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VOL. XXXIX

DEC. 1, 1911

NO. 23

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Gleanings in Bee Culture

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NO. 23

Editorial

OUR COVER PICTURE.

THE winter scene on the cover of this number shows a part of the apiary of J. F. Diemer, Liberty, Mo., there being in all 101 colonies in ten-frame hives. The picture was taken last February by Mr. Diemer's daughter, after a heavy fall of snow, as shown. The fence, seven feet high, is along the west side of the apiary, and affords good protection, in connection with buildings, trees, etc., on the north and east.

HELPING TO SPREAD THE GROWTH OF SWEET CLOVER.

WE would call attention to the article by Mr. Henry Reddert, on page 726, showing how his Association is spreading the gospel of sweet clover among the railroad companies and farmers. Every individual bee-keeper should seek to remove the unreasonable prejudice that now exists against the plant. Our booklet on sweet clover gives a large amount of evidence showing that it is one of the most valuable forage-plants that can be grown—valuable because it will thrive on waste lands unfit for growing any thing else, and because it prepares other land for the successful growing of alfalfa.

BEE-KEEPERS ADOPTING AUTOMOBILES GENERALLY.

As an indication of the extent to which bee-keeping is carried on by producers in Colorado, it is interesting to note that there are between twenty and twenty-five automobiles owned by bee-keepers in that State alone. There are many others who are buying or considering the purchase of automobiles, and it would be helpful to all such if those who have purchased machines would tell something of their experience with them—what make they have, and why they bought it. We ourselves are convinced that there is no other class of people among whom the automobile is so great a necessity as bee-keepers, for its use in and about extensive apiaries has increased to such an extent that it is now almost indispensable.

"HONEY-PLANTS OF CALIFORNIA."

THERE has just come from the Agricultural Experiment Station, College of Agriculture, Berkeley, Cal., Bulletin 217, entitled, "Honey-plants of California," by M. C.

Richter. We presume it will be sent out free to any resident of California by writing to the Superintendent of State Printing, W. W. Shannon, Sacramento.

This bulletin contains 65 pages, giving a complete list of the honey-plants of California, classified in three groups; first, honey-plants giving a surplus during the average season; second, honey-plants occasionally yielding a surplus; third, honey-plants not known to yield a surplus, but which the bees visit more or less.

In the introduction it is stated that this bulletin "is the result not only of a compilation of all literature obtainable on the subject, but also of field work in different parts of the State during the past four years."

In speaking of *Salvia mellifera*, or what we know as black sage, it is stated:

Honey, water-white and of a rich and delicious flavor; of heavy body, especially north of San Luis Obispo; does not granulate; moderate amount of yellow pollen. This is the best honey-producer on the coast, the flow being dependent upon winter rains with a warm spring quite free from cold winds and fog. When in bloom a certain amount of warm weather is required before it will produce nectar. As a general rule, every fifth year an excellent crop is obtained, and every third or fourth year a total failure is experienced. That which is commonly known as "California white-sage honey" throughout the United States and Europe is not from the white sage, but the black sage. The white sage yields comparatively little honey as compared with either the black or purple sage. The sage-worm, in cloudy weather, often becomes abundant enough to destroy much of the bloom. Dodder and a rust (*Puccinia*) also do damage in certain localities. There is a cross between this species and *S. apiana*. For the correct botanical history of the melliferous sages, see H. M. Hall, *Pacific Rural Press*, February 22, 1908.

California bee-keepers, doubtless, will be interested in this bulletin, not only for its technical but practical value as well. Residents of other States can probably obtain it by paying a small sum. Address State Printer as above.

SHORT-WEIGHT HONEY AND UNCLE SAM.

THE Department of Agriculture is keeping a most alert watch of the labels used on various food products, and cases of misbranding and adulteration are being prosecuted right along. Shortages in the packages are being corrected repeatedly, and we believe that it will not be long before packers

will come to realize that they are treading on dangerous ground if their labels do not state the exact truth.

The following, issued by the United States Department of Agriculture, September 18, 1911, shows that even a slight variation in amount will get the packer into trouble.

MISBRANDING OF HONEY.

On May 13, 1911, the United States Attorney for the Southern District of Iowa, acting upon the report by the Secretary of Agriculture, filed information in the District Court of the United States for said district against Albert A. Deiser & Co., a corporation, affecting shipment by it, in violation of the Food and Drugs Act, on June 15, 1910, and November 14, 1910, from the State of Iowa into the State of Nebraska, of a quantity of honey which was misbranded. The product was labeled: "Mrs. Morrison's Brand Pure Food Products Honey Net Weight 8 Ounces Prepared by A. A. Deiser & Company, Des Moines, Iowa."

Examination made by the Bureau of Chemistry of the United States Department of Agriculture of two packages of this product taken from the shipment of June 15, 1910, showed an average shortage of 4.86 per cent in weight. An examination of six packages by said Bureau from the shipment of November 14, 1910, showed an average shortage in weight of 3.45 per cent. Misbranding was alleged for the reason that the weight of the product was not plainly and correctly stated on the outside of the package.

On May 22, 1911, the defendant pleaded guilty, and was fined \$10 and costs.

W. M. HAYS,

Acting Secretary of Agriculture,

Washington, D. C., Sept. 18, 1911.

SHADE FOR HIVES IN SUMMER.

IN respect to the matter of shade or no shade, as discussed on page 725, there are four different classes of bee-keepers. First, those who leave their hives out in the open without natural or artificial shade; second, those who use natural shade, either trees or shrubbery; third, those who employ shade-boards during the hot days of the year; fourth, those who use overhead trellises so arranged as to shade the operator and hives during the middle or hot hours of the day as shown on the cover of our last issue. Each of these classes is influenced by climatic conditions. Some of them believe that an excess of shade or sunshine is detrimental.

Most bee-keepers in the Northern States are attaching less importance to shade than they formerly did; indeed, it has been shown that colonies in the shade of trees or buildings do not do as well as in the open, and more and more we see a tendency to locate apiaries in clear spaces. Shade-boards are then employed during a small part of the season.

The article by Mr. E. S. Robertson, page 725 of this issue, goes into this question of a variable or intermittent shade. There can be no question that the entire absence of shade during some of the hot and oppressive weather that is experienced in many of the Northern States is conducive to loafing and swarming. During such a time the bees should be given a little protection from the sun. A light cheap shade-board answers the purpose very nicely.

The question may be raised whether it is advisable to place the shade-board to one side of the hive so that it will shade the en-

trance. During the height of the season, when bees are going to and from the field, the changed aspect of the shade-board from the top to the side of the hive would have a tendency to confuse the workers.

In the illustrations on page 725 it is clear why Mr. Robertson can use a light shade-board that will not be blown off the hive. Apparently the apiary is surrounded by woods, breaking off the force of the wind; therefore if one desires to use shade-boards he should locate the apiary where it will be protected from the prevailing winds. In prairie countries this may be impracticable. Resort is usually had to a 15 or 20 lb. stone.

A MODIFICATION OF THE McEVROY PLAN FOR TREATING FOUL BROOD.

IN a conversation with Mr. H. Triekey, of whom mention was made in our last issue, the subject of foul brood was touched upon. Mr. Triekey emphatically believes in a man being his own foul-brood inspector, for "if he keeps watch of his bees, and does not let the disease get the start of him, it is not such a serious matter after all. When foul brood gets into a locality, it is not an easy matter to get rid of it entirely; and even if it gets into a large apiary it seems bound to crop out later occasionally, even though there are no other bees near. But this is no reason for being discouraged. Almost as much honey may be produced as if there were no disease. It means a little more work, that's all."

When asked what method he followed for getting rid of the trouble he said that there is but one sure cure, and that is the McEvroy. We asked if he considered it necessary to shake the bees on to foundation the second time, and he said that he did not. "But," he added, "I do not follow exactly the McEvroy plan. When I find a diseased colony I remove every comb that contains no brood, leaving only the combs with brood in the hive. I move these together in the center of the hive, and then leave the colony that way from five to eight days."

"What is your object in doing this?" we inquired.

"You'll see if you wait long enough. Now, if I did any thing more to this colony, the bees might become disgusted and swarm out, so I wait from five to eight days, as I said in the beginning, then, just as carefully as possible, I lift the brood-chamber from its stand so that hardly a bee will know any thing of what is going on, and then put a new hive in its place. Then, just as quickly as I can, and without the use of smoke, in less time than it takes to tell it, I brush the bees off those old diseased combs into the new hive, the frames of which have starters of foundation. It does not take half a minute to do this brushing, and the bees do not have time to till up on that diseased honey left in the few combs. If I had left the full set of combs in the hive, it would take much longer to brush the bees off, and they would have time,

some of them, to fill up on the diseased honey. This McEvoy plan should never be practiced, of course, unless there is a honey-flow. Now, if more honey is coming in than the bees need, such honey stored in the combs is not likely to be diseased."

