedar River is about 10 to 12 miles wide. I live just on the edge between prairie and timber. The bees came out of the cellar all right, for that is the way most are wintered here; but the spring was cold and wet. I lost 23 out of 75 by spring dwindling. Clover came out nice, and made a big growth, but no bees worked on it. They commenced on honey-dew as soon as the leaves were half-grown—burr-oak first, then on hickory and all kinds of trees. I got 2 bbls. of honey-dew, almost as black as tar. They stuck to the honey-dew till linn came in bloom, then went to the linn and clover for ten days or so, from which I got 2 bbls. of pretty fair honey, and this is about the ratio of all the honey in this section. I sold my 4 bbls. at 5 and 6 cts. to cracker-factories. We have had four seasons before this, so we are not feeling very rich. The above amount of extracted honey was from 45 stands, spring count. The other 7 ran for comb honey.

ROBERT QUINN.

Shellsburg, Ia., Sept. 4.

PRESERVING BROOD-COMBS FROM MOTH.

I see persons advising us bee-keepers how to preserve combs. I will tell how I keep them. I take a box or beesy hive, and nail common door-screen on the bottom. I then take a crate or another empty hive, and tack wire on top, the same as on the bottom of the first one; set one on top of the first one, and so on as high as you can, then put on your top box. If your joints are good, the moth can't lay their eggs in

your combs. Fill with combs, then put the boxes in a dry place; set the first box on four little blocks. The air will keep your combs dry. I have combs that are just as nice as when made, that I kept for three years. If there are any moth-eggs laid in combs you will have to brimstone them or the eggs will hatch.

Moulton, Ia., Sept. 3. S. S. BUCKMASTER.

[Combs kept in a tight room or box, after a good winter freeze, will be perfectly safe. There is no excuse for moth-worms getting into combs out of the hive.]

THE OLD-FASHIONED HOFFMAN FRAMES.

In the A B C you mention, as an objection to the straight-top-bar Hoffman frame, the fact that bees will propolize it more than the Simplicity, since it always rests in the same place. Why not occasionally change the division-board from one side of the hive to the other? This will move all the frames, and give no more opportunity for sticking propolis than with the loose frames.

J. A. RESSLER.

Ronks, Pa., Aug. 30.

[This would help the matter, but not obviate the trouble entirely.]

DATE OF SECOND SWARMS.

I see the experience of those keeping a record is requested as to the length of time between first and second swarms. The past season, of those which I have a clear record, one sent a second swarm in 5 days; one in 7 days; one in 8 days; one in 9 days; one in 10 days; two in 12 days; one in 17 days, and in looking over my record for three or four years I find but little if any more uniformity.

O. B. BARROWS.

Marshalltown, Ia., Sept. 18.

MATING THE SECOND TIME.

On page 705 of GLEANINGS for Sept. 15 you ask if others have observed queens mating more than once before laying. I have had one or two cases of that kind, but it was always where the queen was balled on her return to the hive; and their struggles to free themselves from the ball of bees may have caused them to mate a second time. I have also noticed that some queens thus balled became worthless, and were superseded before the close of the season.

FRED BECHLY.

Searsboro, Ia.

REPORTS DISCOURAGING.

POOREST SEASON IN 14 YEARS FOR JOHN NEBEL & SON.

This has been the poorest season for bees that we have ever had in all of our bee-keeping experience, which has been fourteen years—not a single pound of honey nor a swarm, and we have had to feed to get our colonies strong enough for winter. We lost 80 colonies by spring dwindling in April and May. Another year like this, and we shall be out of bees.

JOHN NEBEL & SON.

High Hill, Mo., Sept. 26.

REPORTS ENCOURAGING.

GOOD FALL CROP.

Our fall honey crop has been excellent; all the surplus boxes were filled in three weeks. One of our farmers said to me, "This has been a poor year for honey." I afterward found out

he had never looked into his hives. I bought them for \$1.50 each. J. HARRY WILSON.
Orphans Home, Texas, Sept. 25.

7000 LBS. OF HONEY FROM 55 COLONIES, SPRING COUNT.

I had 55 stands last fall. I lost five during the winter and spring, and had two more that lost their queens so they did not amount to anything, and were of no use at all. That left me 48 stands. I went to work with them in the spring to get them in shape for business, as I partly expected a good flow of honey. I put sections on one hive, and extracted from 47. I got in all 7000 lbs.—4000 lbs. of clover and 3000 of basswood, all as fine honey as I ever got in my life. There is no one around here who got so good an average as I did, nor any thing like it. I think it is all in the way that I managed my bees. They now number 63 stands, all very heavy with honey for winter. MONT WYRICK.
Cascade, Ia., Sept. 26.

ANSWERS TO QUESTIONS

FROM BEGINNERS.

A. P. D., of Texas. Your question is answered under the initials "H. C. R.," below.

S. W. P., of Maine, asks whether bees can be transferred in the fall. *Ans.*—Any time when bees can fly; but it should be done early enough so that they will have time to patch up the combs and take in a little extra syrup if it should be necessary.

H. G. S., of New York, wants to know whether it is advisable to crowd a ten-frame colony on to six frames. *Ans.*—If the colony is good and strong, we would not reduce the ten-frame brood-nest to less than eight frames nor an eight-frame to less than six.

C. L. W., of Pennsylvania, has a considerable quantity of honey-dew in his combs, and wants to know whether it would be safe to give it to his bees for winter. *Ans.*—We would risk it, because the majority of the reports show that bees have wintered successfully on such inferior stores. Of course, it is safer to give the bees sealed clover or basswood honey, or, better still, sugar syrup that has been fed in the early fall.

H. C. R., of South Carolina, asks what causes honey to sugar in the hive during midsummer. *Ans.*—We can not explain the reason, only that we know that honey from some sources has a peculiar habit of candying almost as soon as gathered. If H. C. R. could tell us the source whence it comes, we might tell him more about it. He also asks, further, how to get this candied stuff out of the combs. There is no practical way that we know of. We would set aside the combs containing such honey, and use them for supplying bees with stores when they require it. In your locality you will, quite likely, require to use them before next summer.

R. H. S., of Ohio, has several colonies in his apiaries that have only virgin queens, and asks whether it would be advisable to replace these, or whether, if left, they will be fertilized next spring. *Ans.*—Virgin queens left over during winter are sometimes fertilized the following spring; but the cases are rather rare; and in many of the instances when it was thought that such delayed mating took place, the queens were actually fertilized the previous fall; but as it was past the time for egg-laying, they passed for only virgin queens. Referring

particularly to the question, we would recommend that the virgins be removed, and laying queens be inserted in their stead. The latter, at this time of year, can be bought for a trifling sum.

