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GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.

ILLUSTRATED SEMI-MONTHLY

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PROPOLIS, according to S. A. Deacon, in GLEANINGS, is just the thing for grafting-wax.

CELLULOID is used in England for quilts, and is well spoken of; also in place of zinc for queen-excluders.

"THERE ARE SOME who think it necessary to renew brood-combs every 12 or 15 years," says G. M. Doolittle, p. 887. Friend D., some authorities across the water insist on every four years or less. I agree with you in believing in combs 50 years old.

THAT FOUL-BROOD CURE of Editor Simmins, given on p. 878, is almost the same, you say, Mr. Editor, as the starvation plan. There is this very important difference, that in the Simmins plan the brood-combs are all saved. [What I meant was that the principle of cure was the same.—ED.]

M. CUVILLIER reports in *Bulletin de la Somme* that he made an Italian and a black colony swap places. The black queen was killed and the Italian unhurt. The same thing occurred in three different trials. According to that, blacks accept a strange queen more readily than Italians.

YOUR CLASSIFICATION of points for bees, Mr. Editor, is good: 1. Ability to get honey; 2. Good wintering ability; 3. Disinclination to swarm; 4. Good temper; 5. Good color. Possibly some other points ought to come in and shove color lower down, as whiteness of surplus combs. I rather think I'd want 2 and 3 to change places, making non-swarmer come next after honey-getting.

SOME THINK that it is not necessary to quote scripture verbatim. Possibly that might do if every one had a perfect understanding of the meaning of scripture. As it is, it is risky to give any thing but the exact words, and the contrary belief caused the learned Prof. Wiley to make a slip in Philadelphia, when he spoke of the Bible saying man can not live by bread alone. The Bible says nothing of the kind. It says, "Man shall not live

by bread alone." It says, "Thou shalt not steal," but it would be misquoting to say, "Thou canst not steal."

BROTHER A. I., you've used more than two good pages of GLEANINGS trying to show up frauds, but they'll go right on; for, in spite of all you can say, people will be humbugged—want to be humbugged. But don't be discouraged; once in a while some one will listen to what you say, and it's hard to estimate the good you may do in that way. Besides, it makes good reading for the rest of us.

ISN'T THAT PLAN of tacking a piece of section on a super to mark it, as given by Wm. Muth-Rasmussen, p. 884, better than my plan of penciling on top of sections? When cleaning sections, Philo grumbled no little at my pencil-marks. [The use of section-strips for the purpose of holding records of particular colonies is a very common practice; indeed, it seemed to me almost universal in my travels among bee-keepers over the United States.—ED.]

TO MOVE BEES a short distance, here's a plan E. R. Jones gives in *Southland Queen* that has a promising look: Choose a day that will be so fair that all the bees will fly (but not in a heavy honey-yield); close the entrances with wire cloth before a single bee has left in the morning. An hour or two later they will be very uneasy, and then move them as nearly as possible at the same time, disturbing them enough to make them fill with honey; then open up all at the same time.

SPEAKING of "cross or snappy" bees, while great industry and great gentleness may unite in the same bee, I'm sorry to say that the rule is that, when I find extra good workers among my bees, they're of the "cross or snappy" kind. [There are exceptions to all rules; but it seems to be the experience of the majority of bee-keepers that honey-getting qualities are very apt to be combined with crossness—yes, generally so. This is partly explainable from the fact that very strong colonies that are prosperous in every sense of the word are more "touchy" than weaker ones, and it is the strong colonies that get the honey. This is something on the principle that a big powerful nation with its millions of in-

vestment in battle-ships, armies, and army equipments, is more inclined to bluster than one that is not blessed (or cursed) so much with war equipments.—ED.]

RUMMAGING over the past, I find a question by the "picker" of *C. B. J.*, that I never answered. He wants to know whether a small cluster will not stand freezing if its space is proportionately reduced. Friend Heise, take a box holding a cubic inch, fill it with any proportion of bees and stores, keep it at zero for a week, and see how many bees will be alive. And I suppose they'd be just as dead if the box held 100 cubic in. and was filled.

WM. MUTH-RASMUSSEN, may I guess what your queens are doing in supers when they don't lay there, as mentioned page 884? In most cases they're looking for drone-cells. If you have sections filled with foundation, then they find no drone-cells there; but if you have only small starters in sections, then I've missed. I've known a queen to pass over a brood-comb that had no eggs nor brood in it to lay in a comb that had drone-cells; and I've known a vacant place in a section to be filled out with drone-comb and not a drop of honey put in it when the rest of the section was filled, apparently waiting for the queen to come up to lay there.

"THE REGULAR T SUPFR is a general favorite with a large class; but within a few years the section-holder arrangement seems to be getting the larger share of patronage," p. 894. Exactly; and why? Because so large a proportion of orders come from beginners, and they take your word that section-holders are best. Honest Indian, Ernest, if you had said during the same years that T supers were best, how do you think the proportion would have been? [The proportion might have been different; but, say, doctor, the T super is not in my judgment nearly as good an arrangement as the section-holder. Would you have me try to "push" a poorer thing for a better? I may be wrong, but, to be consistent, I must advocate what I believe in.—ED.]

"PUT NO TRUST in drugs for the cure of foul brood" seems to be the watchword on this side the ocean, while on the other side there are constant reports of apparently authentic cures by drugs. Is it not possible that, where the disease has long been known, a degree of immunity prevails among the bees? Again, a strong colony with favoring conditions withstands the disease long, while a weak colony with bad conditions promptly succumbs. May it not be that in some cases the bees come so near resisting the disease that the addition of a germicide will turn the scales in favor of the bees? [Drugs may and probably do have a wonderful effect; but in the hands of beginners they are *worse* than useless. The average beginner, in this country at least, had better not fuss with any method but the drugless cures.—ED.]

DR. MASON shortens "odd" into "od," and Stenog (879) wants it "ahd." Say, Stenog, what principle are you going on, anyway? Would you spell "not," by the same rule, "naht"? In other words, would you use

"ah" to represent short *o*? If so, deliver me from such shorter spelling. [Nothing serious, doctor — simply a joke. Yes, the German word "Naht," a seam, is pronounced just like our word *not*. Our short *o*, as in *on*, is continually represented by broad *a*, as in *all*, in my German textbooks. There is no difference between Olive and Ahliv and Awliv in practice. We can make a slight distinction, but do not in common talk (or *kahmon tok* if you please). I would not use *ah* for short *o*, as it is longer; but in point of sound, one is F sharp and the other G flat—no difference.—Sr.]

PUT EMPTY COMBS in moth-proof boxes to freeze, is the advice given p. 890. Never mind the "moth-proof" in this "locality." Mine stay out in hives in the open all winter with free entrance for moths, and after standing thus through the winter it's a rare thing for moths to trouble them the following summer. [Locality! there it goes again. Here at Medina it is necessary for us to render moth-proof hives or boxes holding combs after they are frozen; but in Colorado the situation is entirely different. The moth worm and miller are unknown there. Combs and comb honey may be stored at any time without the least fear of their depredations. Similarly the black bee is not seen in Colorado. Is there any connection between the two, or is it simply because altitude (a mile high) and climatic conditions are unfavorable to the development of the moth-miller?—ED.]

WHAT A FALL this has been! In the last week in November my bees flew four days in succession. Dec. 1 and 2 they were taken into the cellar; and to-day, Dec. 4, it has not been above 25° all day, and the ground is covered with snow. Yes, indeed, I'm glad they're in the cellar.—Dec. 5, 12° above zero. [In and around Denver, during the time of which you speak, there was weather of the shirtsleeve kind — a day with a genuine western dust-storm, another with a snow-storm, followed by weather 10 above zero; but it was remarkable that it was cold and yet it was not cold. It is the low temperature with *moisture* that makes one catch cold and feel chilly; and it is the low temperature *with moisture* that kills the bees. For that reason the Coloradoans winter in single-walled hives outdoors, notwithstanding they probably average as many degrees of cold as we.—ED.]

THE MICHIGAN STATE BEE-KEEPERS' CONVENTION.

The next annual session of this society will be held at Thompsonville, Jan. 1 and 2. Reduced rates on all railroads have been secured, and the very low rate of 75 cts. a day at any of the three hotels, providing that two sleep in one bed. Thompsonville is 100 miles north of Grand Rapids, and at the Junction of the F. & P. M. and C. & W. M. Railroads; and, what is more, it is right in the heart of the willow-herb and raspberry country. The President, Hon. George E. Hilton, is leaving no stone unturned to make this one of the best and most profitable conventions the bee-keepers of Michigan have ever had, and all indications point to the fact that there will be a large attendance. One and possibly two members of the Root Co. will be present—J. T. Calvert and perhaps A. I. Root.



Says yellow bee, "When I was young,
And worked for A. I. Root,
The nicest gift in all my sock
Was a well-formed baby foot.

CANADIAN BEE JOURNAL.

The December number is a beautiful one on account of 16 pictures of prominent Canadian bee-men which grace its pages. The sturdiest-looking one among them seems to be Wm. Couse, and yet in another place I find he has just left the hospital after a long and dangerous struggle with typhoid fever. The first four shown seem to represent the Ontario B. K. A.; the next six, the Brant Co. B. K. A.; the remaining six are connected with the Ontario Agricultural Experiment Union. This is the best showing of bee-keepers I have ever seen in one issue of a bee-journal. Thanks, Mr. Craig.

In my last Pickings I adverted to the fact that Mr. Taylor was skeptical as to the foundation used in contrast with the Weed. Quite in line with what I surmised, Mr. Shaver says:

Critic Taylor, in the *Bee-keepers' Review*, has made some statements regarding my experiment with the old and new process foundation, as written in the *Canadian Bee Journal* and copied by GLEANINGS. He says that the ordinary foundation which I used "has no pedigree." I am not at liberty at present to disclose the name of the manufacturer of the ordinary foundation, not having obtained his permission; sufficient to say, he is well and favorably known among the Ontario bee-keepers, and has a reputation for the production of section foundation. I shall be very pleased indeed to forward a sample of the foundation used, to Mr. Taylor or any others who may be interested. Let me also here state that my experiment was conducted without prejudice, and given out in the interests of bee-keepers.

JAMES H. SHAVER.
Cainsville, Ont.

The question seems to be discussed in Canada, whether the Ontario B. K. Union shall buy the *Canadian Bee Journal*, and run it as an organ of that society, or simply speak through it as a private enterprise. While "locality" might have something to do with such matters, generally speaking a journal is better in private hands. Nothing can be more dismal than religious and political journals owned by large societies.

The printer, by a funny division, makes the writer of Notes and Pickings say, "The production of honey-dew by aphides and other insects is a fact fully established." You mean aph-i-des (*af-i-deez*), Mr. Typo. What wondrous things sometimes *hide* in a little word!

Credited to the Hamilton *Spectator* I find the following:

William McEvoy and E. Dickenson, two enthusiastic bee-men of Wentworth County, are rejoicing over the results of the sale of a big honey shipment they made some time ago to Liverpool. The shipment amounted to 10,000 pounds, and was handled by com-

mission men, the profit to the shippers being about nine cents per pound after all expenses were met.

I infer this was comb honey.

AMERICAN BEE-KEEPER.

Jamaica has 4207 square miles, and is 90 miles south of Cuba. It has a population consisting (1891) of 14,692 white; 122,000 hybrids; 488,700 blacks; 110,116 coolies; 480 Chinese. The country is too small to be a competitor of American bee men. It belongs to England, not Spain. Men's wages is 24 cts. a day; women's, 12 to 18.

Mr. M. F. Reeve gives reasons for spraying grapes at different times. He says the grape-growers have reason to spray when the vines are in bloom. Before growth begins it is necessary to spray in order to kill fungus and mildew growths on the vine. When the leaves start, another spraying is necessary to kill the countless insect enemies that would otherwise kill the leaves. When the fruit begins to set, another spraying is needed to prevent the destruction of the branches. Doubtless there is much in this, and, as Mr. Reeve says, the grape-growers are entitled to a hearing.

Last summer a person writing for the *Am. Bee-keeper* seemed to convey the idea that a tall section is more liable to be broken at the sides than a square one. An explanation from the editor put this in a different light. In answer I asked, "By the way, how should comb honey be served on the table? Some put a little on a dish at each plate, while others put it all on one large dish, and let each help himself. But is not the shape of the whole chunk, as it leaves the section, entirely lost by cutting the comb into smaller pieces? People should be led away from what is a mere whim; but if they insist on the whim, and are willing to pay for it, let them have it." The editorial reply is too good to abbreviate:

"Now, here is another problem into which the matter of "locality" enters with great effect. In the vicinity of Chicago, for example, it appears that a section of honey may very properly be cut and the pieces subdivided, the degree of propriety increasing with each slice, thus reducing the "whole ball of wax" to innumerable pellets of correspondingly less magnitude, while years of life on a bee-ranch, particularly when hot biscuits or pancakes are served therewith, has demonstrated the fact that, with a moderate reserve centrally located on the table, one well-filled section at each plate is quite the proper thing. We have, of course, a few disciples of Epicurus who find one or two sections of nice mangrove very refreshing between meals, but these are the exceptions. Ordinarily one pound of choice honey is sufficient.

That is, in the city enforced economy, under the guise of "style," gives us a cell of honey, or just a taste, while the farm hand is entitled to a whole section—something on the plan of serving coffee in diminutive cups, and half filled at that, and then marking a man as a bore if he, like Oliver Twist, should dare to call for "more."

Mr. Hill, the editor, gives us a fine view of the apiary of John Newton, Oxford Co., Ontario, the boyhood home of Mr. H. It shows an

old farmhouse on the left, an orchard and apiary back of it, and in the distance a river, apparently the Thames, winds along. Here Mr. Hill began apiculture under the teachings of that prince of Canadian bee-keepers, J. B. Hall. Here he clipped his first queen, obtaining his skill at the expense of the drones. Quite in contrast with the above is a view of an apiary at Fort Pierce, Fla. It is one of those beautiful dreamy views so characteristic of that land of romance. To show how far Mr. Hill has traveled, he says that, while John Newton has been caring for his bees at the old stand with monotonous regularity, he himself "might have been seen climbing the foothills of the Allegheny range to see the bees poison (?) themselves with mountain laurel; chasing a runaway swarm among the sage brush up and down the precipitous canyons of California; viewing the broad acres of purple alfalfa bloom in the arid West; standing aghast at the oceans of mesquite which stretch away to meet the horizon of Arizona or Old Mexico; camped in some mangrove swamp of South Florida, testing its producing capacity, or tangled in the bell-flower vines of Cuba's south coast." Mr. Hill says further, "The noticeable inclination on the part of some writers to ridicule the *locality* idea is a clear evidence of limited experience. The young man who looks forward to apiculture as his life vocation would do well to receive his training in the country in which it is proposed to operate."



RAMBLE 179.

Some Practical Appliances for Moving Bees in Hot Weather.

BY RAMBLER.

Our return from the San Gabriel canyon was marked with no unusual features, and again we took up city life; but my mingling with the busy throng was of short duration, for I was interrupted in a few days, and found myself lending a helping hand for the removal of an apiary of a hundred colonies of bees from Cahuenga Valley, near the city, to the mountains of Calabasas, thirty miles distant.

There is a peculiar instance in my traveling companions this time. They are very modest and unassuming men; and, knowing that I am inclined to write about men and things, and particularly about such movements as these, the master of ceremonies desired that I should not mention names. He wanted to just move bees, and not be exposed to notoriety.

Of course, I always try to be agreeable to my traveling comrades, and do comply with their desires, therefore the real actors in the moving episode will appear under fictitious

names. There were four of us — three bee-keepers and a dog. I did think of applying the term "doggoned" to the owner, but for short I will use the more expressive term *boss*. The other man was not over-modest about his name, and the original might appear; but after riding several hours with him I concluded that, through some oversight of his parents, he had been misnamed, and so I give him the name of Mr. Gabfast as more appropriate.

The boss, not having many hundreds of colonies to move, believes in moving in light loads, or in loads of not more than fifty colonies. Mr. Gabfast had a good team, and a wagon with a hay-rigging upon it, and with this about fifty colonies were moved, while the boss took with his lighter rig about twenty; and in order to give Mr. Gabfast and me the full benefit of his style of moving bees he insisted upon making a night journey.

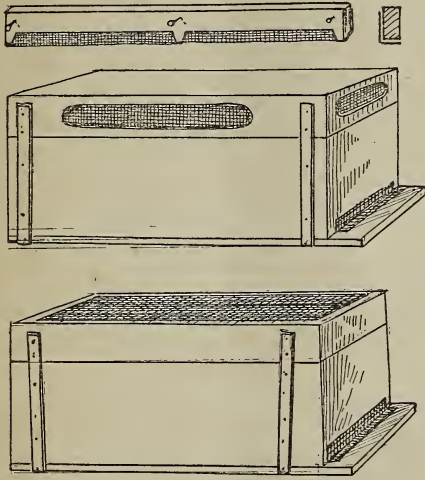
Now, it is a real beautiful experience to move bees while pale Luna is shining down upon us, and all nature is quiet. The reflections of the mind turn inward and backward. But mine didn't. Mr. Gabfast held my attention right down to that load of bees. Now, it is not that I wish to find fault with the boss's method of moving bees, but because I think there is a better way than to move during the dead hours of night. Among other things it deprives one of a proper share of slumber, fatiguing horses at an unwonted hour, arousing all of the ranch dogs, and even disturbing the quiet meditations of the ranch rooster. Bees can be moved just as well by daylight, and the difference is all in the method of moving.