Mr. Trickey remarked further that the colony could be built up after this shaking was done, in any way, provided the cluster of bees was not disturbed. He said if the cluster were broken they would very likely swarm out in disgust.

By removing all combs except those that contain brood at the very beginning, it takes so little time to brush the bees off those remaining, eight days later, that practically no diseased honey is carried into the new hive; and when the new combs are built, there is no taint of disease left, and the bees have a new chance once more with no handicap before them. In this way the removal of the first combs built, and the shaking on to full sheets of foundation, with all the attendant danger of swarming out, is done away with, and still there is no danger of the cure not being complete. In fact, after practicing the plan for fifteen years without change, Mr. Trickey believes it is safe enough to give to the public. It must be remembered that our friend is one of the most extensive bee-men of Nevada, and his plan is not a new one, nor one that has not been thoroughly tried by him.

AMOUNT OF WAX IN DRAWN COMB.

HAVING occasion recently to answer a question relative to the amount of new wax that bees use in building a comb, we selected three combs for comparison, all of which had been in a hive. The three frames had originally contained a full sheet of medium brood foundation. The foundation in the first frame had apparently not been touched by the bees, although it was somewhat travel-stained. That in the second frame was about half drawn out; that is, nearly all of the cell walls were lengthened somewhat, and nearly half of them were almost full depth. It would, perhaps, be safe to say that this comb was half drawn out. The comb in the third frame, while not an old one, was fully drawn out, and had had several generations of brood reared in it, in the lower portion especially. The comb was straight and of uniform thickness, the frame being a metal-spaced Hoffman, and the upper part of the comb was no thicker than that part where the brood had been reared.

Weighing the three frames we found that the first one tipped the scales at $8\frac{1}{2}$ ounces; the second, $9\frac{1}{2}$ ounces; and the third, $13\frac{1}{2}$ ounces. We then cut out the comb from the third frame, broke it up, melted it, and, after pressing out the wax and cooling it, we found that we had almost exactly three ounces. In other words, only one ounce more wax had been used than was contained in the full sheet of medium brood foundation, which originally weighed two ounces. In this particular case, then, only

one-third of the total amount of wax used was new wax, or, stating it in another way, the bees had added a half more in drawing out the comb.

Not entirely satisfied with the result of the above experiment, feeling that the chance for error was too great, we threw aside the third comb that we had tested before, and used the first two together with two others fully drawn, but which had had no brood reared in the cells. The first frame, therefore, contained a full sheet of medium brood foundation which had been on the hive, but was untouched by the bees except slightly travel-stained. The second comb was, perhaps, half drawn out, as mentioned before. The third as well as the fourth comb was fully drawn, and was as near like the others as possible.

On weighing these four combs we found, as before, that the first one weighed $8\frac{1}{2}$ ounces; the second, $9\frac{1}{2}$ ounces; the third (that is, the fully drawn comb, together with the frame) weighed $10\frac{1}{2}$ ounces; and the fourth one, $10\frac{1}{2}$ ounces.

Analyzing this last set of figures we find that the bees added two ounces of wax in drawing out the comb—the difference between $8\frac{1}{2}$ ounces and $10\frac{1}{2}$ ounces. We regard this result as the more accurate one—that is, that bees in drawing out a comb from medium brood foundation add about the same amount of wax in completing their work—in other words, that medium brood foundation furnishes half the wax necessary.

Fearing that the difference in weight in the wood of the frames might cause an error we cut a full comb out of a frame and weighed it, getting, as a result, exactly four ounces, thus supporting the former figures. We also proved the figures by weighing a number of different combs; and while there was a slight variation, we believe it is safe to say that the average comb of Langstroth dimensions, built in a self-spacing frame that has never had brood in it, weighs not far from four ounces. This would make 40 ounces for 10 combs, or $2\frac{1}{2}$ lbs. We admit that, in rendering wax from old combs, over three pounds of wax per ten combs has more than once been obtained; but it is our belief that such combs were either thicker than ordinary brood combs or else larger, possibly. We should explain that the combs we used lacked half an inch, approximately, of reaching the bottom-bar, and they were also thinner near the lower edge.

These results should go a long way toward proving conclusively that bees do "draw out" foundation in spite of the fact that some have stated that they do not alter the foundation, but build on with entirely new wax. We might mention here, too, that we have seen comb built from nothing but a thin sheet of wax peeled from a board that had been dipped in melted wax, and on holding such comb up to the light it was almost impossible to distinguish between the part built naturally and that built over the plain sheet of wax.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

HOLD UP, Mr. Editor. *Please* don't send that silk hat, p. 698. I'd rather admit that a virgin emerges a week before the prime swarm than to be compelled to wear a stove-pipe.

YEARS AGO, at the home of the late Jesse Oatman, Dundee, Ill., I saw packing-cases for four hives like that picture, p. 694. If I'm correct, some of them were two stories, with eight hives. He called them a success.

DAN WHITE's story about putting poor honey on the market, p. 684, recalls that, years ago, a man put on the Marengo market jars of honey-dew that was very poor. In spite of protests he insisted it was all right, for the bees had made it. "How could any man be such a fool?" Well, I was younger then than I am now.

A. I. ROOT, get ready for a lot of free ads of Early Joe apples. If you're here next summer you can eat Early Joe apples off a tree I planted 45 years ago. I don't wonder you liked them. Two miles away on the prairie, Early Joe is ever so much redder than here. You'll find it in the list of apples in Standard Dictionary. It was common in catalogs 50 years ago.

FOR DINNER to-day we had chicken roasted in a paper-bag. Tried it yet? Good thing. [It is all the rage around here; but some have suggested a caution that it is not wise to confine the gases in a chicken pie. For this reason many housewives make a practice of pricking holes through the upper crust of the pie. The other day we heard of a case where a chicken was cooked inside of a bag, and it made several members of the family sick. There is no question that bag cooking adds to the richness of the meat, but does it not also place an additional burden on the organs of digestion? We don't know.—ED.]

ABBE PINCOT, by using foundation containing 736 cells to the square decimeter, instead of the usual 854, has bees that are about 8 per cent larger every way than bees reared in ordinary cells, and he claims they store about a fourth more.—*L'Apiculteur*, 373. That he has these larger bees has never been questioned, that I know of, but it has been questioned that they store so much. [Like yourself, we question very much whether larger bees would store more honey, and we venture the opinion that, if the thoraces or waists of those bees reared in larger cells were carefully calipered, there will be found no actual difference in size. In other words, we believe that bees reared in large cells will pass through standard perforated zinc just as readily as bees reared in normal cells. We do not believe that the laws of nature will be changed very much by a single environment in one generation.—ED.]

SOME MARKING for a queen that will be permanent, easily seen, and harmless, is asked for in the *British Bee Journal*, and *Review* repeats the request for some harmless chemical with which the queen's thorax may be painted. Since 1900 the Swiss have used a rapidly drying lac—white, yellow, red, or blue. The queen is held by a little net pressed down upon her; and the lac, which must be neither too thick nor too thin, is applied with a pointed stick. Learn how by practicing on workers. Full particulars, occupying four pages, may be found in Dr. U. Kramer's excellent book, "Die Bassenzucht," page 109. [In some cases we should be inclined to believe that this artificial coloring would impart a foreign odor to the queen to such an extent that her subjects would ball her. In many and probably in most cases no trouble would follow.—ED.]

MR. TRICKEY, p. 677, doesn't know about corrugated paper on top of sections in shipping-cases. Same here. What possible use? He's right, too, in wanting uniform tare. Variation in tare is owing chiefly to difference in glass. I don't care so much for the difference in weight, but I don't like to have my temper splintered into little pieces trying to force into its place a piece of glass too thick for the groove. I never got any yet without this fault. [We advocate corrugated paper on top and bottom of shipping-cases for several reasons—first, it adds but very little to the expense; second, freight-handlers, truck-men, and commission men very often handle comb-honey cases upside down. If corrugated paper be used on top as well as in the bottom, it cushions the sections, no matter how the cases may be piled. The slight additional cost will be more than made up by the saving in leakage and breakage. In the third place, even if the cases are not piled upside down when there is no corrugated paper on top of the sections, the wooden cover comes in direct contact with the sections, and any blow or pressure on the cover comes upon the sections. Commission men have complained how their employees, railroad, and truck men will put their big clumsy feet on top of the covers of the 24-lb. cases. The weight of a man weighing 150 or 175 lbs. in the center of the case is quite sure to do damage to the sections beneath, unless there be a cushion of corrugated paper under the cover. Fourth, corrugated paper at top and bottom will hold each individual section firmly in place—not by an unyielding pressure, but by a soft cushion. If the shipping-case is too shallow or too deep, the sections are bound to suffer more or less. When too shallow, the mere act of nailing on the cover will break some sections. When too deep, the sections will have more or less shuck up and down.—ED.]