E. N. R., of Michigan, asks what sort of packing material we recommend, and whether it would pay to send out into the country when he has planer-shavings or forest-leaves in abundance on hand. *Ans.*—After experimenting with the various packing materials, we can discover but very little difference in favor of any of them. We have wintered bees as well under planer-shavings as under the best wheat chaff. Chaff has the preference for cushions because it is lighter, and is more available for the average farmer. Where forest-leaves are used, the packing should be made thicker, and pressed down so as to be more compact.

A. P. H., of Illinois, inquires whether it is too late too feed. *Ans.*—If colonies are short of stores we would feed even up to and into cool or cold weather; but the syrup should be next thing to hot when given to the bees; and if placed under chaff cushions, we think there will be no trouble about the bees taking it down; but when they are fed so late, the syrup should be a little thicker than usual. The usual proportion is 20 lbs. of sugar to a gallon of water. During cold weather we would make the syrup about 25 lbs. of sugar to a gallon of water, because during cold weather the bees will not be able to evaporate the honey down as well. If the weather is freezing, or down near zero, we would give the bees cakes of hard candy. Full particulars of how to make are given under "Candy," in the A B C of Bee Culture.

C. F. F., of Minnesota, wishes to know whether we would advise him to winter his bees in the cellar, or outdoors in double-walled chaff hives. *Ans.*—In the very coldest climates, or, at least, where the winters are severe, and the temperature runs for several weeks below zero, cellar wintering seems to prevail. Whether this is because bees can best be wintered that way or not, we can not say; but it is usually safer to follow the prevailing custom. Indeed, some bee-keepers say it is impossible for them to winter on summer stands, even when packed in hives of the most improved pattern. On the other hand, there are some bee-keepers—for instance, E. Sturgeon, of Kincardine, Ont., Can.—who can not winter indoors, but always have success in outdoor packing. For the latitude of Northern Ohio, the outdoor method gives generally the best result—that is, the beginner seems to succeed better.

C. C. & S., with several others, say that their bees seem to be suffering from fits; that they come out and flop and crawl around and finally collapse; that they have a sort of tremulous motion to their wings, the bees themselves having a swollen and greasy appearance. *Ans.*—This is what is called "bee-paralysis,"—a disease that is getting to be quite common, although it has never proven to be any thing serious except on one or two occasions, and is generally confined to two or three colonies. We have, in the past, recommended removing the queen and introducing another; but reports show that this does not always work. Some recommend giving the bees a fine spray of slightly salted water, the spray being scattered over the combs and the bees. Some insist that this always cures, while others say it has no effect. As the disease sometimes disappears of itself, we are obliged to confess that we know of no remedy that can be surely relied upon, although, if we had diseased colonies, we would administer the salted spray.

NOTES OF TRAVEL.

ON THE WHEEL—CONTINUED FROM OUR LAST ISSUE.

By the time I had made a little circle with my wheel through the streets of Wooster it was so near dark that I found I should not be able to reach any point to stay over night if I trusted to the wheel alone; but as I had already got started, and wanted to go somewhere, I decided to take passage on a new railroad for Lodi, Medina Co., O. This place is only ten or twelve miles from my home, and close by the town is the large Harrisville swamp I have before alluded to. There is very nearly a square mile now devoted to onions and celery. I told the landlord I wanted him to explain to me the manipulations of the lock on the front door, for I wanted to take a run on my wheel through the celery and onion grounds before breakfast. I was accordingly out at the first gray streak of dawn. But a fog had settled over the swamp, so I could hardly see a rod before me. I enjoyed my ride greatly, however, and investigated the improvements they are making in their ditching, and arrangements for letting off the surplus water better. This dry time gives ample opportunities for doing many jobs in the way of ditching or deepening ditches, that could not well be done at any other time. I did not do very much of the swamp, however, before breakfast. I lost my way in the fog, but found an excellent appetite. After breakfast, when the sun had got out a little, I made very much better headway. I was greatly pleased to see that men and women both were out in large numbers, diligently clearing the weeds from acres and acres of onions, even if they were almost ready to harvest. It is quite customary in many onion-fields to let the weeds go toward the end of the season; but the different foremen informed me here that the proprietors had decided that weeds were a detriment, even when onions were just finishing up; and another thing, more or less of them would be maturing seed almost before one knew it. Accordingly, the weeds were all deposited in ditches—now dry ditches—between the beds. They were afterward drawn out and spread in the roadways. If they wanted to grow after being tramped down and ground under foot, they could do so. The White Plume celery, with its plumes just surmounting the sharp mass of black earth, was a most beautiful sight to behold; and as one looks over these broad acres, extending off almost too far for the eye to distinguish onions from celery, he wonders where they will find a market for their immense crops. The managers, Messrs. Wean, Horr, Warner & Co., decide that their present crop will reach nearly 135,000 bushels. You need not think there is a mistake in the figures here. It is really 135 *thousands* and not so many *hundreds*; and these people have learned by experience how to dispose of such an enormous crop as this, and at good prices too. They have immense warehouses, something like corncribs. The onions are carefully sorted, and placed in these cribs to cure. After being stored a certain length of time they are sorted again. Those that seem likely, to the experienced sorter's eye, to decay, are disposed of first; and as the winter advances the best ones are moved into the buildings with more and more protection. Nothing is ever lost by frost or freezing, here on these grounds; and some time during the winter the very best specimens of each kind of onions are sorted out for seed next year. Most of the seed they sow is of their own raising. They have learned by experience on a

large scale what I learned about raising good onion seed, as described in our last issue.

I am naturally friendly toward the women-folks; but I was inclined to take exceptions, even if it was not any of my own business, to the way the women went to work on this special morning in the great Harrisville swamp. They seemed to be just standing around. Sometimes one of them would pull a weed, and then hold it in her hands a long while, and then another would pull a weed, and then they looked this way and that. If they were working by the piece, of course it was their own business; but I do not see how they could be doing this kind of work by the piece unless they had, indeed, the job of clearing from weeds a certain bed or field. I finally spoke to one of the men about it, and he said they had "not got a going yet." The dense fog had made the onions and weeds very wet, and their clothing was such that it would get wet and draggly. He said that, when the sun got out so it was not quite so disagreeable for them, if I took notice I would see that they did about as much as the men, before dinnertime. So you see we need to have charity. Some of the small boys did not seem to think it was the nicest kind of work in the world, so I got down on my hands and knees and tried it myself. Why, I think it is just beautiful work, getting the weeds out of the way, and giving such handsome onions a chance to do their best.

"Why, look here, friends; why don't some of those several thousand men in the city of Akron, only a few miles away, come here and pull weeds? They certainly can earn enough to keep their families from starving while they are out of employment."