The bees on this occasion were in hives with closed-end Hoffman frames, and there was no need of puttering with spacing-sticks. In fact, a bee-keeper who contemplates much moving of bees should adopt some sort of closed-end frame. Our boss was very sensible in using such a hive. It saves an immense amount of puttering at the outset. The entrances to these hives were of the orthodox order, and clear across the front. Into this long space was thrust a piece of wire cloth cut about 1½ inches wide, and bent V shape the entire length. The spring of the V ordinarily holds the piece from working loose, but our boss took the precaution to drive in a few nails to hold it secure. Screen-wire cloth was placed over the entire top of the hive, with only a bee-space between it and the frames.

If bees are to be moved any great distance in hot weather, and hives are full of bees and brood, when prepared in the above manner they would need to be moved in the night; but quite a number of our bee-men prepare their bees differently, and move at all hours of the day and over long distances. A certain bee-keeper under my own observation in this country moved a large load of bees 60 miles in very hot weather, and at a time when the hives were full of bees and brood, and without the loss of a colony. This success was attained by providing ample space for the bees to cluster or to move freely above the combs. This bee-keeper used a rim just the size of the top of the hive, three inches deep, and covered

with wire cloth, and the entrance covered with the same.

Where there is to be much moving, an entrance ventilator should be prepared that can be put on and taken off rapidly, and that can be laid away when not in use, and not become damaged. The best that has come to my notice is the one used by my night companion, Mr. Gabfast, and made as follows :



Take a good sound piece of pine or any other lumber that is not easily split, $\frac{3}{4}$ inch thick, $1\frac{1}{2}$ inches wide, and the entire length of the entrance, which in this case is the whole width of the hive. Cut out a greater portion of the side, leaving three points as shown in the cut; tack a piece of wire cloth permanently to this, bending the lower portion of the wire cloth to an angle.*

When hives are to be tiered up as was the case with our load, a spacing and holding rack is placed between the tiers, and this gives plenty of ventilation to the under hives.

Another ventilating rim as used by some of our bee-men is made with side ventilation. In this case the rim becomes a box about six inches deep, with a board top, but openings are cut in the sides and ends, and covered with wire cloth. This gives plenty of ventilation, and there is no danger of its being cut off from above.

Then there is still another protection in very hot weather. With the aforesaid ventilation, provide a generous shade — a piece of cotton cloth suspended by a light framework. The air circulates freely under it, while the penetrating rays of the semi-tropic sun are held in abeyance; and still further comfort for the bees is secured by occasionally sprinkling the cloth with water. No one can realize until he has tried it what a soothing effect this has upon the bees. Our boss had such a shade for use in moving, and Mr. Gabfast and I expected that he would order it up when the

* There seems to be something wrong here with the cut, as it does not tally with the description; and having just returned from my trip it is too late to correct it.—ED.

moon came out in its full effulgence; but the boss had so many things to think of that he forgot this one.

Another factor in the moving of bees successfully is the driver. He should be a bee-keeper. No matter how well made the hives may be, or how particular the owner may be in closing them, some little corner will spring loose in a load of fifty hives, and now and then a bee will be discovered crawling around in the night or flying in daylight. If the driver is afraid of bees, there is consternation at once, and a resultant damage to the bee-keeper. I have known a case where nearly a whole load of colonies of bees were smothered from the ignorant panic that possessed a driver. Get a bee-keeper driver by all means. Of course, there was no panicky feeling about Mr. Gabfast; and, even if he was inclined that way, he did not stop talking long enough to allow the panic to get the upper hand.

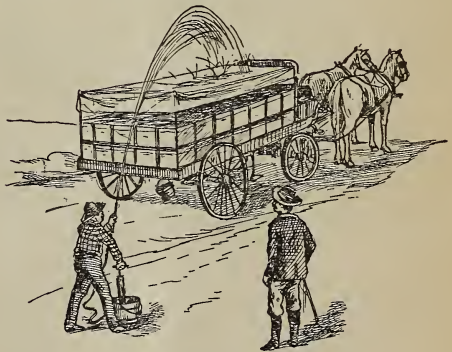
About midnight we passed through the little hamlet of Encinas. The quietness of night and a brilliant moonlight prevailed, and the little one-horse hotel and saloon showed out in strong relief against the hills in the background. Close to the entrance there was a watering-trough, and the boss ordered a halt for the purpose of watering the thirsty horses.

Directly over the trough was a board that bore this inscription: "While your horses are drinking, do not forget yourself."

"Why, of course I won't," said I; and I pulled out a cup and drank the beautiful pure water.

"Why," said Mr. Gabfast, "that sign means that, while the horses are drinking water, you must go within and take a drink of beer."

"That's so, Mr. Gabfast; but if I did I should feel that I was more of a brute than these sensible horses. Water is a good enough beverage for the horses and me."



I noticed that the boss was looking at the notice very earnestly, then at the saloon, which was dark and silent. As he drove ahead he kept sending longing glances to the rear. There was an immense live-oak tree a little beyond this saloon, and the boss suddenly decided to camp under it.

"Why, Mr. Boss, we shall have to drive many miles in the sun if we delay here."

"Yes," said Mr. Gabfast; "the bees will all smother with heat."

"Can't help it, gentlemen; we must camp right here and now."

"That seems to be final, Mr. Gabfast, and we must obey orders. Wonderful, isn't it? what an effect a saloon will have upon some people."

"Yes," said Mr. Gabfast, "and I bet the boss will get back there before we leave camp in the morning. I never saw a man converted so quick from a midnight to a daylight mover of bees."

And, sure enough, the boss had a ready excuse to get back. The horses needed watering again early in the morning. "While your horses are drinking, don't forget yourself." I can not report further, for I did not take one step toward that saloon, and we can only just infer what the boss did.

Contrary to my expectations, we were favored with a high fog all the forenoon; and we safely deposited the bees on the ranch in Calabasas; and while the boss was calling upon the ladies in the neighborhood, Mr. Gabfast and I stretched ourselves upon a pile of blankets, and took a refreshing nap. As a result we felt in trim to have a nice bee-keepers' convention during the long evening.

The boss's cosy cabin, a comfortable fire in the cook-stove, Mr. Gabfast tilted back in a chair with his foot on the upper round, and leg crossed; the boss in a restful position in a rocking-chair, and I in a chair with feet elevated upon a box, the dog snoring under the table, all made a free and easy picture found only on a California bee-ranch.

I told my audience how the bee-keeping industry was to be revolutionized in a very short time; and as it is a very important revolution I will reserve an account of it for the next ramble.

WATERING BEES.

A Cheap Method of Giving Bees Water.

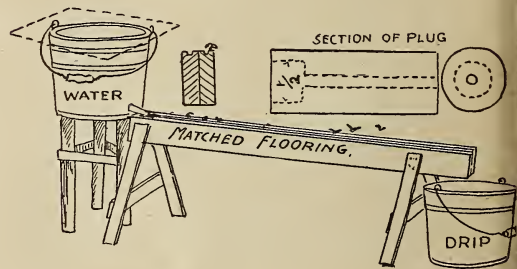
BY MORLEY PETTIT.

The question of water has, until lately, been considered of minor importance. Few apiaries are situated more than half a mile from water accessible to the bees, and many think this enough. Here we are not satisfied with this, however, for several reasons. In the first place, unless there is water in or very near the apiary the bees lose much time in carrying it. During the honey-flow, when breeding is heaviest, they require most water. It is then that their time is precious, and they must be relieved of extra work as much as possible. Two or three pailfuls will provide a hundred or so colonies with running water throughout the hottest day. This can be brought in spare moments, and will save the bees many trips. In early spring, water placed in a sunny sheltered place in the apiary will be used by the bees on days when the wind is too cold for them to venture far. In this way the brood will get water regularly, and be kept in a healthy condition at a time

when it needs most care; i. e., in chilly weather. If water is not convenient on such days, many bees will be lost in attempting to bring it from a distance, and spring-dwindling will be greatly increased.

Second, bees often get water from impure sources. Barnyards are often more convenient, or seem more to their liking, than running streams. Standing water tends to become impure as the summer advances. Troughs, boards, stones, reeds, or whatever the bees rest on while drinking, are rendered foul by the droppings of the bees. This filth is carried in solution to the hives, and fed to the brood. This must be injurious, for, since using our present device for watering, we have had much less trouble with dead brood.

Third, many bees are lost by drowning where no suitable place is provided for them to drink. At any pond or trough where bees come for water a number of unfortunate ones will always be seen floating about in the water. I have never watched bees along the margin of a lake or river, but I imagine many must be carried away by waves or current. This, of course, is a drain on the strength of



the hive when every worker is needed. It is also very annoying to stock coming to the water to drink.

Fourth, it is the easiest way of giving salt. By long observation we have become convinced that bees desire and require a certain amount of salt. If they do not get it in pure water they will get it elsewhere. Moisture about barnyards, stables, and water-closets attracts them. They seem to prefer such water, which contains salt, to pure water which is fresh. We have always given a teaspoonful in a pail of water; but this summer my father tried giving more, and found that the bees took the water fully as well with three teaspoonfuls as with one. About a teaspoonful seems to be the amount generally given, however.

For artificial watering, some use an open dish containing water. Sticks, stones, straw, corncobs, or cloths are placed in the water to prevent bees drowning. Others use a board laid flat on the ground, with small transverse grooves cut in the upper surface, and connected in such a way that water can run from one to the other. A fruit-jar filled with water, and inverted over the center of the board, keeps the grooves filled as long as any water remains in the jar. We used this device for several years, and found it quite successful;

but as there was no current to carry away droppings it had to be washed out several times daily.

What we have found to be the most complete watering-place is made from a wooden bucket, a piece of matched flooring ten or twelve feet long, and a few stakes. With an inch auger, bore a hole in the side of the bucket as near the bottom as possible. Take a piece of pine and trim the end until it just fits the hole water-tight. Then bore a hole in the end, half an inch across, and an inch deep. In the bottom of this hole make a gimlet-hole, also an inch deep. Now saw off this two-inch piece. This gives a round piece of pine, one inch in diameter and two inches long, having a hole through it lengthwise half an inch at one end, and about the size of an ordinary nail at the other. Use this to plug up the hole in the bucket, putting the end with the large hole in first, and allowing the other end to project for a spout. A nail placed loosely in the gimlet-hole will regulate the flow. Drive three stakes in the ground to form a stand. Set the bucket on these, and a shade-board will complete the fountain.

The piece of flooring placed on edge with the groove up is the trough. Have one end slightly elevated to give a good fall, and allow the water from the fountain to drip into the higher end of the trough, and run along the channel. The whole should be high enough so that a pan or pail can be set to catch the water as it flows from the lower end. Allow the water to flow freely enough to make a good current along the channel. If the bucket and trough are thoroughly washed every morning the current in the channel will provide the bees with clean water all day.

Belmont, Ont., Sept. 9.

COMB FOUNDATION IN SECTIONS.

The Great Advantage of Full Sheets; Importance of Accurate Trimming of the Sheets; How to Fasten.

BY R. F. HOLTERMANN.

In my experience and travels among Canadian and United States bee-keepers I have found quite a few differences in the general methods adopted by the two countries; and in an occasional article which I may find time to write in connection with the new work in which I am engaged I may make reference to some of these differences.

In Canada I know of no well-known comb-honey producer—one whose goods rank as the best produced in the country—who does not use full sheets of foundation in the sections. There may be seasons when the bees will fill a section with a starter as well as a section with a full sheet of foundation; but the successful bee-keeper must lay his plans and prepare his supers and equipments in such a way that the bees can get the best results under all circumstances.

I have made tests with full sheets, starters, and no foundation, in sections in the same su-

per, and with a moderate flow the bees have completely filled all the sections with full sheets of foundation when they had not built a cell in the sections without foundation, and very little more than the foundation in the section with the starter; and from experience and observation I know that this was not an isolated case by any means. Almost any one of experience can tell by the finish of the section whether the bees had a starter or a full sheet to begin on.

I am also firmly convinced that, with full sheets of foundation in the sections, other things being equal, the bees enter the sections more readily, and are less likely to swarm without going into them. This is of immense advantage in the production of comb honey.

A great many are not careful enough in putting comb foundation in the sections. The best and most accurate machinery is none too good in doing this. Take two bee-keepers living side by side, with equally strong colonies, and in other respects on an equal footing, and a little difference in the putting-in of the comb foundation may put one so far behind in the race for a prize that he can never catch up.

The comb foundation that sags the least, and the lower edge of which the bee-keeper knows where to find after the bees have been on it for some time, is the best. With section comb foundation the matter of sagging is not so important; but the Weed process has the least tendency to sag, and I have never made any allowance for this in sections.

The comb foundation needs to be cut absolutely true and accurate. It needs to be of a width that, when suspended in the section, it just hangs clear of the sides; and at the same time, having accomplished that object, it has the least possible amount of room between the edge of the foundation and the side wood of the section; and at the bottom the distance can be a little greater, but it should not be enough to give the bees much thought as to the possibility of being able to pass through.

What is the object of this? If the foundation binds on the sides of the section it is likely to be thrown out of true, and buckle it. As long as this is not done it can not be too close. By being near the wood the bees readily attach the foundation: when further away they not only do not attach it as quickly, but they are likely to gnaw it away and make permanent openings for themselves, which injure the appearance of the comb.

Having seen the argument used as to the value of sections well filled, let me say they have in this country, at least, a very practical advantage over sections not so well filled. Of large quantities of comb honey shipped long distances, when properly packed, I have yet to receive a report of broken-down sections being well attached and the comb well filled to the wood. In case of a jar or fall, the strain is not on the fragile comb between the wood, which can not give, and the weight of the comb and honey. Next, a well-filled and even section sells more readily, and will often bring a higher price in the market. The former alone is a very decided advantage; besides,

what a pleasure there is in doing a thing well, and seeing good results from it! How natural it is to follow such a success up with further efforts! This is all right and proper within bounds, and with a proper object; but if it is done with the object of being able to glory over the defeat of others, it would be better for our spiritual welfare if it had never been undertaken.

Those using only starters in sections, especially if the honey-flow is only moderate, will have sections not so well filled and joined to the wood, and the bees will be slower in doing it. Next, it never looks well to have two kinds of cells in one section; and where a starter only is used, the bees are very likely to finish the section with drone comb.

Many will experience a difficulty in putting foundation into sections accurately. There may be better ways of doing it, but I know of no better way of doing it than with a hot-plate machine. In the one-piece section there is a difficulty in connection with putting in well-filled sheets of foundation. When the hot plate is shoved in, and below the top-bar of the section, the foundation then pressed up against the plate, a little of the sheet must be melted. The foundation is then brought up against the lower surface of the top-bar of the section. In this process with the sheet against the bottom of and in the center of the bottom-bar of the section, when the hot plate has been withdrawn and the foundation has been pressed against the top-bar of the section, it must be removed from the bottom-bar of the section a distance at least equal to the thickness of the plate and whatever was melted away from the wax sheet. This is too much to get the best results.

The difficulty can be overcome by placing the board inside the section upon which the foundation rests at an angle, so as to carry the foundation next to the bottom-bar; beyond that bottom-bar the angling position alone gives added room; and when suspended from the top the sheet readily assumes a perpendicular position; and as it does so it nears the bottom-bar and closes the space. With a four-piece section the better way is to fasten the foundation into place before the section is put together. When all is in working order by this method, about 45 sheets of foundation can be attached to the top-bar of the section in a minute.

Brantford, Canada.

ABOUT THE SMOKER.

Ink Dropping from the Nozzle, Caused by What? Hinging the Nozzle of the Crane Smoker.

BY F. GREINER.

The controversy in regard to inky fluid dropping from the nozzle of the smoker makes me think of a certain question one of our teachers asked us boys once at school. From our window we could often see the cars passing by, and on one occasion the teacher said to us, "Which one of you can tell me what it

is that comes from the smokestack of the engine?"

"Smoke, of course," said one.

The teacher shook his head. Another boy, after a while, said, "Steam;" but the teacher again shook his head. It was a puzzle to us. At last one of the bright ones called out, "Smoke and steam both," at which answer the teacher smiled and assented.

It is steam and smoke coming from the smoker's nozzle, and the two together seem to form a union, in part condensing in the smoker, filling the nozzle partly with that objectionable accumulation, and, when it comes to the worst, even dropping "ink," a very undesirable substance when coming in contact with our clothing, our hands, or the hive-fixtures. It is the amount of surplus moisture that causes the latter unpleasant feature. The ordinary amount of moisture does little harm, and is absorbed and evaporated. This surplus moisture does not, however, all come from the fuel one may use, I think. It comes also from the atmosphere, which is always more or less charged with it, and I believe the greater part of all the moisture causing the trouble in the smoker is due to this moisture as it is blown by the bellows into and through the fire-box. When I first commenced bee-keeping I had no bellows smoker, and so I constructed a little blowpipe from a tin pepper-box, etc. It proved to be a handy tool indeed in some respects. Both hands were always free to use in manipulating, and at the same time smoke could be administered when necessary. I am quite partial to this little smoker, and I would use it to some extent to this day if it did not have this very annoying feature of dropping this inky liquid in a much intensified measure, owing to the fact that the air, as blown into the fire from the lungs, is much more abundantly charged with moisture than the air we breathe or the air the bellows uses.

At the time, I experimented a great deal with my little smoker, to overcome, if possible, that bad feature; but the condensing would take place at the extreme (and hence naturally the cooler) end of the tube which carried the smoke, etc.; and all my efforts to catch the disagreeable fluid in a separate little cup proved futile.