NOTES FROM CANADA

J. L. BYER, Mt. Joy, Ont.

DRY SAWDUST FOR WINTER PACKING.

After starting with sawdust as packing for hives for winter, and trying leaves and almost ever thing else recommended for the purpose, I now prefer dry sawdust to any thing else. About four inches of the material in a sack, over an open quilt on top of the frames, is pretty nearly an ideal top protection for bees in our climate.



ALSIKE NOT A DROUTH-RESISTER.

Usually alsike clover is given the palm for being the hardiest of the clovers. While this may be true for wintering, the past season clearly demonstrated that it will not compare with the other clovers as a drouth-resister. Alfalfa clearly heads the list in this respect, as many fields seeded this spring are looking fine at present. Red clover comes next; and since the rains a number of fields have improved greatly, and have a nice stand of healthy plants. On the other hand, out of hundreds of acres of alsike seeded I do not know of over half a dozen fields left within five miles of us.



PROSPECT OF CLOVER FOR 1912 AS A RESULT OF MUCH RAIN.

Here in Ontario we have had an abundance of rain this fall too. However, we shall have no such benefits therefrom as the editorial in Nov. 1st issue, p. 643, forecasts so hopefully. What is said, no doubt applies to the white-clover sections; but so far as alsike is concerned, when it is dead that ends the question for the present season. The great drouth killed the plants, and no amount of rain can resurrect them again. While many sections in Ontario have white clover in abundance, just through here we have little, and the outlook is decidedly poor for a honey crop for us next year.



THE ONTARIO CONVENTION.

At this date, Nov. 10, many of us are looking forward with pleasure to attending the Ontario convention, next week. Before this is in print the convention will be over, and at present it looks as though we would have a record attendance and a very profitable meeting. While the season has not been good, and prospects are none too rosy for next year, in many localities, yet bee-keepers are a hopeful bunch, and all seem to be as enthusiastic as ever. It takes a lot of real downright trouble to give a true bee-keeper the blues—in fact, the calling is of such a nature that pessimists soon get knocked out early in the game.



ALFALFA IN UNIRRIGATED REGIONS.

Alfalfa at S. D. House's in New York State (page 543, Sept. 1), and yielding *heavily* in a region not irrigated—what is the explanation of this unorthodox procedure on the

part of this well-known plant? Even in its favored localities it is classed as a rather *slow* yielder if I remember correctly. Here in Ontario it yields a little honey *sometimes*, oftener none at all. Then, again, the farmers cut it too soon to allow the bees to get much from the blossoms, even if it was in a nectar-yielding humor. Is the crop left for seed around Syracuse? If so, and the plant yields as described, surely friend House and the other bee-men in that place have fallen in "pleasant places." What about the buckwheat that will be in bloom then? Do not the bees mix the honey from different sources? If I remember correctly, friend House has told me that he usually gets a buckwheat surplus.



WHY BUCKWHEAT YIELDS ONLY IN THE MORNING.

In a recent issue of GLEANINGS an answer is given to a correspondent relative to buckwheat yielding nectar. It is said that buckwheat secretes in the afternoon as well as in the morning, but the bees have all the nectar cleaned up before night, and for that reason cease working on the blossoms. It is not so here in Ontario; for whether there be one dozen colonies or 200 colonies on a range, it makes no difference in the matter, as about noon the bees stop working on buckwheat, showing clearly that nectar secretion stops during the heat of the day. On the other hand, when we occasionally have a day that is warm and damp—muggy weather, as we call it—then the bees will gather buckwheat honey all day. [At the Alexander yard, where there is such a large acreage of buckwheat, the bees worked all day when we were there, if we remember correctly, and the day was not warm and damp either. Possibly this is a matter of locality.—Ed.]



OUR BENEVOLENCES.

I am surprised that the author of the Home papers allowed that model (?) budget to be printed, page 23, Nov. 1, without commenting thereon. I note that to the church was contributed the *magnificent* sum of \$10.80 during the year, while under the heading of "amusements" credit is given for \$50.40. Possibly the sum given represents too nearly what the most of us give toward church work, and then we wonder why the cause of missions, etc., goes forward so slowly. The Jews gave a straight tenth, besides many freewill offerings. Surely we have much to learn from the Jews, even though they are despised by many. This is hardly in line with bee-keeping, but GLEANINGS is not strictly a *bee* journal, so I hope to be pardoned for turning aside from business for once. A contribution of \$10.80 to the church, out of an income of \$1800, struck me as being incongruous, and I wondered that the item was given at all.

Bee-keeping Among the Rockies

WESLEY FOSTER, Boulder, Colo.

THE COLORADO CONVENTION, FOR DEC. 12 AND 13.

We have work to do at our convention to be held in Denver, Dec. 12, 13, at the Auditorium Hotel. Freight and express rates will be discussed, and a plan outlined for the association to work on.

A comb-honey-grading contest will be held, and this will be in the line of an educational test. Every comb-honey producer should make preparations to take part. There are a few minor changes in the grading-rules that will be considered. The discussion of the foul-brood situation in Colorado will be a very important one, and the drafting of several amendments to be introduced at the next meeting of the legislature will be taken up. The exclusion of shipments of diseased bees should be made easier, and the fixing of penalties for failure to treat diseased colonies should be incorporated in our present law. Railroads will give rates on account of the convention of the American National Live-stock Association.



COLORADO HONEY AND THE EASTERN MARKETS.

Colorado's bee-range is spreading rapidly, and it is probably true that there are not more than half the bees in the State that could be kept profitably. There are three causes for this unoccupied territory: First, failure of the honey crop in northern Colorado, and the removal of the bees, or death from starvation; second, the ravages of American foul brood on the western slope, where some quite extended districts have been rendered destitute of bees, or nearly so; third, the new irrigation projects now in operation, and not old enough yet to be fully stocked with bees. Colorado should treble her honey shipments within the next ten years; and if the older irrigated districts "come back" as honey-producers this trebling of the crop will be probable.

The most successful bee-keepers in Colorado are averaging only 40 to 60 lbs. of extracted honey, and 25 to 35 lbs. of comb honey. They make up on the number of bees operated. There are about 25 bee-keepers in Colorado who operate more than 500 colonies each; four or five who have over 1000 colonies, and one or two who have over 2000.



A STRONG PLEA FOR NATIONAL GRADING-RULES.

Now that the National Association has adopted the Colorado double-tier shipping-case and $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{8}$ section as the standard, why not have National grading-rules? Shall we hereafter designate the double-tier 24-lb. case as the Standard, the National, or the American shipping-case? Now, if we can only get together and adopt National rules, a big advance will be made. Here in

the West we feel confident, of course, that the Colorado rules would meet with the same approval as have the double-tier case and the $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{8}$ -inch section.

We are bound to have one universal distributing system before many years, the same as the orange-growers, and the move for unity in supplies points the way. It is but a stepping-stone to more economical and direct dealing between producer and consumer.

For some reason much more extracted honey was produced in Colorado the past year than formerly. The slow flow that has been the rule for the past few seasons may have had an effect in driving bee-keepers to extracted-honey production. Extracted honey can be bought in Colorado for 6½ cents on the western slope, and for 7½ to 9 at Colorado common points in eastern Colorado. The freight rate (fourth class) from the western slope to Denver or Pueblo is 75 cts. per hundred, which accounts for the lower price in western Colorado.

Comb honey will remain in favor so long as it sells so readily, and so long as extracted honey sells so slowly.



IMPORTANCE OF REINSPECTION OF DISEASED APIARIES.

One of the greatest mistakes made by the average bee-inspector is in neglecting the reinspection of the diseased apiaries. The inspector should be able to show the owner how to treat his own bees; and, although his work is largely educational, he should see that the bees are promptly treated according to directions. It does far more good to the industry in the development of capable bee-keepers to take time in showing how to cure foul brood than to burn up a whole lot of bees; but one must be firm in demanding that thorough treatment be given within a reasonable time.

Every bee-inspector should pass an examination as to fitness for the work. There are inspectors who are capable in every way except eyesight. Others do not have an adequate knowledge of the sphere of an inspector's work, especially on the educational side. Some are too easy and others too severe, and I have known several who did not know foul brood when they saw it.

Politics has played too large a part in the appointment of inspectors. One inspector so appointed told me that we had no bee-inspection law that amounted to anything, but at the same time he was drawing pay from the county for work that was supposed to be done, to the extent of several hundred dollars a year.