"See here, Mr. Root. We have had several of those very chaps, and tried to get them to pull weeds. What do you think they said? Why, some of them, when they had just *looked* at the job, and hadn't even *tried* it, went away with *oaths in their mouths* to express their disgust, and saying that they would not work at *that* kind of employment for *anybody*."

Now, I do not know how true this story is; but I am afraid there is at least some truth in it. Pulling weeds by hand is no doubt tiresome, back-wearying work; but before I would complain, and ask for charity of the city, I would weed onions, even if I did not get more than 25 cts. a day.

The younger ones were very curious to see me ride around on my wheel, and spring off, leaving it standing of itself anywhere I chose to stop. Several days after, I met a friend who had come on a wheel all the way from J. A. Green's, in Ottawa, Ill. After he had seen me leave my wheel right on the stone pavement just where I left it, he spoke:

"Oh, yes! you must be the chap they told of when we were down in the swamp. They said somebody had a wheel that would stand up of itself anywhere he left it."

I find the device very convenient, and perhaps I had better give a cut of it in some future issue.

In one part of the swamp I saw some immense red onions. They were almost as large as the Spanish onions I told you about in our last number. I asked them if they would sell me a barrel of all big ones. They said they would if I could afford to pay \$1.50 a bushel. This I very cheerfully agreed to do. I want to enjoy the fun of holding them up before people's eyes, telling them they were raised in some of the worthless swamps (that is, swamps that used to be called worthless) of Medina Co. For years and years this ground was voted of no account whatever; and the present proprietors were laughed at as a pack of fools for being so crazy

as to think they could grow crops where good people had sunk money and made failures for thirty or forty years past. The secret of their success was in first getting an outlet for the surplus water, and getting it under control; next, discovering the precise kind of fertilizer that was needed on this swampy muck. At present they use mostly wood ashes, the greater part being brought from Canada. Stable manure does excellently on celery.

There are some parts of the swamp where they are raising, during this very dry season, magnificent crops of corn. Some of the ears were about the largest that I ever saw; but perhaps the quality of the corn is not quite equal to that grown on upland. The same may be said of their immense cabbages; but with the present small crop on the uplands, people are well satisfied with not only corn and cabbages, but even potatoes, raised in the muck.

How easily I made the ten or twenty miles home on my wheel! By the way, I want to tell you that not only health but strength is increasing while I take these long rides every week or ten days. Nature seems to be building both bone and muscle, and reinforcing the weak points; and, even though I am almost fifty-four years old, I find myself growing more able to climb high hills day by day. There is something a little singular, and something also most wonderfully interesting about this. For a time, when I had ridden a great many miles, the first part that gave out seemed to be my knees. There was hardly sufficient bone and muscle to stand the strain in a certain weak part; but even though I tasked this weak part until it seemed sore and lame, it did no harm. In a week or ten days there was a very perceptible repairing and enlarging and building at just these points. Nature did not seem to be displeased, nor inclined to protest at the unusual and severe exercise. Under the influence of the tremendous appetite that came with the hard exercise, a process seemed to be going on much like that of young animals. Other wheelmen have corroborated this very point; and I feel like saying just now, that not only do I consider the wheel one of the greatest achievements of the present age, but I am inclined to think that no such stride has ever been made in preventing and throwing off disease since the world began as has been given us since the advent of the new safety bicycle with pneumatic tires. In fact, while I write I can not remember that I ever heard of anybody who ever injured his health by riding a wheel; neither have I ever heard of anybody who once got started who did not begin to surmount any sort of disease whatever. There have been one or two reports of people who have died from heart disease while riding a wheel; but the disease was not contracted by wheeling, neither was it clear that the wheel had any thing to do with hastening their death. Now, if any of you have had a different experience, or if I am exaggerating its benefit to health, I shall be glad to be set right.

HIGH-PRESSURE GARDENING.

BY A. I. ROOT.

THAT VINEYARD APIARY.

It was ever so many years ago that I was full of enthusiasm over the idea of training Concord grapevines so as to shade bee-hives; but it was not till this terribly dry season of 1893 that I realized what my project might amount to in the way of a crop of grapes. Let us see. I have advocated this plan for shading the hives,

and it has been sent out till 52,000 copies of the ABC book are scattered over the world, and yet I did not know what a good crop of grapes really was. We are just now gathering our grapes from 400 or 500 vines, and these vines have had no cultivation whatever, and no sort of fertilizer for several years. The grass is cut away with a sickle and lawn-mower. Three or four years ago we did give each vine a good dose of ashes, with a quart of bonemeal—that is all. Well, they are now so loaded with grapes that many have broken their fastenings and gone down to the ground. In fact, we frequently get a half-bushel basket full of fruit from a single vine. Of course, this is not much for an average grapevine; but, remember these are pruned down and cut back until they have only a trellis about three feet wide and the same in height. It is true, grapes are down to a cent and a half a pound; yet 4000 or 5000 lbs. at even this low figure make quite a little sum of money from a fruit-garden that is no expense whatever, except a little pruning, and tying up the vines each year. What shall we do with so many grapes while they are sold at such low prices? Well, we are taking out the seeds and canning the grapes for pies; and, I declare, grape pies are about as nice as any pies in the world. Ernest adds right here that grape jelly is better; and just now they are running a new machine down in the kitchen, that, by just turning a crank, the dry seeds, skins, and pulp go into one pan while the pure juice drips into another. The machine is called the Enterprise fruit-press, and costs \$3.00. Another thing, we are going to have a good lot of unf fermented wine—communion wine I believe it is usually called. It is simply grape juice and sugar canned up, exactly as you can up fruit. When anybody is sick it is a most delicious and refreshing drink; and I have seen some folks who found it delicious and refreshing to drink when they were *not* sick at all. It is true, we can not have apples—at least, in our locality—but when you can get a big paper bag full of grapes for a cent and a half, how much would it matter about the apples?

A WONDERFUL NEW RASPBERRY.

A few days ago a couple of friends were out looking at my Timbrell strawberries. When I went over and shook hands with them I found they were visitors. One man was a bee-keeper, but the other was not. I soon began to surmise that the one who was not a bee-keeper had something special on his mind. Pretty soon he told me he had some raspberries in a basket, which he wanted to have me look at. I was a little surprised to hear him talk raspberries during the last days of September; but when I came to look into that basket and get in my fingers a sprig containing the largest and finest-looking black raspberries I ever saw in my life, I too became enthusiastic. In the picture below you have a life-size engraving of one of the clusters that I found in that basket. Some of the branches had not only a cluster on the tip of the branch, but great luscious berries were all the way down the stem; in fact, wherever a leaf came out, there were berries. Said I:

"My good friend, where do you live?"