Since I have adopted the bellows smoker I have had no trouble whatever with "ink" when good fuel was used. Pine sawdust or planer-shavings I regard as the poorest material, filling up the smoker quickly with accumulations, and causing ink to drop. Generally speaking I am not very exacting as to what material I do use as fuel, but make use of the things that are handiest; for instance, planer-shavings, sawdust, and the like; rotten or half-rotten wood; chips and old quilts and phosphate-sacks; but I do not consider it essential to keep fuel for several years to have it as dry as Mr. Taylor prefers. Rotten maple or elm wood or partly rotten wood may be dried sufficiently inside of two or three weeks by exposing to wind and sunshine if taken indoors every night and during rainy weather. So treated it is soon fit to answer as fuel for the smoker, and there will be no ink dropping.

The accumulation in the nozzle can not be overcome with the dryest fuel, and must be removed from time to time. A clean smoker works more satisfactorily for me.

Now, Mr. Editor, allow me to say another word or two on the subject of the smoker. I should like to suggest a slight change too. Some six years ago I bought of The A. I. Root Co. a Crane smoker. This I have used since, extensively and exclusively. I have taken it to the out-yards with me; it has been used rather roughly some of the time. It has been the only smoker I had in use, and it is still doing a good business, although the nozzle is getting to be very weak and poor. Last winter I bought six Cornells, and they work very well too, but I do not like the way the nozzle is hinged. Of course, you observe the hinge on the Cornell is on the opposite side from what it is on the Crane. The reason I object to this is, we sometimes rest the nozzle on the edge of the opened hive when blowing smoke in between the slightly raised honey-board or quilt and top of the frames. The pressure or weight is quite often sufficient to cause the smoker to come open, occasionally even letting the fire fall out. If hinged the other way the tendency in this case would be to crowd the two parts rather more closely together, and that would, of course, be preferable. I am in favor of having the hinge opposite the bellows. A corrugated shield would also suit me better.

Naples, N. Y.

[We formerly had the nozzles of all of our smokers hinged in the way you seem to prefer them. There are two objections. One is, that the nozzle falls back against the fire-cup, denting it; and the second is, that when the smoker is being filled the blaze from the burning fuel will very often shoot out at the top and burn the bellows and the fingers. I presume the great majority use planer shavings—just the very fuel that you condemn; and it is this fuel that blazes and causes trouble with the bellows when the nozzle is hinged opposite.—Ed.]

THE HIVE QUESTION.

Why Large Hives are Better for Extracted Honey.

BY L. STACHELHAUSEN.

Some time ago the best size of brood-chamber was discussed very thoroughly in GLEANINGS and other bee-papers, so the matter will seem stale to many readers; nevertheless, I hope it will be interesting to have a summing-up and a more scientific explanation of it, which I will try to give.

We know the bee is 3 days in the egg form, 5 days open brood, 13 days capped brood, 2 days it is not able to work, 16 days does house-work, and about 16 days field work. If the number of eggs laid daily remains the same, we can figure how many young bees are in the hive, if we know how many eggs are laid daily. In this case the colony will remain the same—that is, as strong or as weak as before. An

increase of the population is possible only when the number of eggs laid by the queen is increasing; and if this number is diminishing the colony will become weaker. This is important, because, if the population of a colony would remain the same, it would in most cases, during the time when no honey can be gathered, consume what it had stored during the honey-flow.

In fact, a good colony increases the population from early spring up to the honey-harvest, then the colony is getting weaker. In the fall, if some honey can be gathered, a new short increase of the brood can be observed; and in winter, breeding is stopped entirely.

If it is our aim to have as many bees as possible for the harvest, and as few consumers as possible when no honey is coming in, it is only one way to attain it in a given colony; and that is, to increase the number of eggs laid daily by the queen up to the honey-flow, and to the greatest extent. Now it is said, "Why overwork this queen? Two queens would easily lay the same number of eggs." Well, suppose we have two colonies in spring quite alike, covering 8 L. frames. One of them is in a large and the other in a small hive. In my locality the bees have generally commenced brood-rearing Feb. 1, in all my hives. The honey-flow commences at the end of May. For this it is desirable that the queen reach her highest egg-laying capacity about May 1. Consequently we have for the development of the colony 82 days—that is, 4 breeding-periods of 21 days each. If the queen commences egg-laying with 200 eggs daily, and doubles this number in 21 days, we have 400 eggs Feb. 21; 800 March 14; 1600 April 5, and 3200 April 26. For the honey harvest we have, then, 108,000 bees in this hive.

Now, suppose we have the same colony in a hive so small that the queen is cramped as soon as she lays 1600 eggs a day, because she does not find more empty cells, or for any other reason can not lay more eggs. It is plain that from this time on the population of the colony can not increase any more, and we shall have 54,000 bees for the harvest; consequently the colony can gather only half as much honey as the other one.

Here comes in another point which is of less importance. We have reached the highest population in the large hive May 17, when the honey-harvest commences. In the small hive, from April 26, the colony will remain the same; consequently the largest possible population is reached at a time when it was not necessary. In these 21 days 43,600 eggs are laid, and just as many bees die, and are raised without any profit for the colony; they are consumers just as well as the bees raised after the honey-flow. Nature has a remedy for this, but this belongs to another chapter.

During the honey-flow the brood in both colonies is restricted; in the large hive, where we have an overworked queen, probably more so than in the small one. This is a desired condition for the honey crop, because comparatively less brood is to be nursed, and a part of the young bees can build combs and

store honey ; but it may be undesirable for comb-honey production, and we will speak of this afterward.

When the honey-flow ceases, the colony in the large hive will not be stronger than that in the small hive ; and this equality will remain till the end of the spring development. The consumption is theoretically the same in both colonies in fall, winter, and early spring; but during the last 21 days of development one colony kept up the same strength, while the other one doubled its population.

If, in fact, the development of the brood does not occur in this restive way, and if many other influences change the outcome, this will not change the value of the proof. I think I have explained the reasons for the advantages of large hives and prolific queens.

The locality has some influence in this matter. If the main honey-flow is very early, the colony may have no time to develop to such a degree that the queen can lay to her fullest capacity. In this case stimulative feeding in the fall is recommended, to have very strong colonies in early spring. By that not much seems to be gained by strong colonies and large hives, if we do not admit that strong colonies consume less, comparatively, in winter, sometimes even absolutely less than a weaker colony.

If the main honey-flow is very late it is probable that the queen, long before, has reached her highest egg-laying capacity, and the colony may be even weaker, when the honey-flow commences, than it was some time before.

As long as the queen increases the number of eggs laid daily, the number of young bees is increasing also. If suddenly the egg-laying remains stationary, or is diminishing, the number of young bees will still increase during the next 21 days ; consequently we shall have a surplus of young bees compared with the open brood, and this causes the swarming impulse. To explain this scientifically would take too much space here. This swarming impulse appears as soon as the queen reaches her highest egg-laying capacity, be this caused by crowding her in a small brood-chamber or by the limit of her fertility. This is the reason why small hives swarm more and earlier than large ones.

With a late honey-flow and small hives the colonies will swarm before the honey-flow commences, and now every swarm and every old colony undergoes a new progressive development. This explains why under some circumstances the swarm and old colony will give more surplus honey than a colony undivided. A locality with very late honey flow requires quite a different hive and management from a locality having an early honey-flow.

The problem is, always to keep the colonies in a progressive development till the main honey-flow commences, and at this time we shall attain the most strength. The more population we gain in this time the better for the honey crop. During the honey-flow it is necessary to have as little open brood in the hive as possible, for two reasons : The bees raised from this brood are of no use for this season ;

and, second, if the bees have less brood to nurse, more bees can engage in other work.

WHY ARE SMALL HIVES PREFERABLE FOR COMB HONEY ?

Most comb-honey producers say the eight-frame hive has given them more surplus honey than a larger one by their management and in their locality. This seems to be in contradiction to our researches in the foregoing, and needs an explanation.

With the beginning of the honey-flow we set the section-supers on top of our hives; and the main difficulty now is to force the bees into the sections and to induce them to commence work in them. If we can not do this, at least some days of the best honey-flow are lost — may be the entire crop. For this purpose the brood-chamber must be in a certain condition :

1. No empty cells should be in the brood-chamber, because they would be filled with honey ; and if the bees have started to carry honey into the brood-nest they become accustomed to it and refuse to go into the sections (Doolittle).

2. If possible the brood-chamber should contain brood exclusively; especially the frames should be filled as near to the top-bar as possible. This needs no explanation.

A large brood-chamber can hardly be in this desired condition. In a very good honey-flow the bees will work in the sections nevertheless; but generally they do not. Dadant recommends two methods for getting a large brood-chamber in proper condition :

1. From early spring, empty combs are given to the colony ; by and by, as soon as more room is needed for the brood, the brood chamber is always contracted to the space the queen can occupy.

2. At the beginning of the honey-flow the brood-chamber is contracted to as many frames as are needed for brood.

Both methods did not work satisfactorily with me. The first one is, in fact, the same as recommended by Doolittle. If we want the frames full of brood, the queen must be always crowded. I can not see how Dadant can get more brood than Doolittle by the same management, if the brood-chamber is in proper condition. In fact, in this case he will have a large hive, but will not avail himself of its advantages.

The second method has the disadvantage that the brood-combs are not in proper condition. Every comb may contain empty cells, brood and honey on top, which combs we always select for the contracted brood-chamber. This will not be the desired condition.

Both methods have the disadvantage that some of the sections are over the dummies and not over brood. If the colony has really developed in the large brood-chamber to its fullest extent, the queen will be overworked and will probably not lay as many eggs; as yet some cells will be free for storing honey in them. This state is favorable for the amount of honey stored; but the brood-chamber is unfit for the production of comb honey. This I have mentioned already.

With so-called double-deckers a very large brood-chamber is used at the right time. When the honey-harvest commences, only one story is used; that is, the brood-nest is contracted, and thus we have the advantage that the top surface remains the same; but I think we shall hardly find the brood-combs in the right condition to force the bees into the sections.

With a small brood-chamber the queen has never before used her full powers, and is always eager to lay in every empty cell; consequently the brood-chamber will probably be in the desired condition. Because in a large hive the bee-keeper can not get this desired condition, he sacrifices the full development of the colony and the advantages of it. This reduces the honey crop to a smaller extent than a brood-chamber in a wrong condition.

It is well known that in the production of comb honey we have the least trouble, if we use swarms, if they come out at just the right time — that is, at the beginning of the main honey crop. If a colony swarms before this time, neither swarm nor the old colony will be in proper condition for comb-honey production when the main honey-flow commences. How a swarm is used if it issues during the honey-flow is known as Hutchinson's method. Hereby, too, we need small brood-chambers; first, to start the bees of the parent colony into the supers; and; second, to get the swarms at the right time, because large hives would not swarm at all or else too late. By this method the swarm is hived in a contracted brood-chamber; but this has no bearing on our question, because we see the advantages of large hives in the season before the honey-flow.

If a large hive in spring means more surplus extracted honey, and for any reason we can not use this advantage for comb honey, it is a proof that our management is not advanced enough to overcome this difficulty; our problem must be to find out a method by which all advantages are utilized.

I produce mostly extracted honey. Only a few hives are worked for section honey; but for two years I have used a method in accordance with the above theory which I think is worth consideration. In 1898 I got from one hive, managed after this method, 120 filled sections and a number of partially filled ones, while my average crop of extracted honey from the whole apiary was less than 100 lbs. per colony. I will describe this method in my next article.

Converse, Tex.

ALFALFA AND ALKALI WEEDS COMPARED.

BY W. A. H. GILSTRAP.

Few subjects interest bee-keepers more than the flowers by which they are surrounded. We must make a study of the vegetable kingdom to make estimates of our crop before harvest. In the sage counties of this State a practical honey-producer usually forms a fair guess, at least, sooner than is done in this valley in most localities. Most of the San Joa-

quin honey is from alfalfa, and it is a very unreliable source. As a general thing alfalfa produces most honey with water enough to make a fair growth only. Irrigation enough to make a very rank growth is often detrimental to the greatest honey-yield. Of course, a severe drouth is ruinous. Sometimes there is very little honey secreted during one or more months when alfalfa is in bloom, and no certain reason can be assigned. To say "atmospheric conditions are unfavorable" is a vague expression at best, when we can not see or feel the exact difficulty and call it by name.

It would seem that some plant would be desirable to supplement the alfalfa during unfavorable seasons. Frequently that is easily found in the vicinity of alfalfa; it is alkali weed. This may not be the proper name of the weed; but, being a very common man, I use common names when they are not misleading. Many people call it "sticker weed" on account of the small prickles with which it is covered. One apiarist used to call it "yellow top," but has since adopted the name "golden top." As bee-weed, wild sunflower, goldenrod, and many other plants have yellow, more especially at the top, than the weed in question, there is nothing distinguishing in either of these terms. Alkali weed certainly has the claim of popularity for the weed.

It is probably a relative of the Russian thistle, though not a tumble weed. Both commence their growth in cool wet weather, and make some stock-feed early in the season, especially for sheep and cattle. As the weather becomes warm the growth becomes more rapid, the plant becomes woody, and the spines are such as to protect the plant from ordinary stock.

At this point I will drop the thistle, which is getting too hard and thorny for me, as it was taken up only to explain better the honey-plant in question. These weeds frequently grow as high as wheat before the latter is cut, and sometimes prevent its being harvested, as the weeds would decay in the stack. You need not expect much bloom before July or the first of August except on strong alkali land where the weeds are stunted. Then the golden honey is produced until frost or early rain kills the plant. This year was an exception, as the honey failed about Sept. 23, and our first rain fell Oct. 10. Hardly enough frost yet for you to see. In seven years I have known two failures of this source, caused by drouth.

The flavor of this honey is pleasant, not so sweet as alfalfa, classed as amber or light amber by different dealers. It is too yellow to excel as comb honey, and also granulates quicker than some other honey. These are reasons why it is no more sought after by apiarists.

Had Mr. Wilkin (page 750) known the value of these weeds he probably would not have tied up to alfalfa alone, and would have harvested, very likely, from four to seven times the honey which he reports. In some spots near Famoso, alkali weeds sometimes grow; but to see many thousands of acres turn to a

beautiful yellow you had better go further north.

As the weed grows up quite bushy, and is a mass of blossoms resembling wild sunflower in color and shape, and a shirt-button in size, for two or more months, it might seem to be an immense honey-producer, but it is not. Perhaps it would run between 75 and 150 lbs. extracted to the hive all seasons when the weeds grow well. Of course, good management is assumed. As bees will consume probably 100 or 200 lbs. of honey per colony in a year, it is plain to see that we must have some other work for the bees in spring and early summer. But as other honey-producing plants are usually on the same range with it we can get along in that respect.

It is certainly worth something to look at a lot of green weeds in April, and be practically sure that they will make a crop of honey in late summer and fall. I know of no other plant that you can foretell the honey prospects of with such certainty.

From the above it might appear that I consider alfalfa a poor honey-plant. It is the principal honey source in this valley, and is likely to remain so. Mr. Wilkin's report is about as small as you are likely to see. A Los Banos man in the alfalfa-fields made so much money with his bees this year that, to give the figures in GLEANINGS, might give the bee-fever to many. But when we consider that he had 1000 colonies, and they reduced to 850 during the season, his profits do not look so big for a year of high prices. For a locality with a foul-broody reputation, a loss of 150 colonies out of 1000 does not seem strange.

Grayson, Cal., Nov. 9.

SURE OF CROPS.

A Locality Where they Have Them in Northern Michigan.

BY ANTON LEISTER.

Mr. Allen Rice, who lives in Manton, Wexford Co., Mich., a hundred miles north of Grand Rapids, is a farmer and bee-keeper. During a visit to his brother here I got from him his bee experience as follows:

"Don't you have trouble wintering bees so far north?"

"Not unless we are careless, as I was last fall. I had 27 stands, strong, and well supplied with honey for winter. They were all in Simplicity hives. I piled them up in the shop and put cornstalks over them. I neglected to raise the covers a little for ventilation, and lost all but six colonies. They drowned and froze in their own perspiration. Each colony was ready sale at \$5.00, and they would have made me 60 lbs. of section honey in a good season, salable at 10 cts. I now have 18 colonies. Some of the original six spring colonies sent out two and three swarms."

"Do you feed your bees in the fall to stimulate brood-rearing, and to make sure of sufficient winter stores?"

"Never. We don't have to. There is always sufficient bee-forage, even in a poor year like this, so that they always have an abundance of natural stores; and our colonies are always strong. From each of the hives that failed to winter I took two gallons of strained honey."

"What kinds of bee-pasture do you have up there?"

"Chiefly basswood, white clover, and alfalfa. There are many basswoods in the forests yet. The white clover is a sure crop every year, as it does not come at intervals, as here. It grows wild as in Ohio. Alfalfa is growing in favor with farmers as cattle feed, and more is sown each year. It makes good honey. It is my belief that our bees get honey from red clover—at least I have seen them at work many a time in the red-clover fields when in blossom. My bees are Italians that came originally from Root's stock."

"Do you extract?"

"Decidedly not."

"Why not? It seems to be the method of most honey-producers."

"Because I believe that this smoking and tearing the hive to pieces, and robbing the stores, disturbs the bees so that they do not work and thrive as well as if left to their natural ways as much as possible. Some of my neighbors extract, and I notice that their bees do not thrive as well as those not so disturbed. I work for section honey only. The sections are put in a box that fits on top of the hive, and holds just 30 sections. The lower part of the hive is never disturbed. I have no trouble about getting the bees to work in the sections."