Mr. Demuth, of the Bureau of Entomology at Washington, sent an excellent paper to the National convention entitled "Methods of Bee Inspection," which every inspector and bee-keeper should read.

Conversations with Doolittle

At Borodino, New York

SHALL WE USE QUEEN-EXCLUDERS?

"One of my bee-keeping neighbors told me that he considers queen-excluders of no value, as they shut the bees out from the upper story, to an extent which diminishes the crop of honey. What do you advise on this point?"

"I have used the queen-excluding metal for years. When it first came into use, most bee-keepers believed in having all the open space possible between the brood-nest and the supers above. For this purpose many of the boxes which were used before sections came were without bottoms save a small stick or two to hold the sides in place, while many sections were made in a similar way, so that the bees could have free access to the honey-receptacles, for in this way only could the best results be obtained. Soon after came the idea of a small brood-chamber—one of a size suitable for the needs of the brood, thus leaving room for all of the surplus white honey in the sections, while the brood, being less late in the season, the dark or fall honey could be stored in this brood-chamber for the wintering of the colony. This idea spread like wild fire, inasmuch as this white honey brought from five to eight cents more per pound in market than the dark. But with these contracted brood-chambers, much pollen and considerable brood went into the sections, damaging them for market to an extent that would make a loss greater than would result from a smaller yield of white honey caused through using a brood-chamber large enough to accommodate the brood, pollen, and some honey.

"About this time the queen-excluding zinc was introduced. Some went wild over it; others were opposed to it, especially those who had left the bottoms off their surplus boxes so that the bees could have free access to the supers. As I was one of small brood-chamber users, I procured some queen-excluders, using these on ten colonies of as nearly equal strength and ability as were ten other colonies that were worked as before. At the close of the season I had as many completed sections from colonies when queen-excluders had been used as from those not having them, while all of the sections were without either brood or pollen, and almost without travel-stain, so that the next year found me using excluders with fully half of my colonies. In this way I kept on until I was convinced that the claim of less honey through the use of queen-excluders was a fallacy.

"When I came to work for extracted honey, I again went through with the same experiments to find out what would be the results of their use as to the yield. For example, several strong colonies were taken. Some were worked without and others with an excluder. At the commencement of fruit-bloom both needed an upper story.

Those without the excluder allowed the queen to go where she pleased, which was usually into the comb of the upper story, resulting in more or less brood in them. But when it came to a close examination and comparison, it was very seldom that I found more brood in both of these stories before the harvest from white clover was on than the lower one would hold, especially in case of a ten-frame Langstroth hive. And this brood, which would easily go into one hive, was scattered all through the combs of the two. With the white-clover flow, the bees soon needed more room; and as there was nothing in either story in suitable shape to extract, there was nothing to do but add another story. Five times out of six the queen would go into this third division with her eggs, rather than keep her brood-nest down in the first, where it was before any supers were put on. As three stories is about as high as it is safe to go with hives in this locality on account of our high winds during sudden storms, it is necessary to begin to extract soon if the flow keeps up, as the hives are boiling over with bees—old, young bees, drones, and a queen, with pollen and honey mixed with brood in all stages. So if we don't extract from frames having brood in them we do not get much honey; and if we do so extract there will be more or less larvæ thrown out with the honey, go as careful as we may.

Now let us take the colony which had the excluder. When the bees need more room we put the hive having the combs to receive the surplus honey over the excluder, and know that the queen is and will stay where she belongs—in the brood-nest. The bees commence to store honey in the upper story as soon as any comes in from the fields, while the queen spreads her brood clear to the corners of the frames in the lower hive. When the harvest from clover comes on, we put another under the first one; and by the time the colony needs more room, the combs in the first super will be filled and sealed nearly solid with beautiful white honey, without a cell of brood when the time comes for extracting.

"The second super is now raised, if there is promise of a further yield of nectar, and another filled with empty combs is put underneath. If there is danger that the harvest may not continue much longer, it is better to put this last super on top. Thus it continues to the end of the season, and it is fun to extract these full combs freed from bees by a bee-escape. By the old way each comb had to be handled separately to brush the bees off; for bees having brood will not go from that brood down through a bee-escape. For fifteen years I have not worked a colony for extracted honey without the use of a queen-excluder; and I use them when working for section honey, in every place where I think they are needed."

General Correspondence

A BRIEF REVIEW OF THE AUSTRALASIAN BEE MANUAL.

BY DR. E. F. PHILLIPS.

Mark Twain is authority for the statement that there are four things that you do not know, and that there are but four or five people in the world who possess this knowledge. One of the four is the answer to the question, "Where is New Zealand?" Every American should know his Mark Twain well enough to know what the other three unknown facts are. However, bee-keepers have of late years been led to learn something of New Zealand because of the activity on those islands along the line of bee-keeping. We may still labor under the impression that New Zealand is close to Australia or Asia or somewhere, and that it is reached by means of a bridge, but we know now that bee-keeping is an important industry there (wherever it is), and that Isaac Hopkins is largely responsible for the present importance of the industry.

Mr. Hopkins, late Chief Apiarist to the New Zealand Government, has recently issued a new book with the title which heads this notice. This is an extension of his "New Zealand Bee Manual," and is issued as a fifth edition. The book is written in an extremely able way, and contains much of interest to bee-keepers on all sides of the globe. It will, perhaps, shock an American bee-keeper to read in the calendar in Chapter XIX., "*January*.—In average seasons a goodly proportion of the crop of honey is secured this month"

"*June*.—This should be a quiet month in the apiary" However, either the New Zealander or the American is upside down, and we must believe that in Australasia the times are out of joint.

The discussion of races of bees, natural history, bee products, apparatus, and honey production read quite naturally to an American, for Mr. Hopkins was instrumental in introducing the Langstroth hive into New Zealand in 1877-'78, and he states, "In Australasia we fortunately have the Langstroth as practically the standard hive; in fact, there is no other kind in use in New Zealand." We must take off our hats to New Zealand in this matter. He also introduced the Italian bee in 1880, and it seems to be almost "standard" also. Many of the illustrations are of apparatus of American manufacture.

Mr. Hopkins is a firm believer in the desirability of ripening honey outside the hive in shallow tanks, and he discusses this subject at some length. Chapter XVIII. is an important discussion of the subject, "Bees in Relation to Agriculture." This chapter presents the claims of bee-keeping for recognition as an important phase of agriculture in a manner which leaves room for little doubt in the mind of even an outsider.

While Mr. Hopkins has done much for apiculture in Australasia, there is probably no room for doubt that his best work has been in connection with the control of brood diseases. He was chiefly instrumental in the passage of the New Zealand Apiaries Act in September, 1907, and for two years had charge of the inspection. This law is unique in that it is the first to prohibit the keeping of bees in any thing but movable-frame hives. Mr. Hopkins firmly believes that any law which lacks this provision is faulty, and that this provision is the chief factor in the marked success which has attended the enforcement of the law. In the introduction he states, "I feel certain that little or no headway against disease can be made in any country unless power is given by legislature to abolish all fixed-comb receptacles as domiciles for bees." In Chapter XVI. he states further: "The result of this provision in the diminution of foul brood throughout the Dominion has exceeded all expectation." It will certainly profit those of us who are interested in disease control to consider carefully the experience of New Zealand.

Mr. Hopkins has recently entered his seventy-fifth year. He has resigned his former position as Bee Expert for New Zealand, but still retains the management of the government apiary. The bee-keepers of New Zealand and of Australasia are to be congratulated on having received his long years of service in their behalf.

Washington, D. C.

CARBOLIC ACID IN THE APIARY.

BY A. W. YATES.

With reference to what friend Crane has said, page 419, July 15, my first experience with carbolic acid for apiarian purposes dates back 25 or 28 years. An article which I read in one of the bee-papers at that time recommended its use instead of smoke for handling bees. I was a young man at that time, and, I might add, born and raised in Mr. Crane's State, and curiosity led me to try it. My bees were all blacks, and the consequences were that I took a good stinging and skip-ped.

It can be used for driving the bees from the supers; but unless one is very careful not to let it come in contact with the sections it had better not be tried.

It was not until recent years that I undertook to make any practical use of carbolic acid around the apiary. One day a can of honey was accidentally upset in a little outhouse having no cellar under it; and as it ran down through the floor the bees were soon there in force—thousands of them. What to do I did not know. I tried smoke and then water to no avail. Finally, in des-

peration I happened to think of carbolic acid, and made a strong solution in water, pouring it on the floor and letting it follow the honey down. In a very short time the place was rid of them. This was an eye-opener as to what could be done with the stuff.

CARBOLIC ACID IN CASE OF ROBBING.