He replied, "I live near the town of Ruggles, some six or seven miles from New London, on your new railroad. My home is in Ashland Co."

"And have you some more berries like these, now growing on your grounds?"

He said he had, and in a few minutes more I had planned making him a visit the very next day. I would have made the whole trip on the wheel, but I was just getting ready to go to the convention at Chicago, and so my time was precious. At 10 o'clock next morning I stepped

from the train at New London and mounted my trusty wheel. The roads were beautiful, and it was one of the finest September days. The seven miles to the home of Mr. Gault was made in just 45 minutes. I found him out by the gate, waiting for me; and in a little time I was among the raspberries in a little inclosure by the side of his dooryard. From the looks of the foliage I should call it a red raspberry, as it grows, when allowed to have its own way,

He got out and picked the berries, and the next day went back with a spade and took up that little spindling bush; and during these six years he has been busy trying to propagate it. For the first three years he made very slow progress because the thing acted differently from any ordinary raspberry; and the only way he could get more plants was by dividing the roots. Three years ago, however, he "caught on," and has since then been multiply-



GAULT'S PERPETUAL RASPBERRY.

some three or four feet high. The canes bend over, however, more like the black cap; and many of them just then were bent clear to the ground by the weight of these wonderful great berries. About six years ago friend Gault, on his way home from church, was startled by an exclamation from one of his family.

"O pa! just see those great raspberries down there in the weeds, hanging on that little bit of bush."

ing them quite rapidly. In fact, at the present time he has something like 10,000 roots ready to sell in the spring. He said he did not believe in planting raspberries in the fall at all. After I had sampled the berries, and satisfied myself in looking over the large bearing ones, we adjourned to a half-acre near his dwelling, where he has been raising plants. I took the trowel out of his hands several times, in order to dig down into the soil, and see if there was not a

great lot of manure plowed under, or something of that sort. The berries were growing on ordinary farming land, a little inclined to be sandy. A crop of potatoes was grown there last year, and this year he has had potatoes between the rows of raspberries. The astonishing thing about this plant is its wonderful tendency to bear fruit. For instance, if you buy one of the little plants, with perhaps two or three inches of old wood attached to it, as soon as it commences to grow in the spring a lot of great berries will start on this little short stump or cane. It is not best, however, to let this little stump bear fruit. Pick the berries off or it will overtake the new root; but when several little shoots of new wood come up, you may let them indulge their propensity and bear fruit. Why, one would almost think the plants were strawberries instead of raspberries, for the clusters are sticking right up out of the dry soil but a little higher than strawberries ordinarily grow. I examined the ground all over the patch, and it certainly is not nearly as good or rich as my creek-bottom ground where I grow strawberries and vegetables. He said he had not put on any manure this year because it would be pretty sure to make scabby potatoes.

May be you think I am not posted in regard to all the raspberries there are in the world. Perhaps so; but if this raspberry grows and bears fruit in every locality as it does on the farm of friend Gault, it seems to me it is certainly something in advance of any thing we have on the face of the earth in the way of small fruits and berries. Please consider that it bears a crop of fruit just about the time that ordinary raspberries do. This crop is, of course, on the old canes. Just as soon as this first crop is gone, a crop is coming forward on the new canes of the present season's growth. And then it just keeps bearing as if the plants had gone crazy on the single idea of bearing fruit. There had been a heavy frost the night before I was there, and a good many of the berries had been frozen so as to make them soft. Quite a few had dropped on the ground; but the frost had not spoiled them for my taste. I ate berries until my mouth was red, and my fingers so stained that I was almost ashamed to go in to the dinner-table. Mrs. Root would, perhaps, tell you that that ride of seven miles over good roads in 45 minutes had unfitted me from being a fair and impartial judge of berries; and, by the way, notwithstanding the great lot of berries I ate, didn't I do justice to that excellent dinner? I ate quite a spell after the rest were through; but Mrs. Gault apologized for me by saying that I talked so much during dinnertime I didn't have half a chance, as the rest did. We had stewed chicken and cream biscuits dipped in the broth; and maple molasses, beautiful potatoes, and, finally, grape pie. I thought it was *raspberry* pie; but whatever it was, it was of a kind to make a wheelman's heart glad. We had so much talking to do in regard to the berries and potatoes (friend Gault is a grower of new varieties of potatoes as well as berries) that I came pretty near being too late for my train. However, by making the seven miles in 40 minutes, instead of 45, I reached home safely a little after 3 o'clock in the afternoon.

The question now comes, "How shall the readers of GLEANINGS get some of these new berries to try?" Well, friend Gault is trying to get some nurseryman or fruit-grower to take hold of his discovery. If he does not do that, he will probably offer them for sale in the spring. Perhaps it may save correspondence by saying here that he has at present decided on 50 cts. for each plant, or \$5.00 per dozen; and at present he prefers not to tell of his discovery

in the way of propagating the plants, unless it is to those who purchase quite a number of them. If it were I, I think I would tell everybody just how it is done; but, of course, it is his privilege to do as he likes with it. The plant is in many respects like the Everbearing raspberry, mentioned in GLEANINGS a year or so ago. Its immense size, however, and its tremendous tendency to bear fruit, also the different appearance of the foliage, marks it as a different thing without question. I feel very anxious to see what the plant will do on some of my very richest ground for market-gardening. The tendency to bear so continually, stands in the way of any very rapid method of propagation. I have asked friend Gault to give us a brief statement in regard to it, and here is what he says:

Mr. Root:—You requested me to give you a few items in reference to those raspberries. I expect to name it "The Gault," or "Gault's Perpetual." This berry was a stray seedling I found by the roadside, not far from my place in Ruggles, Ashland Co., O. The vines are extremely hardy, and the fruit of delicious flavor. As to size, they are immense, some crown berries having measured three inches in circumference. When I found the plant it was quite small, and had but three clusters of berries on it. The size of the fruit was that which attracted my attention. It was a year later before I discovered that it was a *perpetual*; and during the six years since I discovered it I have frequently been surprised by new points of merit.

The first crop, which ripens about eight days after the Gregg, is very abundant, and will produce one-third more fruit to the same ground, and it continues in bearing for about three weeks, by which time the new canes commence bearing, and continue till checked by frost. This latter crop is not composed of a few scattering berries at the axils of the leaves, but immense clusters—often numbering 100 berries on a single cane—sometimes resembling a cluster of grapes in form. The photo I left with you was taken from the tip of a cluster which was not more than an ordinary one, and was cut Aug. 21.

TOBACCO COLUMN.

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

First, the candidate must be one of those who has 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.

TOBACCO—THE USERS OF IT ARE NOT THE ONLY SUFFERERS.