"What is your average yield of honey?"

"The average yield per hive, year after year, I should put at 60 lbs. of section honey. I have had as much as 120 lbs. from one hive. I have put on an empty case of 30 sections on Monday, and the next Monday have taken it off filled. I have kept bees ten years, and in that time we have had no years that were total failures, though some are not so good as others. This year was a poor one, and the yield was an average of about 30 lbs. per hive, about half the average season's yield. Some of the new swarms made 60 lbs. this season."

"How do you market your honey, and what prices do you get?"

"There is no method or trouble about the marketing. My honey all goes to private local customers. They come to me, and I sell it to them at 10 cents per section, supposed to weigh one pound. I don't advertise nor peddle, nor otherwise solicit trade. I have been asked to ship honey, but prefer to sell at home. My customers all buy for their own use only. I have no trouble in getting rid of half a ton of honey in this way."

"What have you to say about candied honey?"

"People in this part prefer the candied honey. They, as well as I, think that the candied state is the state of being fully ripened, and with the best flavor developed. Melting candied honey destroys much of the fine flavor, and, according to my taste and belief,

it is not a good practice. Much of our honey candies in the comb. It is fine eating."

Brunswick, O.

THE LONG-IDEA HIVE.

How Constructed and How Used.

BY O. O. POPPLETON.

I am a beginner in bee-keeping, and have the utmost respect for the opinions of Mr. O. O. Poppleton. On p. 727, Oct. 1, is an item regarding the Long-Idea hive. I should feel very thankful to him if he would more fully describe the hive, so that I could make and try one or more, and I am sure others would appreciate the article. W. EMORY.

Avondale, Fla., Oct. 21.

[Mr. Poppleton replies:]

The dimensions of the Long-Idea hive can be varied to suit any style of frame one wishes to use, keeping at least two points in view; viz., that the frames in use in them should be at least two or more inches deeper than is the standard Langstroth frame, and the hive should be long enough to hold as much comb in the aggregate as at least 25 Langstroth frames will hold. These are the essential differences between any simply made standard hive and the Long-Idea.

The hives I have in use are made of four boards 13 in. wide, front and back ones being 36 in. long, and the ends 15 inches. When nailed together the inside measure is 13 in. deep, $13\frac{1}{4}$ wide, and 36 long. Entrance to hive is $\frac{1}{2} \times 12$ in the center of the lower edge of the front. The two sides have rabbets in inside of upper edge $\frac{1}{2} \times \frac{1}{2}$, for ends of top-bar of frames to rest in. I use a tight bottom-board projecting in front $1\frac{1}{2}$ to 3. Tight bottom-boards are a necessity with me because I practice migratory bee keeping, but are not essential. Like the Dadants I prefer the old-style telescopic cover. I couldn't be induced to use any other kind; but these are not essential to this system. Any style of cover works the same on these hives as on any other.

The frames I use are 12 in. square, inside measure; but for Mr. Emory, or any one else wishing to test this style of hive on a small scale, I would advise his using the extra-deep Langstroth or Hoffman frame now being made by The A. I. Root Co. for use in the Draper barns. In case he should ever wish to do so they could be easily changed to the standard size by cutting off bottoms of the end-bars. The dimensions of the hives in case those frames are used would be the same from front to rear as in the Simplicity hive — enough deeper to fit the deep frames, and not less than 30 inches long, inside measure.

One difficulty in testing a small number of these hives in an apiary is in the fact that the deeper frames may not fit in the extractor one may have.

In manipulating these hives I put the brood-nest in the center, then use whatever combs the colony needs on each side, using two division-boards, one on each side of the combs.

the hive a glance will let one know whether the colony should have more or less combs, and whatever is needed, whether one or more can be added or taken away without having to add or take away an entire story. Division-boards should not be tight-fitting.

I think the above gives the information Mr. Emory wishes; but if not, I will cheerfully reply to any questions asked through you.

Stuart, Fla., Nov. 6.

GREASY SECTIONS.

Caused by Hot, Dry Seasons, Not by a Poor Queen.
Errors in Bee-literature.

BY WM. M. WHITNEY.

Under the head of "Beedom Boiled Down," on page 714 of *American Bee Journal*, the first item that meets the eye is the following: "Errors about bees are found in books of other countries as well as this." Well, that is not at all strange; but there are enough in the books and journals of our own country to command the attention of the careful bee-keeper during the time he may have to devote to study and experiment.

I believe a case in point is under this same heading in the following words: "Then when you find a super of greasy-looking sections you know where to replace a queen next spring." Now, my experience has taught me to doubt the correctness of the position assumed in the above statement. Allow me to illustrate. I have colonies, over which, early in the season, were placed cases of sections; later they were raised and others put under, and in due time I removed the first case, containing nice white capped honey; the second case was raised, and a third put under. When the second case was removed, many of the sections through the middle of the case had a greasy appearance; but the last case of late honey had white cappings.

Now, I had read much that had been written upon the subject of greasy sections, all of which seemed to be along the same line of thought; viz, charging the grease up to the queen, and pronouncing upon her the death-sentence; but why the same queen should give me both beautifully capped sections and greasy ones caused me to stumble at the above theory, and set me to investigating the matter for myself.

Most of my colonies were very strong during the entire honey season, the first and last cases being filled rapidly during comparatively cool weather; but the cases which passed through the dry hot part of August were subjected to quite different conditions. The nectar was necessarily very thick, although there was a very good flow from sweet clover. The bees filled the cells to the very brim, and capped them; the honey, being very ripe before capping, did not shrink as it often does; the hives being very warm, as a matter of course the cappings absorbed a portion of honey — hence the greasy appearance.

You will observe that all such honey is much heavier than white capped honey of the same

cubic dimensions, and I find a few customers who, knowing a good thing when they see it, prefer this honey to that of a more pleasing exterior.

I think you will find, on examination of the brood-chamber of a populous colony, that the newly made comb, if filled and capped during the hot dry season, unless it is at the outside, will, almost without an exception, have a greasy appearance. I am not speaking now of travel-stains, which are quite different in appearance, and which any experienced bee-keeper will readily detect.

Now, you veterans in the business, allow a novice to admonish you to hesitate before you "pinch the head" of a queen that has filled your hive to overflowing with bees that can go to the very bottom of the nectar-receptacles in the driest, hottest season of the year, and store up an abundant supply of sweets "fit for the gods to sip."

I may be wrong, but it seems to me this matter will bear further investigation, and it will disappoint me greatly if the truth does not lie along the lines herein indicated. At any rate, let us have the truth.

It would do my soul good (I will not attempt to disguise the fact) to be able to tell Dr. Miller and some of the other old sages in the brotherhood, something, perchance, they do not know. I should feel that some slight return had been made for the large fund of valuable information they have imparted, of which it has been my good fortune to appropriate no small share.

Kankakee, Ill., Nov. 11.

[You may be right; but it occurs to me just now that I have seen greasy (or what some call water-soaked) sections come from some colonies, and pearly-white ones from others at one and the same time; but I do not remember to have seen water-soaked honey and white honey come from the same hive.

This matter is something that will stand a little discussion; and I should be glad, therefore, to get reports from some of our leading honey-producers. If the queen is never to blame, it is too bad to pinch the heads of otherwise good queens.—E.D.]

CELLAR WINTERING OF BEES, AND THEIR PREPARATION.

BY F. A. SNELL.

That the successful wintering of our bees depends considerably upon the necessary fall work, no one doubts; and this work, or a part of it, should be done during September or October and November. The work for the earlier dates named are to see well to it that the bees are securing food enough in some way to keep up the rearing of young bees, and also the storing of a good supply of food for the long coming winter months and early spring. During September, if no young bees are reared or the queens are not laying, the colonies should be fed enough to secure this desired state. A good supply of good food

for winter must never be lost sight of, and a good force of young vigorous bees must also be secured or had if our bees are to be well wintered.

In cellar wintering it is, I think, very necessary to the best success to have the bees housed while the hives and combs are dry, and free from frost, and just after a good flight has been secured. One fall our bees were housed Oct. 29, and other years from Nov. 10 to Dec. 10. It was about twenty years ago that I laid it down as my rule to put our bees in the cellar right after the first good flight our bees had after Nov. 10. Previously I had been caught by leaving them out too late, and the hives became filled with frost more or less, and hives were frozen fast to the stands, and covered with snow, and the combs with frost—a condition not in the least desirable. In such cases the hives, when removed from their stands, came up with a terrible snap, which aroused the bees, causing a general excitement and roaring. Right after a good cleansing flight the bees handle well; combs and hives are dry; and after two or three puffs of smoke are given each hive the bees are quietly lifted from their stand and placed two colonies at a time on a cushioned cart and wheeled to the cellar hatchway-door, and then removed from the cart, and carried to the cellar where stands have been previously placed, upon which to set the hives, and the hives are gently lowered to the stand. The colonies are thus all carried in.

When a full tier of hives is placed on the first rack in the cellar to be used, lath are placed on top of the first tier of hives, and the second tier of hives placed on the lath, which gives $\frac{3}{8}$ inch space between the first and second tier of hives. Lath are placed on top of all rows, over which another tier is to be placed. We tier up three hives deep when necessary in the cellar, leaving room between the hives of each row to readily insert the hands in placing and removing hives on and from the stands or racks. The hive-bodies and bottom boards we carry to the cellar; but the hive-covers are left off, and a $\frac{3}{8}$ -inch-deep frame covered with burlap or carpet is fastened with two $\frac{1}{4}$ -inch screws at the center of each side of the top of hive-body. The bees thus prepared have upward ventilation, and are kept from coming out at the top of the hives in handling.

After over thirty years' trial in the matter of hive ventilation I prefer some upward, as I find the combs keep much dryer, and with little or no mold, while with no top ventilation the inside of hives and the combs would be wet and moldy, with other conditions just as favorable. Damp or wet combs are bad. The honey and pollen are liable to ferment, and thus endanger the lives of the bees from diarrhea, which may result from the bees eating the fermented food. The frames covered with burlap for upward ventilation are placed on the hives some time before the bees are put in the cellar. The racks are also put in the cellar, so that, if an unfavorable change of weather comes, the bees may be soon put in. The month of November, 1898, was so

stormy, cloudy, and changeable, that bees had very little opportunity to fly. During the month our bees did not get a fair flight until the 19th and 20th. On the morning of the 21st it looked very threatening, so I secured help and put the bees in the cellar; and before we were through, light showers occurred; and before noon the rain set in and followed it up all day. The next night the blizzard had struck us, and every thing was covered with ice and snow, and was frozen fast, with the wind blowing a gale. Our bees were in the cellar in good shape, for which we were grateful.

I mention the above to show how well it is for us to watch these important points, and be on time in our apiary work.

While in winter quarters our hives tip forward, giving a pitch to the bottom-boards, so if any moisture accumulates in the hive it may, if condensed, run off the bottom-board out of the hive. The sloping bottom-board also makes it easier for the removal of dead bees by the colony, which tends to keep the hives sweet and clean during winter. In the cellar our hive rows are placed so one can pass between the several rows to examine the bees and clear dead bees from the hives and cellar-floor. This we do about once each month, and with little disturbance to the bees. We use a dim light while doing this—just light enough so we can see to do the work. The cellar should be kept free from mice, and we prefer the temperature at about 42 to 50°, and quite uniform. Bees thus cared for should winter well. The cellar is kept dark.

Milledgeville, Ill.

TALL VS. SQUARE SECTIONS.

A Reply to E. D. Ochsner, Page 752.

BY T. K. MASSIE.

Mr. Editor:—In your footnote to my article published on page 681 you say that part of Mr. Vernon Burt's fine sections came from the Danzenbaker hive, and the other part from the regular Dovetailed hive. Then you say, "Both lots, as I saw them, were equally well filled. Indeed, it could hardly be otherwise; for under the same conditions a 4¼ square would be as well filled as one 4×5 tall." Will you kindly tell us what those "conditions" were? Were they such as can not ordinarily be had? It is *facts* we want, without regard to style or size of section.

In one of Dr. Miller's *Straws*, page 709, he says I should "keep things straight," etc. That's what I tried to do. I meant to say that I do not want a wired frame at all. I also meant to say that I prefer what most people term a shallow frame, without regard to wiring. All the combs in my frames will stand any amount of handling on the "slambang" plan. They were built from starters only, and are as straight and smooth as a board.

Page 753 friend Ochsner says if I "think the fence separators such a fine thing," I "don't know what a good thing is." Don't be irritated, brother. I have tried your

plain tin separators and T supers, and discarded them. It is *facts* we are after. I am not "trying to make money out of any new hives and sections," for I have none to sell; neither did I try to "fool" my customers. I simply set up the two kinds of sections side by side, and gave my customers their choice, the facts being as before stated, page 680. For a complete reply to Bro. O.'s article I would refer to pages 749 and 769 to 770 in regard to what the most extensive bee-keeper in the United States has to say. It is not there stated that he uses the fence separator; but I venture the prediction that he does.

Tophet, W. Va., Nov. 1.

[A part of Mr. Burt's 4×5 honey was produced over Langstroth frames. While the conditions may not have been identical, they were near enough so for all practical purposes. I will say that the internal condition of the supers for the tall and square sections was exactly identical, save in size. Capt. Hetherington does not use plain sections or fences. His 4×5 are the ordinary beeway seven-to-the-foot, I think.]

As to the matter of trying to "fool" customers, I can not believe that deception, unintentional or intentional, has been practiced on any one. Such talk is a reflection upon some of the best bee-keepers we have. The fact that one's beliefs or practices may be different from some others' is not sufficient grounds for declaring that that one is not honest with his fellow-men. If we can't agree we should at least fight fair.—ED.]

TALL VS. SQUARE SECTIONS.

Another Reply to E. D. Ochsner, Page 752.

BY S. D. MATHEWS.

Mr. Root:—I see in your footnote on p. 754 you invite kind criticism in regard to hives, smokers, and other articles. As Mr. Ochsner criticises the 4×5 plain 1¾ section and fence separator, I, being a practical comb-honey producer, beg to differ with him. I think he goes a little too far when he says that the G. B. Lewis Co. has sold 10,000,000 4¼ sections and only 25,000 of the 4×5 sections, and that they consider the 4¼ section the best. Doubtless they have no practical experience with either, especially the 4×5, only in the manufacturing of them; and in a few years there will be more of the 4×5 plain sections in use than of any other make. He says, "What a waste it will be to discard the old supers for new ones!" I have done that very thing, and it paid me twofold the first season. I have used both the square and tall sections in all of my apiaries for five years, and I know from practical experience that it will pay to discard the 4¼ section and use only 4×5 sections and the Danzenbaker hive with the fence separator. They have made enough more this season in the same yard to pay for the hive.

I have made more honey this season per hive than I have any previous year in my 15 years of bee-keeping. Fifteen of my strong-

est Danzenbaker hives made me one ton of comb honey, and the ones in the 8-frame Dove-tailed hive and $4\frac{1}{4}$ section made a third less. And when it comes to the sales I get more for the 4×5 sections, and I have no work in cleaning them, which I have to do with the $4\frac{1}{4}$ sections. I ship them as I take them from the supers. Mr. Ochsner says the American people will naturally buy something new. If that be so I always want something new, because I make honey to sell; and any thing that sells the best and for the most money is what I want out of the bee-business (I guess he is not an American is why he prefers the old supers with $4\frac{1}{4}$ sections, as he calls them).

I should like to have him ship some of his $4\frac{1}{4}$ sections to some of our eastern markets, such as New York, Philadelphia, Baltimore, Richmond, and Washington, especially the latter, and put them beside my 4×5 sections, and see how he would get left. I have just received sales for some from there at 16 cts. per section wholesale, and others are selling at from 10 to 13 cts.

He says, again, American people like to be humbugged. Perhaps that is why he uses $4\frac{1}{4}$ sections with tin separators, as I know I should be humbugged if I used them. He hits American people so hard that I can't think him an American.

I see in your footnote on page 681 you say the square sections would do as well as 4×5 sections under same conditions. What are those conditions? I have a lot of 8-frame hives with Hoffman frames with supers for $4\frac{1}{4}$ sections for sale cheap, because I know of no condition where I can use them to make it pay me as well as the 4×5 section.

Hamilton, N. C.

[By "same conditions" I mean the same style of section (either beeway or no-beeway, same kind of separator or fence, the same kind of foundation, and the same honey-flow. The absence of any one of these conditions would render the comparison unfair. There seems to be more feeling (or ill feeling, rather) developed over this matter than is necessary. The opponents on either side should let the other fellow have his own preference.—Ed.]

POINTERS ON QUEEN-REARING.

Sealed Brood vs. Unsealed Brood to Coax Cell-building; Making the Cell-cup Bottoms; Giving Nuclei Water.

BY W. H. PRIDGEN.

There has been a hive in use at Creek all this season, divided into three divisions, the division-boards having openings 3×8 inches in the center, with zinc tacked over them. Instead of using it as you do, I use it as an upper story, and have had cups accepted in the center apartment while there were cells in the others, as described, so far as cells are concerned, in Jan. 15th GLEANINGS by Mr. Doolittle. As soon as I read his article it occurred to me that it might be better thus arranged, and would remove the possibility of

losing so many cells by an accidental virgin queen.