About as lively a time at robbing as I ever saw was at a fellow bee-keeper's house one day. I happened to arrive after the bees were thoroughly aroused, and in a short time it would have been too late. I procured a cloth, soaked it in a strong solution of acid and water, and stuffed it into the entrance so that only one bee at a time could pass. The trouble was soon over. I gave instructions that the cloth should be kept soaked until the next day, however, to drive away the prowlers, and the colony which otherwise surely would have been lost was saved.

IN TRANSFERRING, OR IN TREATMENT OF FOUL BROOD.

I keep carbolic acid constantly on hand for cases of robbing, but use it to the best advantage in the treatment of foul brood, or in transferring from old box hives where it sometimes happens that little particles of honey have dropped, and where, during a lull in the honey-flow, robbers are bound to be about. With a liberal spraying of the mixture around the hives to be treated I have no trouble.

I am pleased to see that friend Crane has taken hold of this, and feel sure that he will find it a great help. The atomizer may be all right, but I prefer the sprinkling-can. Acid is cheap, and I like to use plenty of it. I treated ten colonies this fall without a particle of trouble in an apiary of 28, when no honey was coming in.

OPEN-AIR FEEDING IS WASTEFUL.

Much is said about stimulative feeding, but I do not remember having read any thing in regard to dry sugar—that is, sugar that has been moistened, but not enough to become dissolved. Two years ago I fed 500 lbs. of sugar by the open-air method as an experiment. I was busy away from home at the time, and would feed before I left in the morning. At night it would be all gone, and I thought I had struck something rich. Imagine my surprise later on, when examining the hives, to see scarcely any perceptible change in the amount of stores in any of them.

Not long ago I discovered what had become of that 500 lbs. of sugar. In liquefying some candied honey, some of it ran out in the steam-vat; and, rather than throw it away, I set it out for the bees. It was a sunshiny day, so it was not long before they were living up to their reputation, going in and out as fast as their legs and wings would take them. About 4 o'clock I went out to see how they were progressing, standing so that they were flying between me and the sun, and so I could see the little drops falling like rain. My theory is that they gorged them-

selves so that they could not carry it to the hives, and dropped it on the way. No more open-air feeding for me.

Hartford, Conn.

BEE-KEEPING EXTENSION.

The Bettering of Bee-keeping in Belgium.

BY DR. BURTON N. GATES.

Massachusetts Agricultural College, Amherst, Mass.

During the last decade particularly, an effort has been made to bring within the knowledge of the laymen the most recent results of agricultural investigation. In the United States various methods have been tried. Many agricultural colleges now have special departments devoted to this kind of teaching. Some educators are skeptical as to the ultimate outcome of these methods, yet the results of agricultural-extension work are not new in Europe. Belgium particularly has developed the method and given it a long trial. As never before, most concentrated attention is turned toward the discovery of the most effective and economic methods of extending agricultural education.

As a new subject in this instruction, there seems to be an opportunity to present bee-keeping to the public, and thereby accomplish a greater organization, better bee-keeping, larger production, and more handsome returns for the apiarists. For years the subject of bee keeping has had attention, even in Belgium, one of the smallest countries in Europe, where most astonishing results followed. These are set forth in detail in a recent paper entitled *L'Agriculture Belge de 1885 à 1910*.*

The results as presented in this paper have been translated by Jas. A. Stedman, Assistant Farmers' Institute Specialist of the Office of Experiment Stations, United States Department of Agriculture, and presented under the heading, "The Results of Agricultural Extension in Belgium," in the annual report of the office of Experiment Stations for the year ending June 11, 1910.†

It will be well to consider that Belgium is about equal to the States of Vermont and Delaware combined, and has a population equal to that of the six New England States. About one-fifth of the people are engaged in agriculture, having small holdings. The measures which have enabled agricultural-extension work were adopted in 1885, since which time the most remarkable increase in agricultural productivity and valuation of lands is apparent. This remarkable improvement, it is maintained, is attributable to the measures adopted in 1885. The report gives a summary of the results of several phases of agricultural industry during

* *L'Agriculture Belge de 1885 à 1910*. Monographies publiées à l'occasion du XXV. anniversaire de l'Institut du Service des Agronomes de l'état. Louvain: Imprimerie Fernand Giele, rue de la Station 15, 1910.

† Washington, 1911, pages 425 to 447.

this period in Belgium's different provinces. Among these industries is apiculture.

As a brief indication of Belgium's effort to advance bee-keeping, a few extracts may be made.

In the province of Antwerp, it is reported that 147 courses, comprising 601 sessions, were given during the past ten years. In the province of Flanders, having eleven societies of apiculture, 252 courses in bee-keeping, comprising 1008 sessions, with an attendance of 22,176, have been held since 1890. The province of East Flanders, giving courses in horticulture and market gardening, floriculture, aviculture, and fariery, besides instruction in other agricultural pursuits, has offered occasional courses in apiculture. The province of Hainault, Liège, and Hamur have apparently given less attention to the interests of bee-keepers, which may be attributed, possibly, to the differences in agricultural interests in these localities. The province of Limburg, however, it is reported, has held for adults 110 courses in bee-keeping, comprising 509 sessions.

Since the tables in the report show remarkable increase in farm valuation and in the average production per acre in the various crops, and since these are attributed to the methods of extending agriculture, it is also fair to presume that bee-keeping has benefited in proportion.

BEE-KEEPING IN CUBA.

Climatic Conditions and their Effect on Apiculture.

BY D. W. MILLAR.

Both my partner, Mr. Curnow, who for 14 years has studied and experimented with bees in the tropics, and myself find many rules and regulations for handling bees discussed in GLEANINGS, which would be of no value here, more than would many of our methods be in the North. However, of late there has been much discussion on swarming, foul brood, increasing, etc., where we believe our methods would apply; and while they may be old and worn out they are the best we know about here, and we have read nothing similar. On account of the difference between bee-keeping in the North and in the tropics, about all we know we have had to figure out for ourselves. So far as I know there is nothing published on tropical bee-keeping. This is why many Northern bee-men, and the best, have had difficulties in this country. Possibly what I have to say may start something that will help us.

All our new blood, which we believe in introducing regularly, is pure Italian, although we prefer the dark leather-colored bee, which comes from a pure queen mating with a hybrid drone. They have the three distinct bands, but can not be pure, although they pass as such. However, we

make no special effort to breed for them, as we keep our apiaries as nearly pure as is possible, where there are so many black bees in the country. We make our hives, after the pattern of the ordinary American single-walled hive, out of native cedar, and all other wood parts the same. For rabbets we use a piece of No. 24 galvanized iron, $\frac{3}{8}$ wide by 14, fitted into a slot sawed to slope a trifle inward, in the dapping of the hive-head, the slot being just deep enough to allow the proper height above for the frame to rest on. This, we find, saves time and nails, and gives a smaller surface for the frame to stick to. The ten-frame-size hive is our preference; but in the honey-super, only eight are used. These will, if properly spaced, be filled with as much honey as ten; and as we go in for extracted honey almost exclusively, there is less work in extracting.

MOVING SHORT DISTANCES AT NIGHT.

Many long methods for moving colonies from one location to another have been given, but we find here the simplest and best way is to move the hive at night, and to place a bottom-board or some noticeable object in front of the entrance for the next day. The bees' attention will be called to the change in this way, and the new location marked. This we got from Anna B. Comstock in "How to Keep Bees."

REMOVING BROOD TO CONTROL SWARMING.

We avoid swarming, if increasing, by removing surplus brood with adhering bees to a new hive, giving them a new queen. If we do not care to increase, we place a super of foundation on the bottom below the honey-board; place the queen in this, and the bees will come down and get busy. We then destroy queen-cells if there are any above. After the brood above has hatched and cells are cleaned, honey will be stored, and they will have had enough to do without swarming until they forget about it.

FOUL BROOD NEED NOT BE EPIDEMIC.

Foul brood is contagious but not epidemic here, and we consider ourselves negligent if it gets beyond one colony. When we notice symptoms of any kind we place a small sack of moth-balls between the frames. If it is of the European variety, we then remove the diseased brood to the honey-super, where the unaffected portion will hatch, and the other will be cleaned out by the bees. We do not consider this contagious. If American foul brood, we get a new hive and place it entrance to entrance with one diseased. We place in the new hive a full healthy frame of hatching brood, shaking off all old bees and the queen, filling the rest of the super with foundation. An escape is placed on the entrance of the old hive, and left for 30 days, then what remains is burned in the old hive. A sack of moth-balls is placed in each hive.

RAPID INCREASE.