Why are sudden deaths so much more numerous now than in former years? Because we had no matches nor cigars until 1830, hence smoking was more difficult, and confined to persons sitting in their chimney-corners (lighting their pipes by the embers, which were never allowed to go out), and the smoke ascended the open flues: while now in tight-stove rooms all of the inmates are obliged to breathe the poison; so, even "if you let it alone" it will *not* let you alone. T. B. Terry tells us of a beautiful home, surrounded by wealth and every evidence of refinement, in which a lady lay dying. Her medical attendant, who is a celebrated physician, told him that, although this woman was an idolized wife, yet her husband had killed her; that he had become so literally steeped in tobacco that the insensible perspira-

tion from his body was a deadly poison, and the wife had absorbed enough of this to kill her. He said that he had known such things before, and that some constitutions can bear the poison while others can not, and that he had seen experiments tried at establishments where they treat patients for the cure of the tobacco habit, in which flies were dead in less than five minutes after coming in contact with the perspiration of a tobacco victim. Another simple proof of the poison of tobacco smoke is where birds have been confined in it, and they died in a very short time. Reliable physicians assert that children are killed in the same way when obliged to breathe the poisonous fumes which act on the weakest organs of the body. Then if many must be given up to their deplorable fate, let us diligently endeavor to teach the young, whose veins are yet untainted by this body-destroyer, soul-injurer, to shun it as they would the deadly viper or poisonous upas-tree. If they *must* imitate others, better do as the boy did who bought 25 cents' worth of licorice. When asked whether he liked it he replied, "No; but I want to spit black like pa." We are great imitators! Then how necessary to teach by example as well as precept!

Sumner, Ill.

ELLA T. GRIFFITH.

REMEDIES FOR THE TOBACCO HABIT, ETC.

Mr. Root.—Please tell a reader what you know regarding good tobacco cures. Hill's bichloride of gold cures many, but injures the minds of some; so it is claimed by one editor. No-tobak, he said, generally cures, and never hurts folks. Probably he had reason for his views, but I find folks are slow to believe, and I want to convince them if possible.

Decatur, Ia., Sept. 18. MISS A. M. BOYLE.

[My dear friend, I neglected to sav, when I spoke of the tobacco remedies, that I had but little faith in any of them, and for the reason that I mentioned—there are so many who do not *want* to be cured. If one who is using tobacco really wishes, from the bottom of his heart, to give it up, God helping him, I am sure he can do it. Now, it may be that this "no-tobak" and some of these other things would be of some assistance to such a one. But even if it is, you tell us that one of the remedies sometimes injures the mind. I am afraid that any drug so powerful as to break a sinful appetite which has been encouraged to grow for years and years would be very apt to injure the mind or something else. A few confess that they have been helped by no-to-bak; but some of my particular friends who say they gave it a faithful trial declare it amounts to nothing. The fact that the vendors agree to pay back the money if it does no good (and I believe they do this), would seem as if it must be a help. But this thing is certainly true: He who is cured of the appetite for liquor by the gold cure, or for the appetite for tobacco by something else, can learn it over again in a very short time if he undertakes to do so. The trouble with sin and sinners since the world began is principally that they do not want to be cured. They prefer to be sinners; and any thing that cuts off what they call their liberty to sin again when they *feel* like it does not seem to suit. The Master said, ages ago, "Ye must be born again;" and I believe that is what we ought to think and say *now*.]

Perhaps I am not eligible under your offer of a free smoker. I used to smoke, but have pretty much quit it; but having a few bees, and having to work with them more or less, I am obliged to light a cigar, and give them the benefit of a smoke. Of course, if I had a smoker I should

not need to smoke. I would pay for the same if I should ever again take to the weed.

Ashtabula, O., July 28. A. D. P. YOUNG.

Please send a smoker to James Pig, Hightower, Ky. After seeing your offer of a smoker to all who quit the use of tobacco he has concluded to quit, and promises, if he ever uses the weed again, to pay for the smoker; but in case he should fail to do so, I will remit the price of the smoker.

H. C. CLEMONS.

Hightower, Ky., Aug. 9.

A neighbor of mine said he would quit using tobacco for one of your smokers. He said if he ever used it in any way he would pay for the smoker. His word is good. His name is C. J. Wagoner.

THORNTON WAGONER.

Twiggs, W. Va., Aug. 17.

I see in GLEANINGS you send a smoker to those who quit the use of tobacco. I have used the weed for 15 years; but the 18th of last April I quit, and haven't used it since. Now, if you think I am entitled to one you may send it; and if I ever use it any more I will pay you for the smoker.

R. H. TREEVE.

Mt. Blanchard, O., Sept. 9.

My son, G. F. Von Lienen, has quit using tobacco on account of reading the Tobacco Column. You can send him a smoker. He quit about 3 months ago. I am satisfied he will hold out. His health has improved since he quit. Should he at any time commence again I will pay for the smoker.

H. L. VON LIENEN.
Somerset, Ill., Sept. 7.

OURSELVES AND OUR NEIGHBORS.

Thy will be done on earth as it is in heaven.—
MATT. 6:10.

Wednesday morning, Oct. 4th, we opened our eyes in a beautiful private residence where we had obtained rooms, in Windsor Park, in the suburbs of Chicago. While the women were dressing, Huber and I started out to explore, as we came in the night before too late to know where we really were. A copious rain had made every thing lovely, and we pushed for the beach to see the sun rise out of the water. A fog rested over the deep; and as the sun peeped out it began to assume fantastic shapes, and finally stood like a lamp on a base, a great glowing ball of fire, with the lower part reaching down to the water, and then spreading out to form a pedestal. In a second or two the pedestal parted, leaving the globe to rise up, while the base remained for some time, gradually spreading out on the silvery surface of the water. Then Huber turned, and we caught our first glimpse of the "White City." A great hill or bluff seemed to loom up near the lake, much to my astonishment, for I never knew before there was any such bluff near Chicago. Imagine my astonishment, as the fog lifted, to find that this great hill was a building made by human hands—the Liberal Arts building of the great fair.

We started to go back for breakfast, but we had, it seems, pushed out when we first woke up, for all the world like a couple of bees when somebody has moved their hive in the night. We had crooked and turned ever so many ways, and neither of us knew either street or number where we slept, nor any thing at all about it. Huber finally piloted his father to the spot, when said father was pretty sure it was just the other way. Windsor Park, and, in fact, all

about Chicago for miles, seems just now to be devoted to entertaining strangers. Everybody is very pleasant and accommodating, and we have front rooms and first floor of a gem of rural residence, for only 50 cents each per day.