I wish you would ask Mr. Wardell to make some cups with bottoms the right shape to receive cocoons, and transfer the larvæ with the cocoons, selecting that which is too small to transfer otherwise; give them to bees shaken from combs of brood, having a queen six hours previous, and then 24 hours later give them to his cell-builders, and note the difference, if any, and write me his conclusions. He could also transfer some the same size now used, and leave off the giving of them to queenless bees for 24 hours, and see whether they are accepted as well. The plan suggested mutilates the combs worse, but would save the cells destroyed to succor the royal jelly *a la* Doolittle. Possibly he has noticed the illustrations sufficiently to be able to make the stick used in transferring cocoons.

One is liable to succeed best in the way he wants to do a thing, and that may account in a measure for my success in transferring cocoons; but I should like to have him try it if he has not, as many have reported success by this plan who failed in transferring larvæ only. One man who succeeded by transferring cocoons expressed doubt as to Mr. Doolittle's rearing his queens as he advised others to do.

I now give just hatched queens instead of cells to my nuclei, often during a flow the same day the laying queen is removed, and seldom have one rejected. It not only saves several days' time, as the cells often fail to show up a queen at the appointed time, but there is nothing about the work that I enjoy more than distributing fine young queens, and being able to reject the faulty ones without having to lose any time over them in the nuclei.

I am of the opinion that, if Mr. Wardell will separate a little two combs of sealed and hatching brood, and also two of unsealed brood, as well as make examinations where they are naturally spaced, he will find more bees clustered on the combs of sealed and hatching brood. I do not find that they have a preference for building cells naturally, on combs of unsealed brood, or near it, and in all probability the cells get more attention where the brood needs none in the matter of feeding.

I supply one comb of water placed at one side of the hive when the bees are screened in, and there is pollen in the combs, and a comb one-fourth full of lumps of starch, sugar, and water mixed, when there is but little or no pollen. Enough water to cover the starch is sufficient, and then stir thoroughly and add as much sugar as will dissolve. I got this idea by noticing how eagerly the bees work on starch thrown out about the laundry during a scarcity of pollen. Neither do I want to make the impression that I condemn the practice of placing combs of unsealed brood near the cells while being built, but simply called attention to the fact that more bees cluster on combs of sealed than unsealed brood; and I am not sure but that sealed and hatching brood next to the cells is just as good.

Creek, N. C., Aug. 7.



EMPLOYING THE TIME IN WINTER ADVANTAGEOUSLY.

Question.—As I consider it, my bees are all fixed for winter, my 20 colonies being all nicely tucked away in their chaff hives, each having from 25 to 30 pounds of sealed stores. Can I do any thing further along the "bee line" till spring? I do not wish to make up sections, or prepare many hives till I know how my bees will come out, for so many of them may die that I shall want no more hives and sections than I have on hand now.

Answer.—Now that we are in the midst of long winter evenings, it becomes the duty of all to spend these evenings in such a way that they may be gaining in knowledge along the line of the pursuit they have chosen in life. In no business engagement is this more imperative than where the culture of the bee is the chosen occupation, and in no way can this be done to any better advantage than in reading the bee-literature of the day, from which the mind is to be stored with useful knowledge which can be put into practical use as soon as the season of 1900 opens. When I first commenced bee-keeping I was greatly benefited by the writings of Elisha Gallup, L. L. Langstroth, Moses Quinby, A. I. Root, Adam Grimm, and many other of those early writers on this subject, for by their writings I learned my A B C in bee culture.

My first year of experience in bee-keeping by way of putting the things which I had read in practice, resulted in 12 pounds of comb honey and one swarm, from the two colonies I purchased to commence with. The next season I obtained 25 pounds of surplus from each colony I had in the spring, on an average. At the end of the fourth season I chronicled an average of 80 pounds of comb honey as the average surplus for each colony in the spring, while at the end of the eighth season my average yield per colony was 166½ lbs. During these eight years I had studied, read, and practiced all my wakeful hours, about bees, having great fun and keen enjoyment in doing the same, for I have never yet spent an hour (been in the bee business 30 years) in my life in work pertaining to bee culture without its being a real pleasure to me; and this was brought about by those winter evenings when I first began to read up the subject. Many and many have been the nights when I was awake from one to three hours, planning how to accomplish some result I desired to achieve in regard to the practical part of apiculture, which, with the help of what I had read, caused me to accomplish what I had sought after. During all of the years which have passed I have found that, if I would succeed, as far as possible I should read mainly those books and articles which come from the pens of practical bee-keepers — those whose

ideas come from their daily work among their bees rather than from theorizing while sitting at the writing-table, for the former were the ones who made a success of their calling, and told just how they did it. If you wish to learn farming, to whom do you go—to the man whose farm is allowed to grow up to weeds and briars, with buildings unpainted and fences down, or to the man who produces good crops each year, has his fences up in good shape, with his buildings in attractive style and in good repair? To the latter, of course; and so you should do in bee-keeping. I am well aware that many of our most practical bee-men do not write for publication, and for this reason we can bring in visiting, during the winter, as another help along this line of our qualification. But when we visit we should try not to be a bore by staying two or three days, and during the whole time asking questions which are solely for self-benefit, for that can not be called visiting in any sense of the word.

Some years ago a man came some distance to see me. I was sick, and confined to the house, yet was able to be dressed and lie on the couch during the day. After warming himself for a little he told me he had come to have a little talk about bees, when he immediately pulled from his pockets eight sheets of foolscap paper, written over on both sides, with questions which he began asking in a dry, tiresome way. As soon as I gave an answer he began to write it down; and if he could not remember all I had said he asked over and over again, wishing me to go into the minutiae of the thing while he took it down. I stood it (or, rather, lay), facing him for two or three hours, till I thought I was too sick and tired to be held in that way longer; and as he seemed to take no notice of the condition I was in I thought I would give him a hint, so I turned over on the couch with my back to him. As soon as he got through writing down the last answer I had given him he very quietly took his chair and came around to the other side of the couch and asked the next question. I stood it an hour longer, when I had to go to bed, completely exhausted, after which he asked my wife if she did not think I would be rested enough in an hour or so to visit (?) with him again. Well, to make the story short he stayed that day, all night, and the greater part of the next day, during which time I was able to answer all of his questions, he taking the answers down, and in departing I had the consolation of hearing him say to Mrs. D. that he had had a good visit, and that he was very thankful for the good entertainment she had given him.

When you go to visit any bee-keeper, make it a *visit*, by imparting something as well as in receiving something. And don't try to get too much at once, for a little well learned is much better than having so many things come before you that you do not half remember any of them. Then we have our bee conventions, which are mainly held during the winter months, and for the especial purpose of gaining knowledge; and while the cost of attending may be considerable, yet if we im-

prove the time as we should we can learn more than enough to make that cost good, besides the benefit which we derive socially. All of these things are great helps to us, and should be eagerly sought after, as they will be if we have a natural qualification for the calling which we have chosen. If any persons love something else more than they do to study bee-keeping, and only do this as a sort of duty, let them be assured that they have mistaken their calling, and the sooner they leave it and go to that which at all times gives them pleasure, the better they will be off, and the better it will be for the world.

But I feel that I should say a word to our questioner about putting off getting ready for next season till he knows how his bees winter. I can not help thinking that this is a mistake on the part of very many. The question should be, "Am I to continue in the bee business?" If so, then I must be prepared for a full honey-harvest from the number of colonies I have; otherwise, that full honey-harvest may come and find me "napping." My plan has always been to prepare hives to the number I wish to increase my colonies to, should the coming season be the best, and sections to the amount of 125 pounds for each colony I have in the fall. And I do all of this preparing during the winter months, getting every thing all in perfect order before the season opens, so that, when the time for active labor in the apiary arrives, I shall not be handicapped by not being in readiness for any "down-pour" which may happen to come.

not guarantee safe arrival, we put up our queens in the most approved forms, and would say that at least half of the queens sent to foreign ports by us go through alive and in good condition. Although you are located, as you say, at an elevation of 3500 feet above the sea, with an average of 60° Fahr., I do not see why you could not keep bees successfully.

The stingless bees are in no way to be compared to the Italians, nor in general to the *Apis mellifica*, to which blacks, Italians, Syrians, and Cyprians belong. You could not cross the stingless bees with the Italians nor with any of the other bees of a northern locality.—ED.]

QUALITY AND QUANTITY IN QUEENS.

On page 746, in a Straw, Dr. Miller says, "It's a good plan, when you take a super of sections off a hive, to pencil on one of them the number of the colony. Then when you find a super of greasy-looking sections you know where to replace a queen next spring." Then you add, "Good scheme! and while you are about it, it is a good point in favor of numbering hives." Both are good points; but I think you both have missed the most important point—one that I have aimed at practicing for years; and that is when you find one of those exquisitely filled and finished lots of sections that excite wonder and admiration, and capture the first prizes at our leading exhibitions. You know where to go for a first-class queen to breed from next season; for, in my experience, bees that do that sort of work never fail to be extra honey-gatherers. Then we have quality and quantity.

S. T. PETTIT.

Aylmer, Ont., Can., Nov. 11.

INTRODUCING QUEENS; THE WIRE-CAGE PLAN A FAILURE.

To R. A. Lapsley, page 762, I say, amen. I have repeatedly failed, and never succeeded, by that plan; that is, the queen would be eaten out and the bees would accept or reject just as they liked. I have no more use for the plan in question.

The last plan given by Dr. Miller, on page 725, 1892, is the best I ever tried for valuable queens. The only objection is the necessity of putting brood above an excluder a few days before the introducing is done, so you will not have unsealed brood to perish, with no bees old enough to feed them. But it saves the queen—that is what we want.

I should be glad if breeders would clip all queens sent out. I have never had one fly away when introducing, but came near losing several.

W. A. H. GILSTRAP.

Grayson, Cal., Oct. 31.

ALCOHOL-LAMP FOR DAISY FASTENER.

I use an alcohol-lamp with the Daisy foundation-fastener. No chimney is needed, and there is never any smoke to soil the sections. The lamp costs 25 cents, and wood spirits about \$1.25 per gallon.

E. E. BOGUE.

Stillwater, O. T., Nov. 8.



BEE-KEEPING IN COLOMBIA, S. A.; STINGLESS BEES.

1. Do you think it possible to send queens down here?

2. We are in need of bees here on account of lack of distribution of pollen in the flowers. We are 3500 feet above sea-level; temperature 60° Fahr., on an average. Do you think bees will do well here?

3. We have a bee here resembling the Italian, but which has no sting. It is not a good worker. Would it be possible to breed them with Italians, or has it ever been done—that is, form a new species or kind?

J. R. GENUIT.

David, Chiriqui, Rep. of Colombia, S. A.

[We can send queens successfully to you, I think, providing there is no great interval between the time of arrival of the queen at port and arrival at your hands. We have sent queens successfully to Australia, New Zealand, and within the last two days have received acknowledgment of the successful receipt of queens at Natal, South Africa. We send queens regularly to Cuba, Jamaica, and to other islands of the West Indies. While we do



WHAT do you think of our Christmas issue?

SIXTEEN extra pages in this issue, and yet there is still on hand a lot of good matter that had to be held over.

SOME of these editorials in this issue are written at the rate of 60 miles an hour—that is to say, they are scribbled off on a Pullman car going at that rate from Denver to Chicago via the Union Pacific and the Northwestern. If my thoughts appear somewhat joggled (my writing is surely that way) you will please lay it to the aforesaid break-neck speed.

My route to the Denver convention was over the Lake Shore and Michigan Southern, Chicago and Northwestern, and Union Pacific. Over the last two roads I took what is known as the Colorado Special, one of the fastest trains in the world; and the route as a whole in a modern sleeping-car was one of the easiest and smoothest I ever took.

GOOD FOR "LUPTOM."

AS far as we have been able to learn, Mr. Lupton has either sent queens or returned the money; and my impression is, the lesson he learned in this transaction will probably last him as long as he lives. If this be true, shall we not forgive and forget? and remember, "There is joy in the presence of the angels of God over one sinner that repenteth." A. I. P.

THE COLORADO CONVENTION.

THE convention of the Colorado State Beekeepers' Association was a success in every way. The attendance was good, ranging from 50 to 80; and the discussions, always spirited, were along practical lines. Instead of there being a regular set program, a program committee provided a set of topics for each session, assigning subjects to such members as would be the most competent to take them up. The plan worked admirably, for the association is made up of live bee-keepers who can talk from an extended experience. A report of the proceedings will appear in our next.

OUR INDEX FOR 1899 GLEANINGS.

THIS, our Christmas number, is a little late, partly because I have been away and partly because of an extended index that has to be made up and prepared, very largely at the last minute, when the whole volume for the year is complete. And speaking about the index, you will find it, perhaps, the fullest that we have ever given. Subjects of importance are cross-indexed, so I believe our readers will be able to find any thing with little or no difficulty. With the exception of the index of correspondents I dictated the whole to W. P., or Stenog, and then it devolved upon the

latter to arrange the whole in alphabetical order.

But a good index is worth nothing unless the whole volume is preserved and kept in regular order. Get the whole 24 numbers, place one upon the other in regular order, and if you have no better files drive two wire nails of suitable length through their back edges, and clinch. Better still, get our regular binder which we can supply at 82 cents postpaid, or the same leather-backed for 92 cents.

A NEW KODAK FOR GLEANINGS.

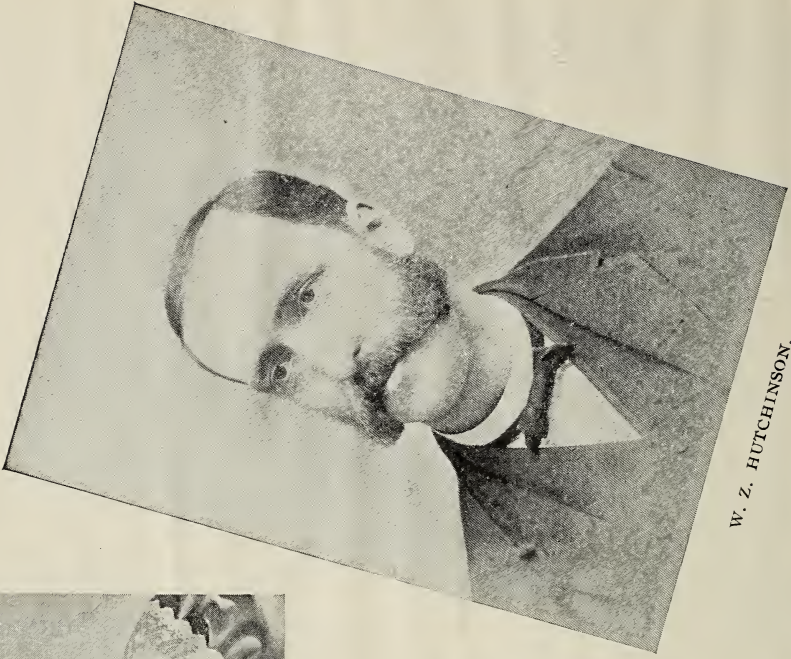
IN my trip through Colorado I carried a brand-new folding kodak with all the latest attachments, for I felt that an illustrated journal like GLEANINGS required one of the very best that money could buy; and of all the cameras I have ever seen, the Eastman Kodak Co. get out the best. With this instrument I took "snap shots" and "time views," some of the latter being taken in a dust-storm when there was a little lull in the wind and the dust. I find I have secured something like 60 exposures in all, the best of which will be reproduced in these pages during the coming year, so that my Colorado trip will be spread out through the succeeding issues of GLEANINGS for the next four or five months. Considering the fact that Colorado is one of the greatest and best bee localities in the world, the series ought to prove interesting.

HUTCHINSON AND YORK.

I HAVE several times spoken of the pleasant relationship existing between the editors of bee-papers. This editorial fellowship is especially strong between Editors York, Hutchinson, and myself. I have gone to conventions with both, in the same sleeper, and have bunked with each, both in the car and at hotels, so that I have come to know them intimately; and it gives me special pleasure to say that they are royal good fellows, genuine rivals in a business way, but the rivalry is of the pleasantest sort. We know each other well enough to offer criticisms of each other on the quiet and in the open; and in every instance, so far as I know, these criticisms have been taken in the kindly spirit in which they were offered.

Mr. Hutchinson started the *Bee-keepers' Review* at a very inauspicious time, as it seemed to me. Indeed, it was up-hill sledding for him for a long time; but with that indomitable perseverance that is characteristic of its editor, the *Review* has moved onward and upward until there is not a trade journal of any sort that excels it in typographical neatness and general appearance. The *Review* to-day enjoys the largest patronage, I believe, it has ever had since its first issue; and no one rejoices more in that success than does your humble servant.

The "Old Reliable" was purchased by Mr. York of Thos. G. Newman at a time when the latter was steadily declining in health, and found it necessary to seek a change of occupation and location. While the *American Bee*



W. Z. HUTCHINSON.



MISS HUTCHINSON.



G. W. JOFFE.

Journal has always been a standard publication, it now stands head and shoulders higher than it ever did before. Always typographically neat, always punctual, a practical, up-to-date weekly, it fills a niche by itself, for no other bee-paper has "sand" enough to make weekly visits.

Miss Hutchinson (the whole family for that matter) has contributed in no small degree to her father's success, and it is also with no little pleasure that I present her picture — with the other two editors, I was going to say. Who knows but she may some day slip into her father's editorial shoes, just as another has done?

I take pleasure, therefore, in introducing to you Editor G. W. York, of the *American Bee Journal*; Editor W. Z. Hutchinson, of the *Bee-keepers' Review*, and Miss Editor, or, perhaps, more properly speaking, Miss Compositor.

THOSE PRIZE PICTURES.