Recently we noticed that some one wanted to know how best to increase his bees

rapidly. We should like to know how to keep them from doing so, or, rather, what to do with them as fast as we can increase, at a profit. If we want a hundred or so to increase, we take from the strongest colonies of hatching brood one or two frames, or whatever we can without debilitating the old colony in the least. We place one frame in a new hive between two of foundation; add foundation as fast as needed, and usually in six weeks we have a strong colony. Of course we do this way only when we have nothing else to do, and can sell the increase without weakening our working colonies.

CLOTHING IN THE TROPICS.

We use but little smoke, and try to raise quiet bees. If we have a bad colony we kill the queen and try another. Of course, all our bees *will* sting; but we mean by this an exceptionally cross family. Queens of our own rearing are cheap, and are good for only about two years here, any way. We have been using the Swarthmore system for two years, and prefer it for queen-rearing. In working here we dress for comfort regardless of bees, and our outfit consists of short-sleeved undershirt, duck or linen trousers, low shoes, and a panama. Veils, gloves, etc., are in the way for fast work, and too warm. When, through our negligence, oversight, or overwork we have a swarm, it is brought back on our arm or in our hat. Don't understand that we are immune to bee-stings, but they are few, and of no consequence except for the instant; and a few stings occasionally are very good for one's health. We don't have rheumatism.

We do not shade our hives except in locating an apiary. We select a place where there are a few young palms, and perhaps some other small trees. Hives are placed on two bricks, flat, one at each end. Every thing is removed from the apiary, and Bermuda grass planted. It grows fast, is short, can not be killed, and ants dislike it.

CREOLINE TO STOP ROBBERS.

For robbers we use pure creoline, applied with a feather at the ends and on sides of the hive. For brood-rearing, with our Italians we note no difference day in and day out except that they usually let up for about 30 days from the middle of January to the middle of February.

About what is the average yield of extracted honey per colony per year in the cold countries? We figure 30 gallons here—the lowest I know about being 15 and the best 45. Unless all signs fail, this will be a good year for us. Cuban honey has had a black eye in the past; but it is not all alike, for we can market as good as there is. There are few modern bee-keepers, with modern machinery, here, the larger per cent of bees being still kept in logs. Consequently, in the past a lot of honey has been shipped in very bad shape; but present pure-food laws should tend to remedy this.

Los Pasos, Oriente, Cuba.

[See Stray Straws, p. 678, Nov. 15.—ED.]

J. L. BYER'S PLAN OF REQUEENING.

BY GEO. W. MOORE.

Mr. J. L. Byer's method of requeening as outlined on page 619, Oct. 15, is a good system. For several years I have used this plan with all kinds of bees. I place an excluder between two empty hive-bodies; and as fast as I can look them over I put frames of comb and bees in the upper hive-body. If I fail to find the queen on the combs I look on the bottom-board; and if she is not there I shake the bees from the combs to the excluder, and by this time I can usually locate the queen. As a rule, about half of the black queens are to be found on the bottom of the hive.

I received my Italian queens the latter part of August, this year, about a week before the blue-curl began to yield. After removing the old queen I placed the queen-cage between the frames of brood, having taken out the cardboard in cases where the candy was not more than a third gone. I then closed the hive and left it alone for at least three days.

I received another lot of queens one week later, and went with them to the out-apiary, where I had put the queens the week before. When I looked into the hives that had the new queens I discovered queen-cells capped, which were being torn down, for the new queen was beginning to lay. The bees, too, were storing honey.

One hive had a fine lot of cells, and no sign of a queen, so I destroyed the cells and gave them one of the queens I had brought with me. Three days later I visited this colony. The queen was in the cage with all the candy gone, and a dead bee wedged in the opening was holding the queen in the cage. A fine Italian queen was lying on the combs next to the cage.

About a week passed before the first lot of queens began to lay, as there was little or no honey coming in. The second lot, on the other hand, was laying within three days, as there was then a good honey-flow.

I had always thought that capped queen-cells in a hive were proof that the queen had not been accepted; but I now know better.

There can be no mistake about these queens, for the bees were all blacks, and now there are but a few blacks left in any hive, but plenty of fine Italians.

Paicines, Cal.

NOTES ON QUEEN INTRODUCTION.

BY ARTHUR C. MILLER.

The following notes add to the evidence we already have that the reception a queen receives is dependent very largely on *her* behavior.

Four queens were received by mail, one perfect, and three crippled by loss of one or more legs or feet, and apparently ailing—that is to say, they were sluggish in their

movements. A colony was split into five parts, the old queen and a frame of brood being left on the old stand as one part. The cage method of introduction was followed. The perfect queen was killed, the others accepted. A week or so later the cripples were removed, and new and perfect queens in cages given to the four small colonies. Three were killed.

The three cripples were taken to another yard, run directly into the parts of a similarly divided colony, and still were accepted. Later, good queens were substituted. The bees and queens were golden Italians. The nectar-flow during all the time was light.

The bee-keeper who did the work is fairly skillful, and has had quite a number of years' experience.

A queen's behavior may be influenced by her personal condition, such as being hungry, crippled, ailing, or actively laying, etc., or it may be influenced by external conditions, as by the noise or odor emitted by a highly disturbed colony, by being daubed with honey or dusted with flour, or some similar treatment. Or she may be quietly trying to pursue her normal duties as when under a wire cage pushed into the comb, and she continues thus when the bees cut the comb away so she can walk out. This wire-cage plan, the "pipe-cover cage," the English bee-keepers call it, perhaps brings the new queen to the most nearly normal condition of any method we have. It is old, and it is good.

Providence, Rhode Island.

FINDING QUEENS WITH CARBOLIC ACID.

Driving the Bees up through an Excluder into a Wire-cloth Cage Above the Brood-chamber.

BY GEO. H. BEDFORD.

The plan mentioned by J. L. Byer, for finding black queens, page 619, Oct. 15, although effective, as he says, is unnecessarily laborious. With the following system he would have saved half the work and would have made much quicker time.

Make a crate of 1×2-inch lumber, same dimensions as the hive-body. On the four sides tack wire cloth, and on the bottom queen-excluding zinc. For the top, make a frame of inch stuff, of the same size as the top of the hive (or crate), and tack on wire-cloth. Next, remove the cover from the hive to be searched; take out two combs, and after shaking or brushing the bees back into the hive place the combs in the wire crate and put on the wood-bound wire-cloth cover, and place the crate on top of the hive. Put three or four drops of carbolic acid in the smoker on top of the fuel; light it and smoke at the hive entrance. Immediately the bees will rush up through the excluder into the wire-cloth fresh-air chamber. When they are about all up (which takes less time than to write it) the queen will be found un-

der the excluder after tilting up the wire crate. If she is not detected at once, glance on top of frames, and, failing to find her there, the frames can be taken out and examined quickly, as they are practically clear of bees. However, it will be seldom that the queen is not discovered trying her best to get through the zinc, and possibly wishing she could return to her original virgin slimmness.

The beauty of this method is, first, that it requires very little labor. Second, there is but small chance for robbers to work, even without a tent; and, third, by using wire cloth on the sides the bees are kept out of the way of the operator. It was found easier to drive them up than down; and the fumes, naturally rising, were more effective than smoking downward.

At first I used an ordinary hive-body with zinc on the bottom and wire on top; but with a strong colony the bees covered the wire on top, preventing the smoke from escaping; and since it was stronger there than lower down, they ran back to the frames. With wire on top and sides, the air is comparatively fresh on top, and there they will cluster.

The crate should be nailed rather strong; for, after finding the queen the wire top is lifted off, and the crate turned upside down and given a bump on the ground in front of the hive, and it is ready for the next.

A note of caution should be sounded regarding the amount of carbolic acid to be dropped into the smoke. Just enough to give a rather rank odor should be used—usually three or four drops, according to strength. Too much is liable to kill very young brood.

East Stroudsburg, Pa.

[This seems like a simple and rapid method. We should be pleased to hear from any who may have an opportunity to try it.—Ed.]

Do Bees Rest Between Trips to the Field?