You may think my text a singular one for such a subject as the World's Fair, with all its worldliness and show, but I think I am right. As I write on our front porch, several hundred Indian boys and girls are on the sidewalk before me. They are going to the fair. They have overcome their natural reticence and timidity, and have come forth from their forest homes, and are now laughing and chatting as merrily as if they were white people. Each has a lunch-box. They evidently enjoy the fair as much as or perhaps more than we whites. They are, without doubt, educated, and many of them look like intelligent and able men and women. The great fair will be a school to them they will never forget, and I am sure it is a school that, on the whole, elevates. These Indians are taken by the government of the United States from all over the Union, and, when taken when they are *children*, there has been very little trouble in making efficient and law-abiding citizens of them. Mr. Dadant said, page 642, "As soon as the Europeans took possession of America, 400 years ago, they tried to civilize the Indians. Why did they try?"

Why did they not succeed? Because these savages act the way they are built." If he sees these boys and girls go through their military and other drills I think he will at least modify this somewhat.

Now, this great exposition, I think, is the biggest step the world ever took, in the way of an object-lesson to all nations of the earth.

In the arch of the great building of Manufactures and Liberal Arts (the largest building in the world) we read, "The United States of America bids the whole world welcome. 1492-1893."

And over the peristyle we read, "Ye shall know the truth, and the truth shall make you free."

And again:

"I Freedom dwell with Knowledge; I abide with men by culture trained; and fortified conscience my scepter is, and law my sword."

Now let me take an illustration:

In the machinery building is a great Corliss engine of 3000 horse-power. Take a look at it and the machinery connected with it, and then glance at the swarms of human beings all about and aloft in the galleries, and reflect that this complete and ponderous machinery is the work of these comparatively tiny beings, directed by the spark of intellect in a single human brain. Does it not all seem almost ridiculous?

Let us single out an illustration again, and take only one line of discovery. Even I can remember when electricity was in my infancy (or hardly yet born, to tell the truth). We tried all metals, and, after careful experiments, found *copper* the best conductor for this new agency. Other careful tests decided what sized copper wires were best for the work we wanted done; other tests and trials told how these coils should be disposed. Still other tests and trials, made by hard-working hands and brains, brought out the modern dynamo, in all its varied forms, as we see it in Machinery Hall, and, in fact, almost all nations of the earth are at work at it. The discoveries that crowd thick and fast are like a romance to those who are familiar with it. Edison's wonderful inventive genius startled the world as if a meteor had suddenly come in among us; but other Edisons are now coming thick and fast—perhaps none *quite* his equal, but after he, like Columbus, had opened the way, it was compar-

atively easy. Another thing, Edison could not very well have done his work had not the times been ripe for it, and had not helpers and facilities been near. Men and money were near to back him. We were beginning to work together. Capital and labor and brains were beginning to help each other. When the great Corliss engine was wanted, some one may have said, "Mr. Brown, can you make me a 3000-horse-power engine?"

Mr. Brown takes the job, and puts it into the hands of trusted and tried men. Some one man takes a general supervision, but even *he* has a sort of advisory committee to counsel with. Then a host of lesser intellects grasp the minor details. The modern engine has been evolved exactly as the dynamo has been. We *feel* our way in the dark, as it were, but we are continually making progress. Every year shows how far we have advanced; but the footsteps of advance are wonderfully crooked and devious, and oftentimes as intricate as a labyrinth. Those who follow us discover thousands of short cuts. There seems to be no other way. God has, it seems, thought best to let us labor through these devious ways to get at the *best* way only after ages of "cutting and trying."

Have you ever felt like saying, "Does God *himself* really know all these things it takes us so long to find out?" Why, to be *sure* he does. He is "Alpha and Omega, the beginning and the end." He would not be God otherwise. We can not for a moment entertain the thought that weak blundering mankind is going where no great superior intelligence has gone before. Some great astronomer, I believe it was Kepler, is reported as saying, "I thank thee, O Lord, that I am permitted to think thy thoughts after thee."

And now let us go back to the Indians from the various Indian schools in America. Watch the young men and women both as they gaze with wonderful curiosity at this scene of wonders. In our factory at home is a 100-horse-power engine. I have heard much talk about the automatic cut-off, etc., but I never understood it until I saw one here at work, with the whole top of the cylinder and steam-chest sliced off. The whole was so plain and clear before the eye, that even Huber (as well as the Indian boys) could understand it perfectly. Well, this same working model was moved by a little electric motor. You see, we don't have to put up expensive shafting and have long belts nowadays to get *power* where we want it. The immense battery of boilers, and the great engines, move massive dynamos that send currents of electricity (or power in a new form) even miles away, and then these wires (some as large around as your thumb) give us the power anywhere it may be wanted. But that isn't *all*. The lagoons and bays of water are swarming with electric boats that scud with wonderful power and speed, shooting here and there, stopping or starting with wonderful celerity, and yet no steam nor smoke nor even engine is in sight. How should electricity be made to reach these boats? Why, it is the wonderful storage battery that does it. Before it came it was not possible to get such energy in so small a space. One can hardly resist the thought that it is not a big step toward a machine that may rush through the air.

While Huber and I were having a real "picnic" in Machinery Hall, Mrs. Root and Constance were listening to a lecture on *bread-making*, in Ladies' Hall, by Mrs. Ewing. Mrs. E. is an Edison among women (or she wouldn't be called to such a place), and her talk was really a lecture on health. When she was married, her husband was a poor dyspeptic.

Now he is a fine-looking, gray-haired, but *well man*.

To-day the women were almost wild with enthusiasm over a lecture on dress, with practical illustrations, by Mrs. Jenness Miller. Now the Indians again. Somebody said when they took the children, there is almost no trouble. We can educate the "Injun" out of them—at least practically so. It is true, they still prefer to lie down on the floor before the fire, to sleeping in beds; but they can be educated, as a rule. We shall have to give up many of these fathers and mothers, but, strange to tell, their untrained parents are all ready and *anxious* to send their children off to school. Are they so very much different from us whites? Aren't there some of us who haven't lost all the "Injun" yet? O dear friend! there is a great lot of Injun yet in my poor self, and I could only say again and again, "May God have mercy on me a sinner." If it were not for the promise that the blood of Christ shall cleanse from all sin, I do not know but that I should lose hope, and sometimes almost give up in despair.



And in their mouth was found no guile; for they are without fault before the throne of God.—REV. 14: 5.

THE *Progressive Bee-keeper*, although its editor is comparatively new in the business, is already in the front rank of bee-journalism.

The beginner will find reasonable questions with seasonable answers under the department elsewhere of Answers to Questions.

ALTHOUGH GLEANINGS enjoys the distinction of being an illustrated journal, this number in particular is rich in high-class engravings.