In our last issue I promised to set before you the series of prize pictures entitled "A Good Catch." Well, here they are. I agreed that I would not give the names of the young ladies whose faces and figures grace our pages, and I shall stick to agreement; but if any good-looking bachelor without gray hairs or baldness (and we have lots of them in our ranks) desires to know their whereabouts, he *might* possibly get their names by writing to those who took the pictures of the subjects.

One of the pictures, the fourth of the series, is what is called a wash-drawing, and is therefore an ideal picture in that it depicts a scene that is photographed first on the artist's mind's eye.

While it was "nip and tuck" between three of the pictures, the photograph by Mr. W. Z. Hutchinson was given the first position because of the "foliage background" that so artistically sets off the rest, or principal part of the picture.

The first prize picture appears as a frontispiece in our A B C book; and the one by J. O. Shearman will appear in our honey-leaflet along with a series of other engravings showing the various stages of the art of producing honey.

LOCALITY, AND ITS BEARING ON BEE-KEEPING IN COLORADO.

LOCALITY is often made to cover up a multitude of sins — or, rather, a multitude of opposing opinions of various bee-keepers. While it does, no doubt, account for many of them, more of these diversities may be traced to pure prejudice and preconceived notions. Yet if there is any place in the United States where locality does necessitate a change in methods it is in Colorado.

When a bee-keeper moves from the East to that State he must unlearn some of his old plans of work, and adopt new ones. The altitudes of some portions of the State; the absence of rain; irrigation; an entirely different flora, all go to make up a different set of conditions. While the average temperature in winter is about the same as in Ohio, yet, on

account of the absence of moisture in the atmosphere, colonies may be wintered in single-walled hives with only a thin layer of absorbents on top. Indeed, I was told that double-walled hives and an excess of packing is worse than useless. Colonies packed as we prepare them in this locality would not winter as well as in single-walled hives. A dry cold atmosphere is not nearly so destructive to bee life as the same temperature here with moisture. If I had been chilled through in Ohio as I was on occasions in Colorado I should have had a severe cold; but no bad results followed in that dry State.

The matters of spreading brood, and early spring preparation, have to be handled in an entirely different way.

The effect of the dry climate on the hives, especially hive-covers, is simply astounding to a tenderfoot. Indeed, I never could have believed that lumber would shrink from $\frac{1}{4}$ to $\frac{3}{8}$ to the foot, and that nails would actually work clear out of the boards, if I had not seen just these things with my own eyes.

Moth-millers are unknown in Colorado, and, as a consequence, no fear need be entertained that combs and comb honey will be damaged by any such sort of pest.

Black bees are another minus quantity in the State. I was surprised to find in all the yards such nicely marked Italians everywhere.

There are other queer conditions, but to these I shall refer in future issues.

THE WILD AND WOOLLY WEST; BEE-KEEPING IN COLORADO.

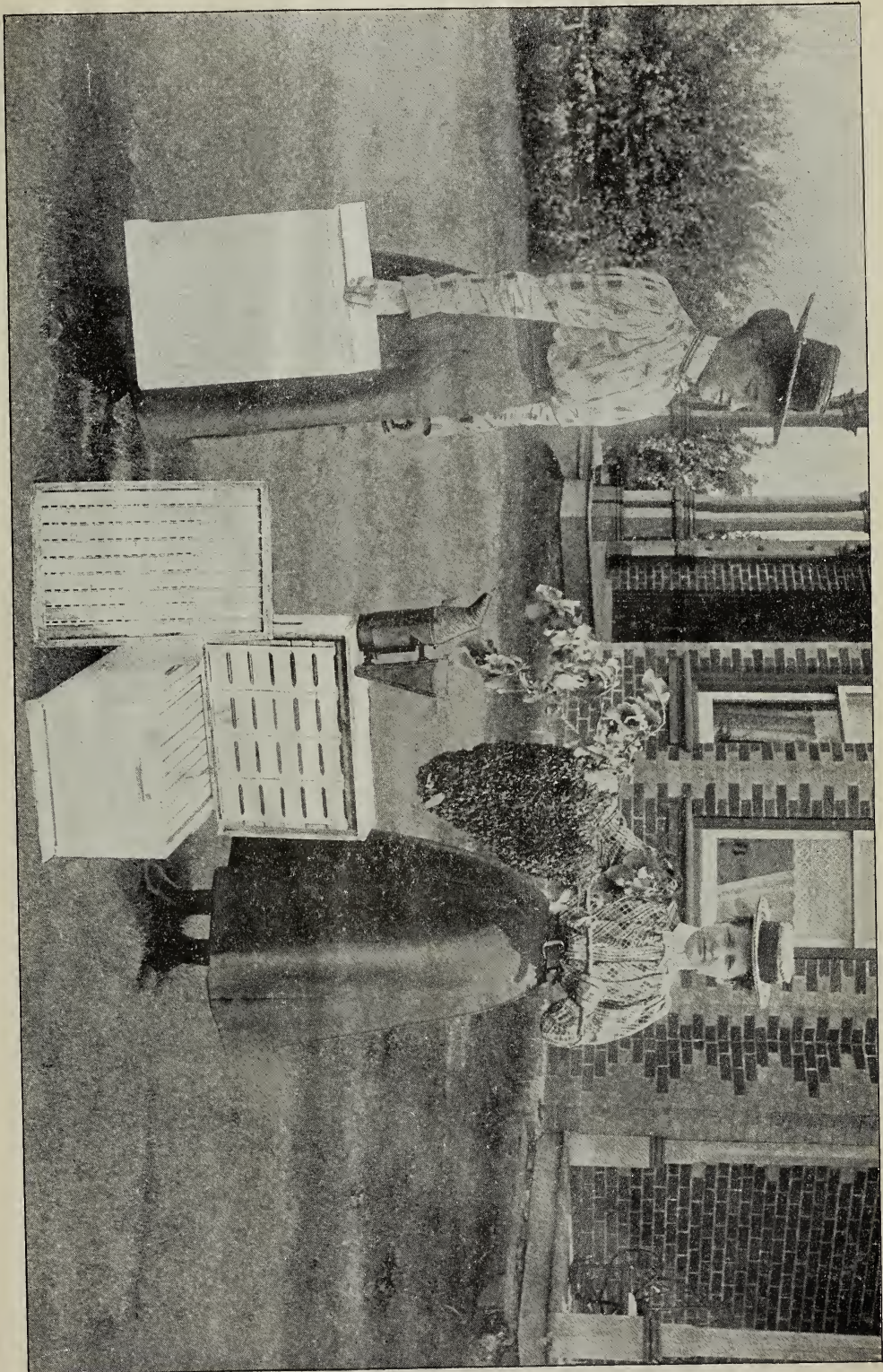
ALMOST as if it were a delightful dream I look back upon my ten-days' sojourn in Colorado—a land of the barking prairie-dogs and howling coyotes; of the awe-inspiring Rockies with their lofty peaks; of gold and silver, of copper and iron, of alfalfa and sweet clover; and, not least, the land where the sweetest and finest and thickest honey in the world is produced. The ordinary magazine article would lead one to believe that the "wild and woolly West" consists of fighting "Injuns," six-shooter cowboys with their bucking bronchos, desperado miners filled with poor whisky, and—some other folks living in tents, prairie-schooners, huts, or dugouts. The fact is, the ordinary writer sees only the unusual and the extraordinary; and when he attempts to enlighten the "tenderfoot" he makes it appear as if the great plains and the mountains were filled with this kind of folk, when, in fact, it is only a very small part of the real population.

As to cowboys, I didn't see one real live specimen. Miners I saw, lots of them, but they appeared to be real gentlemen in soiled work clothes. Of bee-keepers I saw many more, but only a small portion of the actual number in the State; for I am informed by Sec. Rauchfuss, of the Colorado State Bee-keepers' Association, that there are 2000, by count, notwithstanding that only one-tenth of the State is in actual cultivation. Bee-keeping is confined almost exclusively to the irrigated regions where alfalfa is grown. But of this I shall have more to say at another time.



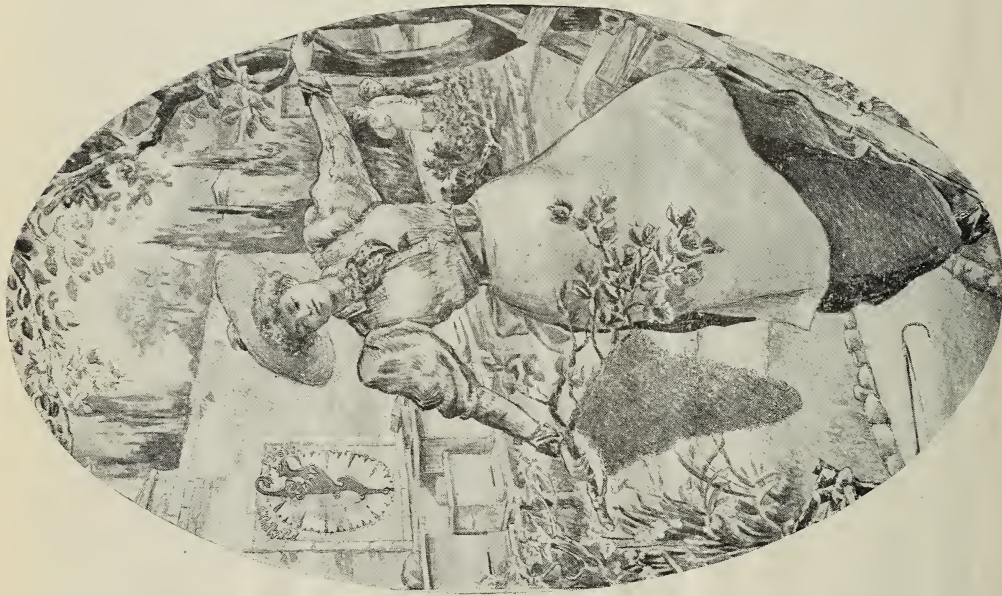
A GOOD CATCH—FIRST PRIZE, \$10.00.

Photograph by W. Z. Hutchinson.

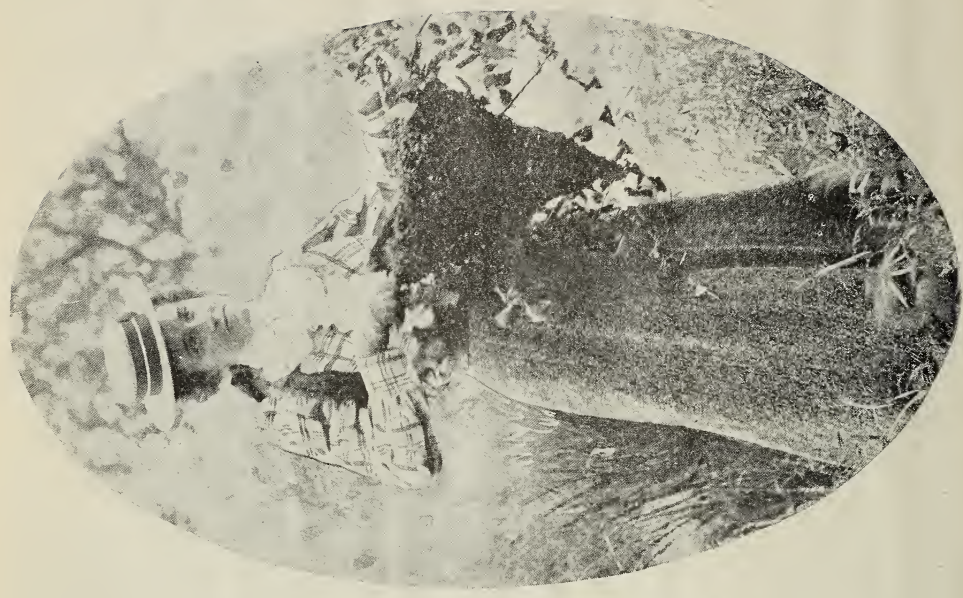


SECOND PRIZE, \$5.00.

Photograph by A. L. Lundy, Wilsonville, Ont., Can.



THIRD PRIZE.
Drawn by R. V. Murray, Cleveland, Ohio.



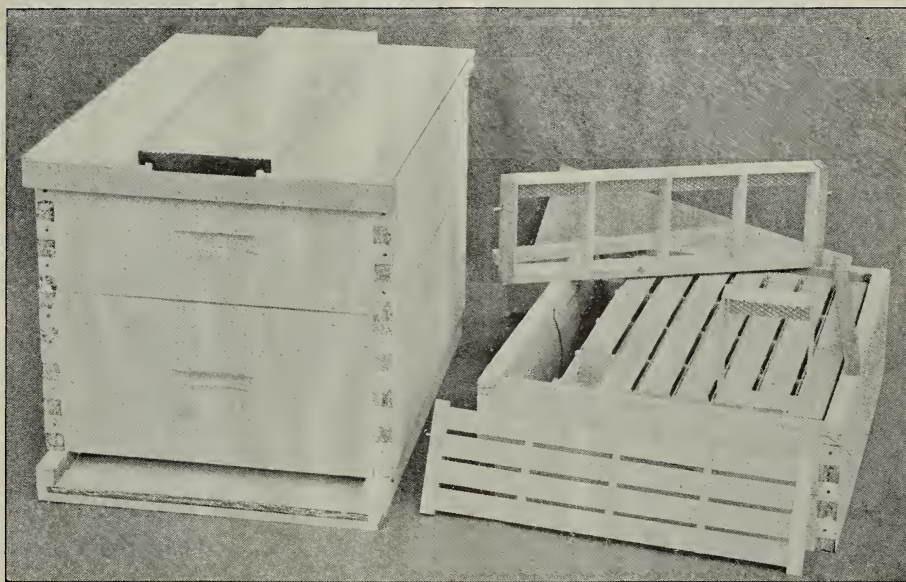
SECOND PRIZE, \$5.00.
Photograph by J. O. Shearman, Hamilton, Ont.

While the villages are distinctly Western in general character, the cities seem to be just as distinctly Eastern; for, indeed, they are made up of eastern people and eastern capital. Under the influence of the bracing climate and new conditions the western centers of population seem in many respects to surpass their eastern rivals. This is particularly so of Denver. The streets are broad, and the buildings are either of stone or brick; indeed, there is scarcely a wooden structure in the whole city.

Situated as it is in sight of the Rockies, with their snow-clad peaks,* and itself on high ground a mile above sea-level, it is at once in one of the most healthful and picturesque locations in the world. Almost perpetual sunshine and dry mountain air have drawn thousands of people of wealth and culture to

CLOSED-END FRAMES AND THE DANZENBAKER HIVE.

In my recent trip through Colorado I learned that the Rauchfuss brothers, Frank and Herman, are and have been using closed-end frames in the regular Dovetailed hive, with a great deal of satisfaction. They realize that, to advocate such an innovation as this for the West, is almost heresy; but they say they get their combs built clear out to the end-bars, and clear down to the bottom-bars—something that they can not accomplish with the ordinary hanging frames with open ends or partly open ends;† and, what is more, they claim that they can handle these frames more easily than the regular Hoffman. I said to Frank, "Why, don't you urge these upon your bee-keeping friends?"



THE DANZENBAKER HIVE AND 4x5 PLAIN-SECTION SUPER.

this metropolis of the West. Many an invalid has gone there and been restored to complete health. In fact, the majority of the people I met seem to have flocked to Denver because they could live nowhere else. Not a few bee-keepers were in this class, and it is remarkable what elevation and climate have done for them.

And this reminds me that Denver and vicinity form one of the greatest bee-keeping centers of the whole world. There are a great many who own anywhere from 100 to 200 colonies; and not a few who own and operate from 400 to 500. During the ten days that I was in the city I made short tours out into the outlying country to see some of the bee-keepers in their homes. In future issues I shall have something to say of these little trips. My ever faithful kodak, together with my note-book, took in many an idea, and these will be given to our readers.

* Pike's Peak, Long's Peak, Gray's Peak, anywhere from 25 to 100 miles away, can be seen on clear days.

"It would not do," said he; "they would not take them."

For several years the Danzenbaker hive has been sold with closed-end frames; in fact, it is the only hive on the market so equipped. It is constructed practically the same as last year—the only difference being in the cover. This, like the other, is of the three-piece type, the two side-pieces or boards not being beveled or slanted off to shed the water. That is to say, they are of the same thickness, $\frac{3}{4}$ inch throughout, except at the extreme of one side, and are so constructed that the water will run off at the ends and not at the sides. Like the Excelsior cover for the 1900 Dovetailed hive, they have shoulders or projections that reach up into corresponding channels in the ridge-board, thus making it impossible for water to get through except by running *up hill*. To hold the three pieces together, there is a cleat at

* I looked over quite a number of these combs, and this statement is literally correct.

each end, let into grooves so situated that its top side shall be *under* the surface of the boards. The cover, as a whole, may be nailed to permit of the swelling and shrinkage of the boards, without checking or splitting at the point where the nails enter.

The closed-end frames and the super are the same as those put out in hives of previous years.

The bottom-board is of the Danzy type, reversible, to give $\frac{3}{8}$ bee-space on one side and $\frac{7}{8}$ on the other.

The hive itself is of the same dimensions exactly as the regular 10-frame Dovetailed Langstroth, except in depth. It takes a closed-end frame 7 inches deep instead of one $9\frac{1}{2}$ like the standard L. This gives a low-down flat hive with large super capacity, and of about the same cubical contents as the regular 8-frame Langstroth brood-chamber, but permits of the use of 10-frame supers and 10-frame L. bottom-board; and to this extent the Danzenbaker is interchangeable with any 10-frame hive of standard dimensions.

PRODUCING COMB HONEY CROSSWISE OF THE BROOD-FRAMES.