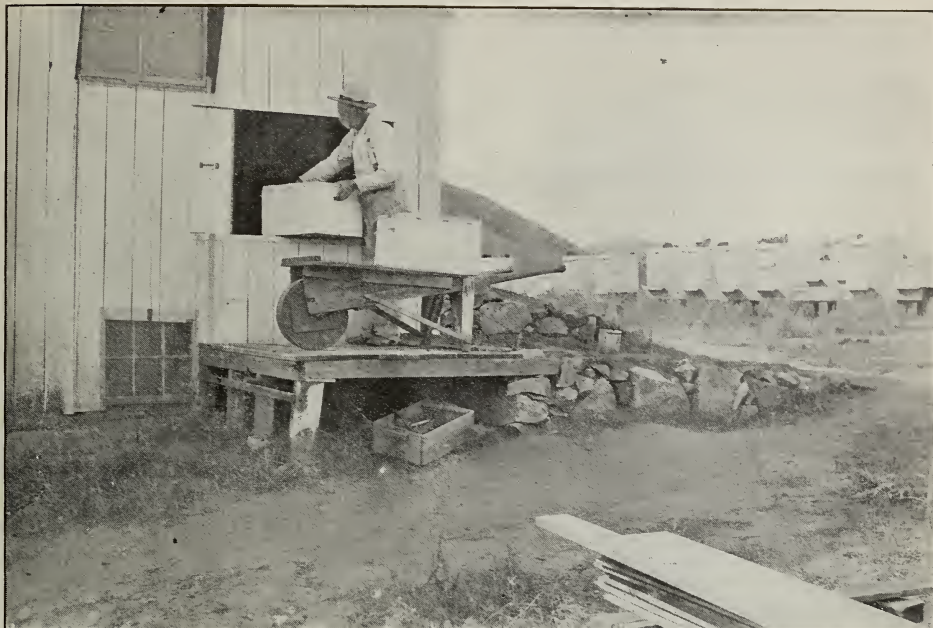
In the Oct. 1st issue, p. 602, the editor states that he does not know whether bees take a rest between trips to the field. There was a very interesting article in GLEANINGS on this subject at least ten years ago. It was an account of an observatory hive. The observer had colored several workers differently, so that he could identify them. If my memory serves me, he found that his bees rested one or two hours between trips.

CROSS BEES AS HONEY-GATHERERS.

That gentleness in bees is a great thing, every-body will admit; but I have been gradually coming to the conclusion that bees with an edge to their temper are usually the best honey-gatherers. The three colonies that did best for me this year are the only ones that I do not care to handle without having a smoker near. Two of them strike as soon as the cover is off. The third seldom stings, but bluffs. As soon as one touches a frame the bees crawl over his hands, up the sleeves, and make frantic dashes everywhere, stopping just before they hit; and after the hive is shut up, a number will follow a person all around the apiary. The bluffing bee is a nuisance. In my experience, the bee that keeps following one around is practically always a bluffer. I have put up my veil and stood quite still to see if it would sting, but I have never known it to do so. I think this pest is quite often a bee that has lost its sting.

Hatzie, B. C.

WM. L. COUPER.



E. M. Gibson's scheme for avoiding lifting as much as possible.

DECAPITATING BROOD TO PREVENT SWARMS.

BY E. M. GIBSON.

My opinion has been asked in regard to decapitating brood to prevent swarming. I will say most emphatically, and without fear of contradiction, that my bees do best with their heads left on. I am reminded of a story of two young doctors who were boasting of their success in surgery. One of them said he had a patient with tuberculosis, and he just cut out the diseased lung and inserted a sponge, which worked all right. The other said he had a case of softening of the brain, and he simply removed the man's head and put on a pumpkin, and the patient was doing well at last reports. When we get so skillful with the knife that we can remove the bees' heads and give them non-swarmering ones I may advocate decapitating, but not before. There is not a shadow of doubt in my mind, however, that, if commenced early enough, and persisted in long enough, the process would prevent swarming; and so will any other method that will destroy enough bees.

I encourage my bees in every way possible to make brood, not for the purpose of cutting their heads off later, but for the purpose of gathering honey, building up weak colonies, making nuclei, etc., and that is just what I have been doing the past week or more. I look into the brood-nest of each colony to see that there is plenty of stores; and when I find one that is weak I mark it; and when I find one with five or six "slabs" of brood I find the queen, put her to one

side, and take out a frame of hatching brood with the adhering bees and give it to the weak one. In two weeks I do the same thing again, and try to get brood enough to start nuclei. I do not rear all my own queens, but I do not think an apiary is complete without a few nuclei to call on during the summer, when one needs a queen badly.

If colonies so depleted of brood still look too large, and show signs of swarming, I take two frames more of brood from the largest ones and start a new colony, giving the bees of such new colony eight frames of brood and a laying queen, and they will not be far behind the best of them in honey production in the fall. I have but very little swarming. In fact, all my increase for the past fifteen years has been made by dividing or buying.

If, after doing all that I have mentioned above, bees still persist in swarming I unite two or three after-swarms, or any number that will make a rousing colony, into one just before the main flow begins. I am aware that some do not approve of this plan of robbing Peter to pay Paul; but this is another instance in which the word "location" may be consistently used. In localities where bees have only about two months to build up by the foregoing method, perhaps it would not be wise; but in other portions of the country, such as this, where bees have five and sometimes six months to build in, this plan can be worked to advantage.

It is claimed for the process of decapitating brood to prevent swarming that it keeps the live bees busy carrying out the dead, and

they forget about swarming. Well, yes! if that wouldn't make them forget about every thing they ever did know, I don't know what would. If I thought my bees needed exercise I would give them two or three frames of foundation to draw out, which would be of benefit to me, and I believe much more pleasant work for them.

A WHEELBARROW FOR CARRYING 120 LBS. OF HONEY TO THE EXTRACTOR.

I am sending a photo of my method of getting honey into the extracting-room. I have seen pictures of men carrying honey to the honey-house, and it gives me that tired feeling to think about it. Each one of the honey-boxes shown on the wheelbarrow holds 60 lbs. of honey, and I can wheel the two (120 lbs.) easier than I can carry 25 lbs. Yes, I use the wheelbarrow. I have tried other things, but have found nothing quite so handy to get into all the nooks and turns as the wheelbarrow.

The slide door to the honey-house is hung on barn-door rollers, so that it works easily; and it is large enough to give plenty of room to manipulate the boxes comfortably. When a box is slid inside, and one side of the lid opened (the lid is double), if there are any bees in the box they will all fly out toward the light. The picture shows the honey-house at one of my apiaries, where the location is ideal for convenience—just slope enough to the ground so there is no wheeling honey uphill to get into the extracting-room, and one can walk into the cellar without having to climb any steps. It is not difficult to find locations like it in this country; but they are not so plentiful where other conveniences exist, such as water, good roads, etc. I do not like to have the bees go far for water, especially in cold weather.

IS THERE A PARTICULAR TIME OF THE YEAR FOR CERTAIN DISCUSSIONS?

Not wishing to be too critical, I should like to ask those contributors who start their contributions by saying it's a little too early to write of swarming, queen-rearing, ventilation, or whatever the subject may be, if they do not forget for the moment what a big old world this is, and that the journal they are writing for reaches to the very limit of its four corners. It may be too early to write on a certain subject in the six-mile square of the township in which they live; but in some other portions of the earth it may be too late. It sounds as though this paper were being run for their special township, or, at most, the county or State in which they live. By no means as a reflection, but simply as an illustration, I mention the controversy between the editor, Dr. Miller, and our Canadian friend Mr. Byer, that took place last year. By the time they got that winter brood-nest all fixed and in running order we were harvesting our crop of honey on this coast.

WHY IS THE APPEARANCE OF HONEY THE ALL-IMPORTANT FACTOR?

I should like very much to know how

honey ever came to be sold by sight instead of by taste. I have seen vile stuff sold at a better price than good honey because it was lighter in color. Why not sell maple syrup by sight instead of by taste? I have heard that there were 1000 carloads of English walnuts shipped from this State annually, and I did not know until a short time ago that they were bleached. Wanting to buy some, and noticing that those the grocer had in stock were darker than any I had ever seen, I inquired the cause, and he said, "Oh! those are unbleached. I never keep the bleached ones, because these are so much better." And he is surely right. The unbleached ones are much better, and also cheaper. Both time and money are wasted to injure an article of food to please the eye. Jamul, Cal.

PHOTOGRAPHY FOR BEE-KEEPERS.

BY HORACE LIBBY.

Bee-keeping is very fascinating to me, especially since I have retired from the business life of former years. It is occupying my mind, and at the same time brings in a small income. At the present time I have 68 colonies, and when put in the cellar they were in good condition.

I think the camera is something that most bee-keepers would enjoy. I do my own developing and printing, which, to the real photographer, is the most interesting part. I am not a professional, for I have owned a picture machine only a little over three years; but the amateur can learn much if he goes bravely ahead, making mistakes and profiting by them at the same time. Books tell us lots of good points, but experience is the best instructor.

I remember one man in some journal (I think it was GLEANINGS) who wrote a very interesting article on the subject. I was much interested, and hoped to see more of such articles from those who are either professionals or amateurs. It is a fine thing to have our summer pleasures and views on paper to look at in the future; and our stationery can be made interesting by a little scene at the top which will be of interest to those receiving the letters.

May the bee-keepers who have picture-machines come forward and make GLEANINGS a help to the photographer as well as to him who keeps bees.

Lewiston, Maine.