By the time this journal is out, the big Columbian convention will be a matter of history. In our next issue we propose to give, as usual, a brief report of the first sessions.

A SHORT time ago, comparatively, it was our pleasure to announce that Bro. Newman's health seemed to be improving; but from the last *American Bee Journal* we learn that he is very unwell again. However, Mr. Newman expects, at this writing, to be present at the Columbian convention.

PERHAPS many of our readers will be wondering whether it would be advisable for them to try sealed covers in wintering outdoors. We would say, let them alone except for experimental purposes in a small way. After all the evidence was secured last spring, the conclusion was irresistible that upward ventilation and absorbents gave the better results.

It seems from the *American Bee Journal*, that, years ago, Adam Grimm found, in his experience, that the bright yellow Italian bees were less prolific; but if we may judge from a few of the queens of the yellow sort that have been reared in these latter days we should say they are just as prolific. We hope, since the 23 years that have elapsed since Mr. Grimm wrote his article, that queen-rearing has progressed to such a plane that beauty as well as general usefulness have been combined.

LE RUCHER is the title of one of our most valued French exchanges, which enters upon its tenth volume next January. It is edited by Mr. Alexander Leroy, one of the most progressive bee-keepers, so far as we know, in France. It is fully up to the times, and is published at Amiens, France. Those of our readers who can "lire la langue française" can not do better, we believe, than by subscribing to this enterprising paper.

GLUCOSE, unless there is a large amount of it, does not prevent honey from candying. It is a mistaken notion that all honey that candies is pure. Last spring, when we were experimenting to determine how reliable a good educated taste was in detecting glucose in honey, it will be remembered that we placed various quantities of the stuff in the honey, varying all the way from 10 to 75 per cent. We have the samples on hand now, and all show more or less candying, with the exception of that which is about 75 per cent of glucose. Bro. Hutchinson, some years ago, tried similar experiments with the same results; but there is a difference between the candying in glucosed honey and that which is absolutely pure; and only one who has carefully compared the two side by side, knowing the contents of each jar, could detect the difference.

In the *Bee-keepers' Review*, a correspondent makes some criticism on Mr. Taylor's experiment with the Langdon non-swarmers, referring to which Mr. T. caustically replies as follows:

In reply to the criticisms of friend Rauchfuss, I desire to say that I write for those who think and who read before they criticize. Time and space would fail me were I to write at such length as to compel acceptance without the exercise of thought. I know my readers have knowledge, and I expect them to use it in interpreting me. This is not for friend R. especially, but for certain others also, and, at all events, let the criticism come; it will help to get at the truth which we are all seeking.

We insert the above because there is a good deal of truth in what Mr. Taylor says, and we ourselves have been many times misinterpreted; but at the same time, the language seems to us "a leetle bit" harsh; but as friend Taylor has said it, we will let him do the clubbing for our benefit as well as his own.

FOR the last two days we have had the very great pleasure of having with us a distinguished bee-keeper clear from Australia—Mr. J. W. Pender, who is vice-president of the Hunter River Bee-keepers' Association—a society that occupies the same position relatively as our North American of this country. Mr. Pender is father of Mr. W. S. Pender, who has written more or less for GLEANINGS, and through whose instrumentality queen-bees are admitted by mail to all parts of Australia. Mr. Pender goes with us to-day, Oct. 11, to the big convention in Chicago. It is not often that our society has been honored by the presence of so distinguished a delegate from so distant a country. We hope to have more to say in regard to bee-keeping in Australia, as we gathered it from some very pleasant conversations. Oh, yes! we are also honored with a visit from Mr. Karl Rudolph Máthey, of Keszmark, Hungary. Mr. Máthey is a German bee-keeper of no small note, and is thoroughly well versed in apicultural subjects for the whole world. Although he speaks several languages, he can not converse in English; but our old standbys, Mr. Borger and W. P., managed that part admirably, so our conversation has had to be carried on somewhat in the form of a triangle—Mr. B. and W. P. forming one side, Mr. Máthey another, and we forming the base. But we hope to have more to say in

regard to both of these friends who have visited us, and also in regard to apiculture as now carried on in their respective countries.

ALTHOUGH we had a little tilt with "The Stinger," in the last issue of the *American Bee Journal*, we can not refrain from complimenting him on some of his bright sayings. Sometimes they sting, but more often the effect is more pleasant than otherwise. Here is a sample:

Away "out West," where grow big mountains,
And "rocky" hills with cooling fountains,
There wanders a man who pictures "scenings,"
In a beautiful paper that is known as GLEANINGS.
The fellow's quite "queer" though not a gambler;
He's neither a bachelor—just simply a "Rambler."

Here is another:

Doolittle, Root, and Miller have an argument under way in GLEANINGS concerning the respective merits of wooden and wire paddles for "shooting" bees on the wing. It looks as if one side had been used to wielding baseball bats and the other tennis bats, the latter being much like the wire paddles used in killing obnoxious bees. "Paddle" your own canoes, boys, and may the best man win.

We suppose The Stinger means that Doolittle is the one who wields a baseball bat, and that Miller and "us" are the fellows who wield tennis rackets. Yes, and here is another equally good:

Doolittle's perennial little advertising man is "always on the square," as I suppose Doolittle himself is. But the poor little fellow has been compelled to support himself so long in a perpendicular position that he must have become tired of the vertical attitude, and, as a relief to his vertebra, he has assumed a horizontal position. (See advertising, page 288 of this issue.)

THE last report from the Michigan Experiment Apiary, on the use of foundation in the brood-chamber, is an exceedingly valuable one—the more so as the experiment was conducted so carefully, and with such elaborateness in detail. Mr. Taylor, it seems, hived four normal swarms on frames of empty comb. These he called group A. Group B consisted of the same number of swarms hived on full sheets of foundation; and group C, four swarms on starters only. The result of the whole experiment is boiled down so well by Mr. Taylor in the last paragraph of his article in the *Review*, that we can do no better than to give it here:

If, then, we may trust our tables, they show for the last half of the summer honey season: 1. That for profit, foundation in the brood-chamber for swarms has a decided advantage in point of surplus comb honey over both drawn comb and frames with starters only; that drawn comb stands second and starters third. 2. That in point of total gain in both brood-chamber and surplus, the same order holds, and to nearly the same extent. 3. That fairly strong colonies show a very decided advantage over light ones in point of comb-honey surplus, and also to a small extent in the total gain. 4. That light colonies sustain their rate of gain in all cases better than fairly strong ones. 5. That swarms on starters only, sustain their rate of gain decidedly better than do those on comb or on foundation. 6. That of the light colonies, those on starters are decidedly more profitable than those on either comb or foundation. I ought to explain here that each swarm was hived on a brood-chamber equal to that required to hold five L. combs.