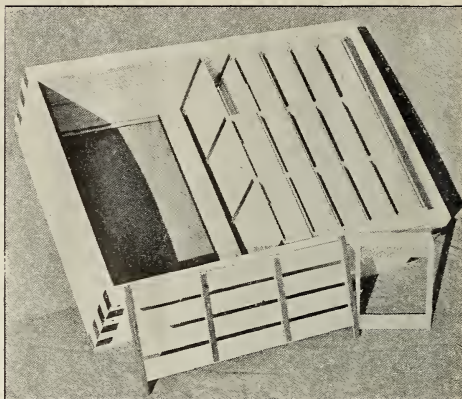
SOME two months ago Mr. Louis J. Whitney, of Mapleton, Utah, sent a photo of some 4×5 honey, together with the super in which the same was produced. We have sold such supers for a number of years, but have always had a fear that the edges of the combs next to the super side would not be as well completed as those adjacent to the center; but the photo seems to indicate that there is no perceptible difference. Mr. Whitney says the honey stacked up on the super is the poorest out of a lot of 30 from the same super.

As the 4×5 seems to be preferred to the $3\frac{3}{8} \times 5$, we finally decided to put out a super for 1900, the sections running crosswise of the same; for 3 sections 4 inches wide just fill out the width of the super, which is $12\frac{1}{8}$ in., the extra $\frac{1}{8}$ allowing for a reasonable amount of play.

If the hive is properly leveled up there is no reason why comb honey could not be produced on this plan, and give good results. The super for 1900 is shown above.

In some apiaries it is the practice to have the hives tilted so that the front is slightly

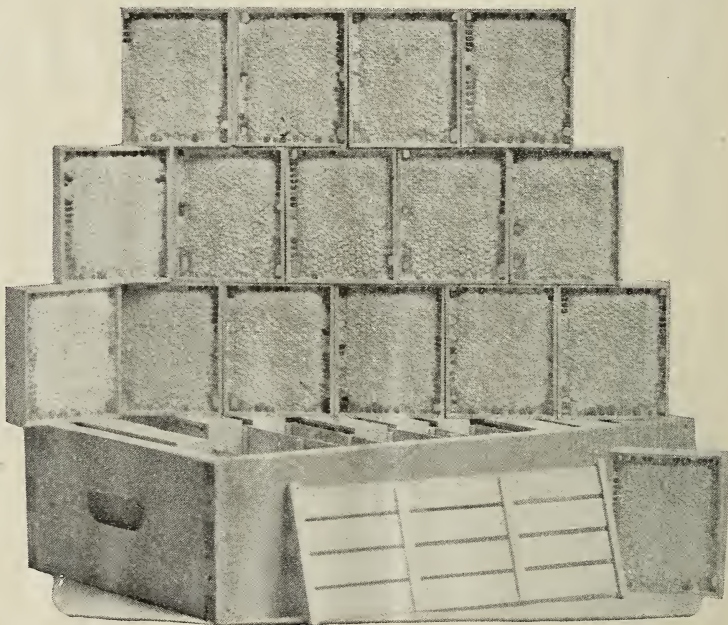
lower than the rear. On hives so placed, full sheets of foundation in sections placed crosswise might hang a little out of true. While theoretically it would seem to be good prac-



EIGHT-FRAME SUPER FOR 4×5 SECTIONS.

ture to tilt all hives forward, yet in actual practice there is very little in it.

It is not practicable to use $4 \times 5 \times 1\frac{3}{8}$ sections in an 8-frame super, running parallel with the brood-frames, for the reason that the $1\frac{3}{8}$ thick-



SECTIONS FROM A CROSSWISE SUPER.

ness does not come out right with the width of the super; but by running them crosswise we secure the greatest economy of space and yet get 30 sections in the super—within two as many as we can get in the ten-frame size with sections running the other way.



But and if that evil servant shall say in his heart, My lord delayeth his coming; and shall begin to smite his fellow servants and to eat and drink with the drunken; the lord of that servant shall come in a day when he looketh not for him, and in an hour that he is not aware of, and shall cut him asunder, and appoint him his portion with the hypocrites; there shall be weeping and gnashing of teeth.—MATT. 24:48-51.

"I dreamed a dream that was not all a dream." This quotation came vividly to my mind when I awoke this morning, and I have been thinking about it more or less all day. The day before had been a very busy one, and I had been hurrying here and there, giving hints to this, that, and the other one, looking after things that nobody seemed to feel responsible for, although each one seemed to be quite willing to take up the matter in hand when I explained to him why it must be attended to before the coming winter. Well, in my dream I was making all the rounds as usual. Away down at the further end of the lumber-piles—that is, those furthest from the factory and nearest the carp-pond—somebody called my attention to a little fire in some straw near the lumber-piles, and he said it should be looked after. It was but a *little* fire, and a pail of water would have put it out. But there was no pail near, and there were none of my usual helpers who knew where to get a pail and where to get water. I was already pretty tired, and I can not run as I used to, even in case of a fire. There were dozens of workmen just a little way off; in my dream I saw them scattered all through the lumber-piles all over the premises. Some were taking lumber from the cars, others were loading up finished work. Farmers were there with loads of basswood. The scene was refreshing—that is, so far as seeing so many busily employed was concerned. I called to a boy whom I did not know, or at least did not know very well, and asked him to get a pail of water quick, and I pointed to the fire. To my astonishment he did not seem to be very much interested in the matter, and asked where he could find a pail. I was going to tell him to go to the barn; but a man who does not know any thing about the barn would blunder around until the fire would be in the lumber-piles. I looked in vain for one of the men who take care of the horses, but I could not see any of them. Then I thought I might put the fire out with a piece of board—a thing I have often done, to the surprise of the bystanders; but when I went around one of the lumber-piles I saw the fire had crept along out of sight, and was already climbing up the pile of lumber. A brisk west wind came up, and the fire was mounting rapidly to the top. The boy who asked me where he could get a pail had resumed his work of piling lumber. I began to yell "Fire!" and asked those nearest me to "holler" also with all their might, and to get somebody to pull out the hose and attach it to a hydrant not very far off. But

the only reply I could get was, "I do not know any thing about your hose and hydrants, and I do not think that this little fire will do much harm anyway." Oh how I did long for Frank or Herb, or Ernest or John! I reflected that Ernest was absent in Denver at the convention, and he knew more about the waterworks than almost anybody else. John, with his great strength and energy, would have been a power if I could only have got word to him or got *hold of him*. The foreman of the machine-shop, who has all the waterworks at the ends of his fingers, was probably busy with the work that begins to be hurrying for next year, and knew nothing about it unless he could hear the yell of fire, but nobody would help me give the alarm.

My voice has been failing of late. It fails in this way: When I try to explain things or give directions in the saw-room and among the machinery, the effort to make myself heard exhausts my strength, mentally and physically. I have sometimes thought that, with the effort required to talk when there is so much noise, I ought not to *try* to talk, for it has seemed that this and nothing else brought on my nervous chills. I often call the foremen of the different rooms away from the noise of the machinery—sometimes outside of the door, rather than to strain my voice and hurt my throat—yes, and make me "tired" by trying to talk amid such clatter. Perhaps I might as well confess that the noise of children when I want to say something vexes me of late, unless I try very hard *not* to be vexed, especially when the children yell at the top of their voices just for the sake of using their lungs when there is no sort of need of such muscular effort. Their young muscles need using for their better development.* Mine need rest because they have been overtaxed.

Well, I had the same feeling about the fire. I was rapidly using myself up, and nobody took much if any interest in the matter. For quite a spell they said it was only a *little* fire, and it would not do any harm. But finally, as it climbed and crackedled from one lumber-pile to another, when somebody told me he did not believe they *could* put it out if they tried, and kept on with his work I began to get mad. My Root temper (partly on account of my fatigue) was rapidly rising. I said to some of them, "What is the use of your piling lumber or loading cars when they will all be burned up in a few minutes, unless you turn in and help put out the fire?" But they did not seem to care. It was not *their* lumber, and they were not hired to do that work. The fact that they would probably be out of a job on the morrow did not seem to have any interest for them whatever.

To cap the climax, just about this time a very bland-looking gentleman came along with a smiling face, and put out his hand, saying he had for long years looked forward to the pleasure of shaking hands with A. I. Root. I was hoarse with over-exertion, and I do not know but I was somewhat hoarse from

*Oh how I longed in my dream for these same grandchildren or anybody else who could yell and halloo, and "raise the roof," as the expression is!

the effects of passion. But I managed to say, as civilly as I could, "My dear sir, I have no time to shake hands with *anybody* until this fire is put out;" and as he stood there with his hand extended, partly blocking the passage, I ordered him out of the way. But he was not so easily put off. He said he wanted only a *minute* of my time, and he hoped I would *surely* shake hands with him. "No, sir, I *will not*. If you are any man at all, just turn in and help me yell fire, and get our people here to subdue it before it goes a minute longer."

But he kept on; and some of the others who were so busy piling lumber suggested that it would be a "long time" before the fire got up to where *they* were, anyhow. I believe I have generally had a pretty good opinion of humanity—at least I have tried to have; but at this crisis I stood *appalled*. Was it really possible this world contained so many people who would stand by with such indifference when anybody of sense could easily see that our *whole possessions* would be wiped out in one hour at the rate the west wind was making the flames leap from pile to pile? and yet I was not able to get a *single* soul to do a *thing*.

The smiling gentleman who looked so good-natured in spite of the way I treated him, got in my way again, and begged for just a minute. At this crisis I yelled to him to get out of the way or I would strike him.

"Why, dear Mr. Root, you can not be in your senses when you speak so to a stranger who has come a long way to see you—one who has read your Home Papers with such pleasure and profit all these years." But in spite of my Christian teachings I felt more inclined to mash his disagreeable face, and take the smile out of it (if it were a possible thing) than I ever felt tempted to do anything before in my life. He still urged that what he had to present would take but a minute, and actually whipped some papers out of his pocket for me to look at. I told him the time he had already occupied had enabled the flames to get such a headway that perhaps they *could* not be stopped; and then it dawned upon me I was stopping to quarrel with a man while my property was burning up. I might have reached the factory or the machine-shop certainly, if I had started out on a good run when I first saw the flames. I do not know where my wheel was just then. It did not seem to be along. Two or three times something whispered to me in my great distress that it was but a dream or "a vision of the night;" but I looked again, and the sound of the crackling flames which had *already* driven the workmen from their places was a reality if any thing *ever* was. Then I awoke. It was already past five in the morning, and five is our usual hour of getting up.

Now, then, about the part that was not *all* a dream. Ever so many times to-day I have fallen to wondering whether it *is* possible my dream was not a pretty true picture of humanity in some respects. Just before going to bed I looked over the daily, and eagerly scanned the message of the President to see if he had

in it a word for temperance. I did not find it. The next paper I picked up was a little sheet called *The Open Door*, published at Knoxville, Tenn. Well, in that paper I find the following. I do not know whether it had any influence on my dream or not. If it did, it influenced me unconsciously. Here is what I read:

A hungry tramp who steals a chicken is a thief. A man who picks your pocket is a thief. The man who abstracts the ballots from a box and thereby elects his friend to office is a thief. The man who spirits away from its proper place the act of a legislature and thus prevents the enactment of the law is a thief. Congress passed a law prohibiting the army canteen-saloon. The intent of the law was well known, the language plain and comprehensive. By a most villainous interpretation and construction virtually nullifying the act, the saloon stole a victory over the friends of temperance. What are we to think of the attorney who gave the famous construction, the secretary of war who approved the attorney's action, and the chief servant of the nation whose silence gives joy to the saloon interests of the nation? When all these rogues appear at the final great high court of the universe, the tramp's position will be envied by all the others.

I do not know who wrote the above, but I judge it was the editor, and it seemed to me as if it put the state of affairs into a nutshell better than I have ever heard it presented before. The paper does not seem to be a political one in any sense of the word. It has, however, a good deal to say about the W. C. T. U. work in various places. Is it possible my dream was providential in order to point out to me the indifferent and easy don't-care way in which almost the whole world is treating this matter of intemperance? *The Open Door* has got it exactly. Our various political parties, with the exception of the Prohibition party, seem to have rather decided the fire will not do very much harm, or it will be a long while before it gets to us, or else it has got to going already to such an extent we could not put it out if we tried *ever* so hard. The saloon element, the beer-brewers, and the liquor-dealers are too powerful for us—they have got too much money. It is not *best* to oppose them *too much*, any way—it would just make lots of trouble, and things are going on pretty well as they are. It is only a few crazy fanatics who think the flames will spread and destroy every industry and all who have anything to do with it. For weeks and months back I have been wondering whether the whole world was wrong, or that it was only my little self who was wrong. Just now I do not think I fear so much the drink habit as I do this modern fashion of ignoring law or coolly trampling law under foot when it runs up against temperance measures. I do not think that anybody pretends that the anti-canteen law was not perfectly understood when we fought for such a law. Our enemies understood it only too well, and I think it is just as well understood now, among all classes, that there has been a deliberate and concerted plan to defeat us by breaking the law after we have secured it. The most astonishing thing to me is that our President stands with all the world just as the man and boys did in my dream, and concludes it is best not to say any thing nor do any thing. *The Sunday School Times* in its last issue says President McKinley does not and will not trav-

el on Sunday. May God be praised for this; but why does not the same devotion to God's law and the laws of our land prompt him in like manner to declare he will not sit still in silence and see the temperance people of our land wronged and humbugged as they have been during the year just past?

The principal figure or actor in the dream I have described was the man who came in the guise of a brother Christian. Permit me to say the dream had overdrawn things rather, for I never met a book agent (or any other kind of agent) quite as bad as the fellow I have pictured. It is true, I have several times had men come to my home saying they had read my writings and had long wanted to see me and take me by the hand; and before they got through, or after I had insisted they must come down to business, they would pull out a book that had been concealed somewhere, and when I promptly refused to purchase or even look at the book they have sometimes tried (in vain, of course) to make me a present of it so my name might head the list while they went around town. If I have been in times past rude to some excellent people, especially before I really knew who they were, I hope they will accept the above explanation and excuse me. In fact, I would have it that our good friend Dr. Miller had something to sell the first time I met him, years ago. Well, now to the point of our story.

If some enemies, bent on ruining our business, had picked out a man who said he could get rid of *me*, by getting me into a quarrel, even while my property was burning, it might have explained matters. The saddest part of it is, he *did* succeed in getting me so angry that I for a moment forgot the burning lumber-piles. I do not know but that, in the heat of passion, I might have preferred to *lose* property rather than forego the gratification of giving him a pounding. You say, "Oh! that was a dream." Well, my friends, it was not *all* a dream. As I think it over, memory suggests places here and there, scattered through my past life where I neglected most serious and important duties just to stop and *quarrel* with somebody. Yes, and these fellows under the tutorship of Satan have managed to get valuable space in our journal occupied with matter that was of no value to anybody. If the story does not teach *you* a wholesome lesson it certainly does teach *me* one. May God forgive me for having been drawn so many times out of the straight and narrow path by some person like the one I have pictured in my dream; and as old age pushes along in its relentless march, may I have grace and wisdom from on high; in short, may I have of that Holy Spirit that will enable me to stand cool and steady, doing my duty before God, swerving neither to the right nor to the left, no matter how many subtle wiles may cross my path in Satan's various disguises, to lead me to waste time with straws and soap-bubbles, instead of giving my strength and reason to the work that needs to be done.

At first this picture I have been alluding to looks like an extreme one; but, dear friends, only a few months ago our Anti-saloon League

was just about achieving a grand victory over the liquor-men. The latter had resorted to every hook and crook, but were driven into a corner. Finally they drummed up an infamous story that had not a particle of truth in it, and got the officers of the law to lend their aid, and arrest a minister of the gospel who was making it hot for them. Of course, he proved his entire innocence, and got clear; but they succeeded in preventing him from making his appearance at just the time he was needed most. Has any thing been done about it? Nothing, so far as I can learn. It was an easy matter to prove the whole thing a sham, and that it was just got up to evade law and nothing else; but it is so much the fashion to evade, avoid, and *humbug* when prosecuting liquor-dealers that nobody pays any attention to it. The whole world is a good deal like the crowd in my dream.

As a matter of course, when we have the example before us of law-breaking in one direction it is an easy matter to ignore and defy the law in other ways. Yesterday's daily, Dec. 7, tells of another negro, in Kentucky, who was burned at the stake instead of being promptly executed by law, as he would have been without a question. After torturing him in every way humanity could suggest, for over three hours, they left his charred remains; and the *children*, boys and girls, gathered sticks, grass, and whatever they could get hold of to continue the burning. What do you think of such an example for the rising generation? The officers of the law tried to protect him, but there were literally *thousands*, women as well as men, who threatened the lives of the officers if they did not hand over the prisoner. I understand the governor of the State is going to call for an investigation, and arrest the leaders; but there are so many of them, and they are such prominent people, that folks laugh at the idea. What sort of state of affairs is this? The women defended themselves by saying they wanted to give the man such a punishment that no colored man would ever do such a thing again. This may sound very well; but what sort of justice can we expect from the voice of the mob?

Now, please pardon me for one more illustration. A few weeks ago our good friend Admiral Dewey was exalted to the skies. We had Dewey strawberries, and at Yellowstone Park they have a Dewey geyser; and it is Dewey this, that, and the other. Dewey was the hero of the *present age*, and a subscription was raised without a bit of trouble, and he was presented with a beautiful home. And by the way, friends, when you make somebody a present, to whom does the gift belong? Is it not the property of the one to whom you gave it, just as much as if he bought it outright with his own money? If you say it is not, I hope nobody will ever make me a present again as long as I live. Dewey so understood it, as a matter of course, and I think he did an *excellent thing* when he presented it to his wife; and I am astonished and pained beyond measure, to know that any true man or woman in the United States should hurt his feelings by even *suggesting* he did any thing

in the least out of the way. But what does this wild element do about it? The crowd that exalted a man to the skies *one* day, found fault with him north, south, east, and west the next; and this same crowd (am I not right?) right away after, tortured a poor negro worse than any savages ever tortured a prisoner of war, instead of letting the laws of the land and the laws of God decide what was right!

I have been thinking lately of a trip to Florida during the coming winter. On account of poor health I usually travel in Pullman cars; but just now I can't bear the thought of a Pullman car. Let me describe one little scene in a dining-car, and it is a scene I see enacted over and over with variations every time I go into such a car. A finely dressed aristocratic-appearing man sat opposite me at the table. The porter no doubt recognized him as a different sort of man from myself. I do not feel at all bad about this. It is everybody's privilege to find comfort and enjoyment after his own fashion — that is, within certain limits. The porter, with many bows, brought first a dainty little bottle of some kind of strong liquor. I saw the names and the price on the bill of fare. This liquor he poured into a glass containing a bit of ice; then it was filled up with some effervescing mineral water. The porter was very skillful and dextrous in handling the cut glass and burnished silver appliances for concocting the various kinds of drinks. The man ordered very little in the way of food, but it was mostly expensive wines; brandies, and things of that sort. He finally threw out a silver dollar, and the waiter, with more bows, brought back the change — some dimes and nickels; but the great man, with a flourish of his hand, indicated to the porter that the dimes and nickels were of no consequence — that he should keep them himself. Then the porter bowed very low while he expressed his thanks; and the whole performance might have done very nicely for a *tableaux* at a theater. Now, I do not know where this man got his money to buy these expensive drinks, and give away the rest of the dollar because he did not need it; but I do know from what I have seen of the class of people who drink in this way, that it is quite likely this money was wrung from some poor hard-working man, or perhaps was accumulated by robbing — well, let us say *sick* people. There are laws to prevent robbing, but it is the fashion to let this class of gilt-edged gentry get off scot free if they treat the policeman — well, say about as that man treated the porter.

Now, I am not getting to be pessimistic. There are good people in this world — lots of them. When I went about to-day among my good friends, and thanked God that there is not one on our premises who would not spring in an instant, or risk his life, perhaps, to save our property, I laughed at the *absurdity* of the dream while I thanked God it was only a dream. The greater part of our American people are temperate. We can beat the robbers (standing in high places) ten to one, and *will* beat them if our laws are enforced; but if things are going to be allowed to drift in

the way I have outlined, or, rather, in which that dream presented it, we are coming to ruin as in the language of our text, and there will surely be weeping and gnashing of teeth, as there *ought* to be.

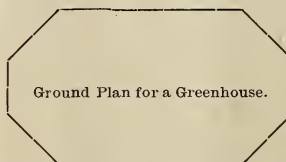


GARDENING UNDER GLASS.

After the years of experimenting I have had in making glass structures and in visiting greenhouses and market-gardens, I think I can make some suggestions that will be of benefit to those who are going into the business of gardening under glass. But my remarks will be mainly for those who have not very much capital, and wish to make the glass go as far as it will.

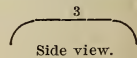
For several years I have been watching the sun very attentively during the dark months of the year — say November, December, and January. During these months we want all the benefit of whatever sunshine "comes our way." Our plants will suffer from a lack of sunlight more or less, even if we do our best. Glass is also high-priced just now, and that is one reason why we should study to make a little glass go as far as possible.

Let me remind our readers first, that a given amount of material for fencing will inclose more land if the fence is made in the shape of a circle than in any other possible way; but if our lot must be rectangular, then it will take less fencing to inclose a given area if it is a perfect square than any other shape. The longer and narrower you make the lot, the more will the fence cost to inclose a given number of acres. Now, in making a greenhouse you could inclose more space at the least expense by having it round than in any other way. But as a general rule we want the house longer from east to west. In that case it should be egg-shaped, or oval — that is, if the egg were alike at both ends. As it is somewhat more expensive, however, to make walls on a curve, I would have the ground plan oblong, and with the corners taken off, like the following, for instance:



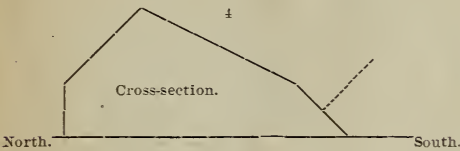
Now, reasoning as above, the way to cover cheapest this greenhouse would be to have it a half-oblong sphere, like the diagrams shown

herewith; that is, with an arrangement like



2 and 3 the same amount of glass would cover a given amount of space cheaper than in any other way. But in the first place we can not very well make a half-oblong sphere. It is

true, millionaires have such structures for their collections of high-priced exotic plants; but for growing cabbage and tomato plants, or even roses and chrysanthemums, we do not care to go into any thing that costs so much money; and even if we could afford it there are reasons why it is not what is wanted. First, we want to have the sun in the middle of the day send its rays through the glass at right angles as nearly as possible. Secondly, we want to have the morning and evening sun also send its rays through the east and west ends of the greenhouse, in a like manner, at as nearly right angles as possible. This being true, Fig. 2 should be flattened on the south side. Accordingly, we make our greenhouse so that a cross-section through the middle would be more like Fig. 4.



You will notice the longest glass roof is on the south side; and this is on such a slant that the sun during the greater part of the fall and winter months will shine nearly straight through it—in December, perhaps exactly straight through the slope on the extreme southern side. I have indicated by the dotted line about the direction of the sun's rays toward noon; and experience has backed up my theory, for the bed right near this sash is the best one in the whole greenhouse. There are two reasons for this. The sun, in the winter time, shines straight through it, as I have been saying, and, besides that, the glass is quite near the surface of the bed. Well, such houses are in common use; but I have never seen one except my own where the east and west ends of the house were also arranged to let the evening and morning sun shine through the glass at right angles. Fig. 5 will help to make this plain.

Now, there is a very good reason why these slopes at the east and west ends of the house should *not* be squarely north and south; for during the dark months the sun never rises exactly in the east nor sets exactly in the west. What shall we do to enable the morning rays to come more nearly at right angles, and the evening rays in the same way? Why, we must twist the glass sides at the east and west ends so as to have them face the sun in the southeast and southwest. The easiest way to do this is to place the whole structure on a piece of ground that slopes gently to the south.

Now, there is still another advantage with such an arrangement. It is down so close to the ground it is not liable to be injured by high winds. In fact, the winds, from whatever direction they blow, strike the glass at such an acute angle they shoot up and over it without doing any damage, and without chilling the contents as they would were they to strike an upright wall of glass. I am inclined to think

that greenhouse men have been slow to realize the great advantage of such an arrangement.

Continued next issue.

MORE ABOUT FRIEND MARCH'S "BIG SPRING."

Friend A. I. Root.—If you will remember, that ditch was about 8 feet deep where we struck that finestream of water that came boiling up from below. Well, after studying the matter over for a year I came to the conclusion that, could we get down to where that "boil" came from, we could get more water. So, hiring a gang of men, we started fifty feet down the hill and ran in nearly level. We struck four feet of quicksand, and under the sand a hard clay bottom. We followed this clay bottom up until our ditch was, at the head, 19½ feet deep. This ditch has drained the whole hill, all springs on the north side have dried up, and the water all comes *our way*, which gives us a stream of 29,800 gallons [nearly 1000 barrels.—A. I. R.] per day; and the cost of digging, planking, and covering up, was not quite \$100. With this stream of water we can more than double our crops of all kinds. Fidalgo, Wash., Oct. 28. H. A. MARCH.

TEN PER CENT A WEEK FOR THE USE OF MONEY.

I suppose most of you know something about the Franklin Syndicate that has just gone to the wall. They offered to pay depositors ten per cent a week for the use of their money; and to carry on their swindle they did pay ten per cent a week. Then they got their patrons to advertise for them in order to get more customers. This was a very easy thing as long as people would keep bringing their money with which to pay the ten per cent a week to those who had previously given them money. Of course, there were those who had sense enough to inquire why they did not go to the banks and get money at *six* per cent a year instead of soliciting loans in little dribs from poor people here and there and everywhere. Their explanation for this crazy way of doing business was, I am told, that they wanted to help (?) the poor laboring classes. Now, my friends, when you see a man anywhere throwing out dimes and quarters, and advertising far and wide that he does it to help the *poor*, set him down as a thief and a robber, and keep out of his clutches. It is only gambling under a new guise. Many of the victims admitted they *knew* the thing was a humbug; but if it held out ten weeks they would get their money all back that they had paid in, even if they never got the principal at all. These people *admitted* they were guilty of gambling. It seems hard to believe that that Franklin Syndicate robbed poor people (very likely sick people too), to the extent of millions. Since the news has gone out of their success, other thieves and robbers are starting modifications of the same plan.

Some time ago a young friend told me he had found a place where he could get 14 per cent a year and no mistake. I told him no sane man could or would pay 14 per cent a year when he could get plenty of money for less than half that much unless he were shaky or risky, and advised him to have nothing for do with it. I need not tell you how it turned out. Well, since these fellows have gotten away with such an immense amount of money, this thing will probably be tried with no end

of variations. Now, mind you, these philanthropic fellows who claim they are anxious to help the laboring people have no conscience whatever, and have no scruples at all in taking the *last copper* a poor woman has earned by going out doing washing.

"GARDENING FOR PLEASURE."

The greenhouse I have been talking to you about on another page, and which will be presented in our next issue, is now occupied, or a great part of it, with flowers instead of vegetable plants. Instead of raising stuff to sell, I am planning to grow plants this winter with which to decorate our grounds around the factories. Just now I am greatly interested in ornamental coleus. I have not yet become sufficiently well acquainted with the plant to succeed with it as I should like. If any of our readers who are experts with the coleus can give us some hints, or even send me a price list of new and choice plants, it will just now strike me where I am greatly interested. I have already a Bermuda melon-tree nearly a yard high, an azalea, an orange-tree with seven oranges on it; a lot of geraniums (I make these grow just grand), an umbrella-tree, an abutilon, quite a lot of palms, etc.



CHOICE HONEY, COMB AND EXTRACTED.

Of the car of honey received from Utah we have sold nearly two-thirds of the comb and perhaps one-fourth of the extracted so far. We are negotiating with some parties for comb, and may close out the rest of it very soon. If in need of any, write before it is all gone. Price 16 cts. per lb. in 5-case lots or over; extracted, 10 cts. in case lots of 110 to 120 lbs. per case. Samples of extracted mailed on application.

CARLOAD SHIPMENTS.

We have already begun to receive orders for supplies for next season quite freely, from jobbers and wholesale dealers, and are now shipping out one or more cars each week. We have loaded seven cars of goods for export since the last week of October, counting two we are loading as we go to press, and have orders entered for several more, besides four cars for shipment west this month.

SUNDAY SCHOOL TIMES.

Those of our readers who desire the *Sunday School Times* can have it clubbed with GLEANINGS for one year at \$1.50 for the two. If you have already subscribed for GLEANINGS under some other offer you may send 75 cents alone for the *Times*. The year begins with Dec. 15, 1899, and ends middle of December, 1900.

RETAIL CATALOGS.

We are pushing the work on the revision of our catalog as fast as possible, but are not likely to have any completed till late in January. You need not wait for a new catalog for prices, as those which are changed from old edition are printed in our Nov. 15th issue, and we will print within a few days a 16-page illustrated and priced advance catalog, without descriptive matter, for use until the complete catalog is ready.

SECOND-HAND FOUNDATION-MILLS.

We have at this writing the following second-hand foundation mills which we offer at the following prices:

No. 1858. One 6-inch Root mill. This will make fair thin or extra thin; is in good order, but has several cells slightly damaged. Price \$12.00.

No. 1949. One ten-inch Root mill with hexagonal cell and 2½-inch rolls. This has been used in our wax-room, and is in first-class condition for thin su-

per. A new mill of this style is worth \$30.00. Will furnish this one for \$20.00.

No. 05. Six-inch mill with two-inch roll, and makes fine foundation. Price \$12.00.

No. 06. Six-inch mill with 2½-inch roll. This has been used only a few months, and will make good foundation. Price \$15.00.

No. 07. Six-inch mill with 2½-inch roll. This was made for thin super. It has seen considerable use, but for a general-purpose mill it will do very well, as it would make good light brood. Price \$12.00.

No. 09. Ten-inch round cell with two-inch roll; in fair order. Price \$18.00.

Send for samples of the mills you are interested in, provided you intend to purchase, and state which ones you wish to see samples of, and we will forward them promptly.

CONVENTION NOTICES.

The Northeastern Ohio and Northwestern Pennsylvania Bee-keepers' Association will hold their nineteenth annual convention at Andover, Ohio, Jan. 17 and 18, 1900, at Chapman Hall.
Franklin, Pa. Ed JOLLEY, Sec.

The 34th semi-annual meeting of the Seneca Co. Bee-keepers' Association will be held in the K. O. T. M. Hall, Romulus, N. Y., on Tuesday, Dec. 19, 1899, at 10 A.M.
C. B. HOWARD, Sec.

Romulus, N. Y.

A bee-keepers' institute under the auspices of the Bureau of Farmers' Institutes will be held in connection with the meeting of the Cayuga Co. Bee-keepers' Society at the Business Men's Association Rooms, Auburn, N. Y., Dec. 21, 1899. Sessions at 10 A. M., 1:30 P. M., and 7:20 P. M. The afternoon and evening sessions will be addressed by Prof. Frank Benton, Assistant Entomologist, U. S. Department of Agriculture. All interested are invited.
J. W. PIERSON, Sec.

Advertiser's Department of Short Write-ups.

Little-But a Great Hatcher.

Hundreds of poultry-raisers on a small scale have long wished for a small, inexpensive, yet practical incubator. These will hail with delight the introduction of the "Wooden Hen."

This little hatcher does just as good work as the highest priced incubators. It is heated by hot water, and has the latest and most improved automatic attachments for regulating heat, moisture, and ventilation. It is made in the most substantial manner from thoroughly kiln-dried lumber, is handsomely finished, and has a capacity for fifty eggs. The extremely low price brings it within the reach of all, enabling any one to raise broilers for market, or for his own table, when prices are highest. An interesting and valuable little book about the "Wooden Hen" may be obtained free of the manufacturer, Mr. Geo. H. Stahl, Quincy, Ill., by mentioning this paper.

Since we began to offer poultry-journals in our clubbing list (see page 949) we have been interested to notice a good many of our readers are poultry-keepers as well as bee-keepers, and it seems as though success in this as well as in bee-keeping depends upon careful and economical management. One of the means for this which has come more and more to be depended on is the using of scraps of meat and bone, particularly fresh bones; and for getting into available shape, I believe there is nothing better than the bone-cutters offered by F. W. Mann & Co., Milford, Mass., whose ad appears on page 949. We quote the following, from a well-known poultry-man: "Fresh-cut bone as an egg food is no longer an experiment. We know it is the best thing on earth to make hens lay and chick grow. It will pay you to invest in a bone-cutter, if you have not one already." If you have not already written to F. W. Mann & Co. for their catalog, better do so at once, as it contains lots of valuable information, and when doing so don't forget to mention GLEANINGS IN BEE CULTURE.

Bee-hives, Bee-keepers' Supplies

We are located on the banks of the St. Croix among the saw-mills, where we are able to select the best lumber. We buy it cheap.

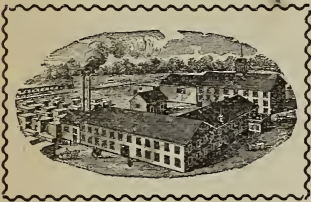
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Illustrated Catalog, 72 Pages, Free.

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HONEY = JARS.

One-pound, square, \$4.70 per gross, with corks; 5 gross at \$4.50 a gross.

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For wintering bees; include bottom, body, gabled cover; 60c ea.; 10, \$5.50. Catalog, describing every thing a bee-keeper needs, will be sent free.

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Smoke Engine (largest smoker made)	4-inch stove.	Doz. \$13.00; each, by mail, \$1.50
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Conqueror.....	3-in. "	" " 6.50; " 1.00
Large.....	2½-in. "	" " 5.00; " .90
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Little Wonder (wt. 10 oz.).....	2-in. "	" " 4.50; " .60
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Bingham Smokers have all the new improvements. Before buying a Smoker or Knife, look up its record and pedigree.

FIFTEEN YEARS FOR A DOLLAR; ONE-HALF CENT FOR A MONTH.

Dear Sir:—Have used the Conqueror 15 years. I was always pleased with its workings, but thinking I would need a new one this summer I write for a circular. I do not think the 4-inch Smoke Engine too large. January 27, 1897.

Truly, W. H. EAGERTY, Cuba, Kansas.



Bingham & Hetherington Uncapping-knife.

T. F. BINGHAM, Farwell, Michigan.

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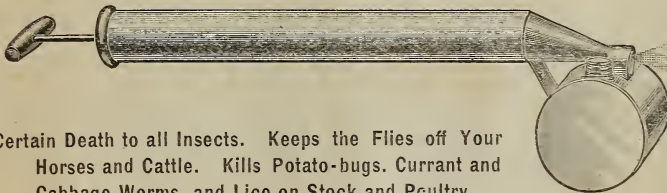
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