If we understand Mr. T. correctly, the result shows that full sheets of foundation give a decided advantage over the two other conditions in point of comb honey; but our friend Mr. Hutchinson seems to think that the starters may be, after all, the most profitable, because the light swarms gave the best results when hived on starters, while the heavy swarms gained on the others from the start. From this he argues that, if the flow had been continued

for a considerable length of time, it would be fair to assume that swarms with starters would give the best results; but with most of us there is only a short honey-flow of from three to four weeks; and therefore we are of the opinion that a majority of the bee-keepers would secure better results with full sheets of foundation.

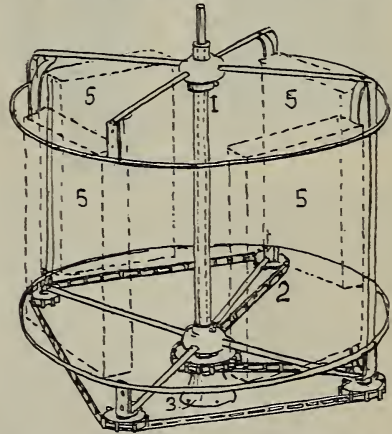
We hope friend Taylor will try this experiment again another season, for different years may modify results somewhat.

TRADE NOTES.

AN AUTOMATIC REVERSIBLE EXTRACTOR; A SUGGESTION FOR THE FOUR AND SIX FRAME COWAN EXTRACTORS.

Some time ago a correspondent wrote us that he had an improvement on the manner of reversing the baskets to the Cowan extractor. At our request he furnished us a drawing and description, which we herewith present to our readers.

Mr. A. I. Root:—In answer to your request I will try to explain to you the working of my extractor in connection with your new Cowan, a cut of which I find on page 364 of GLEANINGS. The only difference between that and mine is this: Instead of the solid shaft running through the hubs of the reel, mine would be a ½-inch gas-pipe, as long as the reel is deep. Through this I put my shaft, a size that will play easily through the hole in the pipe, the shaft to be a few inches longer than the tank is deep, with a socket secured in the bottom of the can, for the lower end of the shaft to revolve in. On this shaft, under the lower hub of the reel, at the prop-



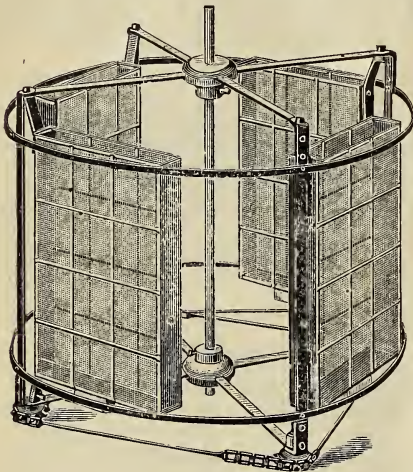
er height, I fix with a set-screw a sprocket-wheel about twice as large as the ones on the lower ends of the basket-shafts. An endless chain connects the basket sprocket-wheels and the sprocket-wheel around the center-shaft (as per drawing), with the crank on top of the shaft (to reverse the baskets, reverse the motion). Of course, every sprocket-wheel would want to be held in place by set-screws, so as to adjust every basket alike. There you have the best reversible extractor that it is possible to make. If the chain and wheels could be placed on top of the reel without interfering with putting in the frames I think it would be much better, as it would bring them up out of the way of the honey. I think you will be able to get my ideas with the description I have given you, with the aid of the rough drawing of the chain and wheels which I inclose. The center-wheel, piece of pipe, and a little longer chain, would be the difference between my machine and yours.

My extractor, which I have used for two years, is a home-made affair. I made the sprocket-wheels of galvanized iron, over which I run a small steel wire chain, such as we buy at the hardware store for halters. I think it would work as well as the regu-

lar link belt, if we had wheels to match, and be much cheaper. Every one who has seen my extractor work pronounces it a success.

San Jacinto, Cal., Aug. 29. J. H. DUSTIN.

To save the reader the trouble of looking up the cut on page 364, we produce it again here, in order that the comparative difference—or, rather, that the improvement itself—may be more clearly understood by comparison. As our correspondent states, the two extractors are exactly the same, except that reversing the crank in Mr. Dustin's extractor reverses the baskets; while in the regular Cowan, one hand catches one of the baskets while the reel is revolving, retards its outer edge, causing its other surface to be turned to the other side of the cau. As the baskets are all connected together they will all move at the same time. Now the question might arise right here, "Which extractor will reverse quickest, and



with the least trouble?" It will be admitted, we think, that the regular Cowan has fewer parts, and is more substantial; and if it can be reversed as quickly, it would have the preference. There is no doubt that friend Dustin's plan will work; indeed, for a crank-reversing device his principle is superior to and vastly ahead of any thing else of the kind. But, we ask, is crank-reversing necessary when the work can be done in a far simpler way, with less cost and without loss of time? As long as the operator has two hands—one to turn the crank—we can not see that Mr. Dustin gains any thing. On the other hand, he loses in the cost of extra reversing gear. And again his crank-reversing device would, it seems to us, take more time to reverse, for the reason that the reel would have to come to a dead stop. The inertia of the reel in motion would have to be entirely overcome, and the inertia of the reel at rest would have to be again overcome, all of which would take time; whereas, by the plan used on the regular Cowan, the reel does not have to come to a standstill at all during the reversing process.

We could make for our customers either form of extractor. The Dustin crank-reversing gear would, however, cost about \$10.00 more for each machine.

Apiculture is a subject I have been trying to learn about. I went to Harper Brothers, thinking they had matter on the subject. They sent me the *American Agriculturist*, where I found three works, our A B C among them. It pleased me most. I bought a copy, and have read a good part of it

This took place two days ago. I would not take \$50 for the book and be without it. The classification is complete; the information is general and to the point, and the Christian spirit manifested in the management of your work delights me.

Brooklyn, N. Y., Aug. 28. MRS. N. J. ASHTON.

Books for Bee-Keepers and others.

Any of these books on which postage is not given will be forwarded by mail, postpaid, on receipt of price. In buying books, as every thing else, we are liable to disappointment if we make a purchase without seeing the article. Admitting that the bookseller could read all the books he offers, as he has them for sale, it were hardly to be expected he would be the one to mention all the faults, as well as good things about a book. I very much desire that those who favor me with their patronage shall not be disappointed, and therefore I am going to try to prevent it by mentioning all the faults, so far as I can, that the purchaser may know what he is getting. In the following list, books that I approve I have marked with a *; those I especially approve, **; those that are not up to times, †; books that contain but little matter for the price, large type, and much space between the lines, ‡; foreign, §. The bee-books are all good.

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