THE SEVERIN CAPPING-MELTER.

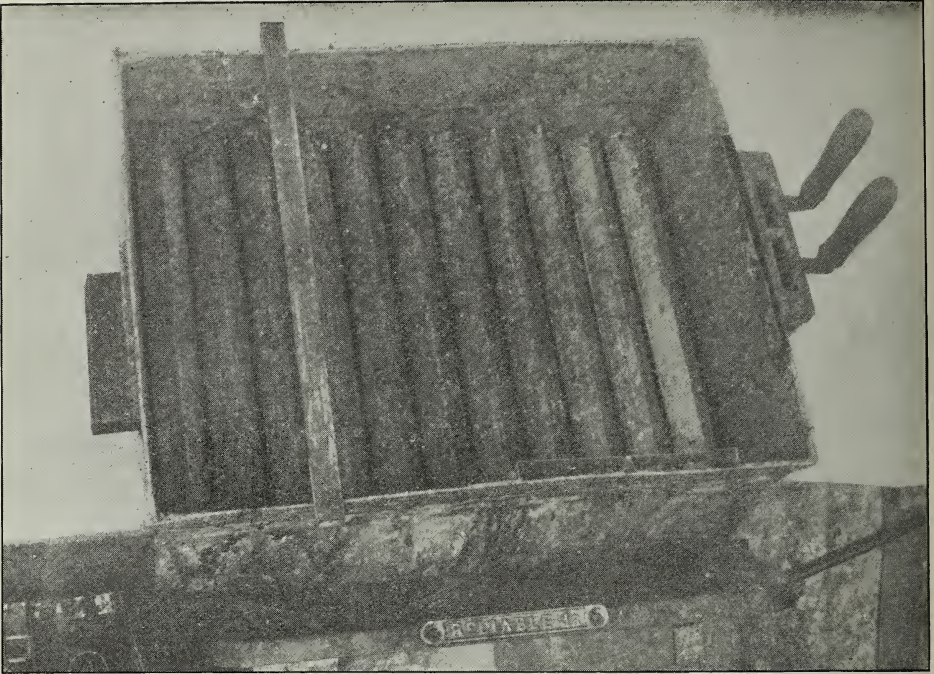
How it is Made.

BY F. J. SEVERIN.

My capping-melter, as referred to in previous articles, stands on a two-burner gasoline-stove, the gasoline-tank being outside the building, where it can be easily filled while the stove is burning, and, in case of fire, instantly shut off. Some of the fea-



Apiary and residence of Horace Libby, a bee-keeper who believes in using a camera, and doing with his own hands the work of making pictures.



F. J. Severin's capping-melter, showing the melting surface made of square tubes, the metal scraper for the knives, and the slots for heating them.

tures of this melter are taken from those used by E. F. Atwater, Meridian, Idaho, and F. A. Powers, of Parma, Idaho; but I have added a number of improvements myself to perfect the outfit.

The can outside is 23 inches long, 18 $\frac{1}{4}$ inches wide, 8 $\frac{1}{2}$ inches deep, outside measurements. The tubes shown in the engraving are 16 $\frac{1}{2}$ inches long and 1 $\frac{1}{4}$ inches square; they are placed nearly $\frac{1}{4}$ inch apart, turned with one corner up to give a better melting surface. Being square they hold more water; and, besides, the melting of the cappings is more quickly done than if the tubes were triangular. There is 5 inches of space from the top of the tubes to the top of the melter, and a $\frac{3}{4}$ -inch space underneath, this latter opening into a spout $\frac{3}{4}$ inch deep, 5 inches wide and 3 long, extending through the water-jacket to the outside. The water-space between the bottoms is one inch, and between the sides 1 $\frac{1}{4}$ inches at the bottom, running up to nothing at the top. The projection of the water space for the knives at the side is 6 inches long, 1 inch wide, 8 $\frac{1}{4}$ inches deep. A piece of wood with two holes cut for the knives rests in this projection of the water-space, leaving the handles of the knives all cool and clean from steam and honey. A shield just inside the knives keeps the water from boiling over into the honey and wax.

The tubes are made of copper instead of heavy tin or galvanized iron, for they last longer, and they have, in my opinion, a

much faster melting surface, and retain the heat longer. I use a galvanized rubbing-iron for my knives instead of rubbing them on the wooden cross-bar, as nearly every one else does. I can clean the blades better with one stroke for each side than I can on the cross-bars, as this scraper projects $\frac{3}{4}$ of an inch, and is $\frac{1}{8}$ inch higher than the edge of the melter.

I have found that this melter is large enough for two operators. I use only one burner, but the stove is made for two. The first time I used it I tried to overload the melter with cappings, but failed. Even if one were to employ two operators continuously, and had all of his honey brought in at once, being freed from bees by escapes, I venture to say that this machine could never be "balled up" if two burners were going.

San Diego, Cal.

CHEAP AND EFFECTIVE SHADE-BOARDS MADE OF LATH AND SHINGLES.

BY E. F. ROBERTSON.

I have always been an ardent advocate of shade in our hot months. We take our industrious little workers out of some shady forest home or some cool rocky crevice, and compel them to live in the blazing sun, covered by only some $\frac{3}{8}$ -inch lumber, and think it natural for them to work when the thermometer placed on the hive registers 120° F. Vast numbers of bees cluster out-

side to save the combs from breaking down, and a great force remain inside to fan and ventilate the hive. This condition is a direct loss to the bee-keeper, to say nothing of the torture he is inflicting on those who are so industriously working for his dollars. The material and method of construction of shade-boards are of vital importance. I have tried all kinds of material— $\frac{1}{2}$ -inch boards nailed to cleats, but they are too expensive as the mill men charge for inch boards. I have used frames with canvas nailed on, but they are too flimsy, and blow off too freely. I have been using for eight years a board made of builders' lath and shingles that gives me the utmost satisfaction both in cost, durability, and ease of construction.

I use six-foot lath, and cut two three-foot lengths for sides, and four two-foot lengths for cross-pieces. I nail these together with



FIG. 1.—Robertson's shade-boards, constructed of lath and shingles, showing manner of nailing.

inch wire nails like the left-hand illustration in Fig. 1, as shown above. I turn down the nails and clinch tightly; then nail shingles on as in the right-hand picture, Fig. 1, turning the thick end of the shingle to the outside edge of the board, except the center ones. These I put on any way, as it does not matter.

The cost of these boards runs about 10 cts. apiece, aside from nails and labor. The lath cost, at 40 cts. per 100, one cent; and the shingles \$3.00 per 1000, which, with ten inches to the weather, would cover 200 square feet; and as there are 6 feet of surface in each shade-board the cost for shingles is 9 or 10 cts. complete. My boards made eight years ago are as good to-day as when they were made.

Now as to the mode of using them. My hives face the south, as we have a strong local east wind during May and June. At night I walk round and place a shade-board on the east side of the hive, a little to the front, as in Fig. 2. This shades the entrance up to 11 o'clock. Then I put the board on top of the hive,



FIG. 2.—Shading the fronts of the hives and the entrances in the morning.

projecting 1½ feet over the front, as in Fig. 3. This shades the entrance from the noonday sun till 1 o'clock; then I put the board on the west side of the hive eight or ten inches to the front, where it shades the front and west side till night, when the boards are shifted over to the east side, ready for the morning. This makes three moves a day, and keeps three-fourths of the hive in perfect shade, much to the comfort of the bees, keeping them all working, and reducing swarming to a minimum. There is thus no loss, but a probable increase in yield of honey. I find these boards a great help in keeping off bad winds in spring by standing them against the hive on the windy side; and just now,

Aug. 8, they are of great benefit to the bees, as we have a terrible plague of wasps. The entrances have to be contracted, which would make the hives so hot that the bees would cluster out, much to the satisfaction of the wasps. As it is, the hives are in shade, and few bees are out in front of the hive.

Some may object to the time it takes to shift the boards. I find it takes just five minutes to shift 25 boards, or 15 for the 25 hives each day, or one hour per hundred. Surely no bee-keeper would begrudge giving this small attention. If the hives face the east, only two moves are needed.

Victoria, B. C.

[As to the value of shade-boards in many localities, there can be no question; but except in very extreme climates we presume most bee-keepers would consider one position of the board sufficient for all day.—Ed.]

SOWING SWEET CLOVER ALONG WASTE GROUNDS.

What the Hamilton County Bee-keepers' Association is Doing to Promote the Spread of this Useful Plant.

BY HENRY REDDERT.

[One of the liveliest organizations in this whole country is the Hamilton County Bee-keepers' Association, located in Southwestern Ohio, and near Cincinnati. Its secretary, Mr. Henry Reddert, is an enthusiastic believer in the value of sweet clo-

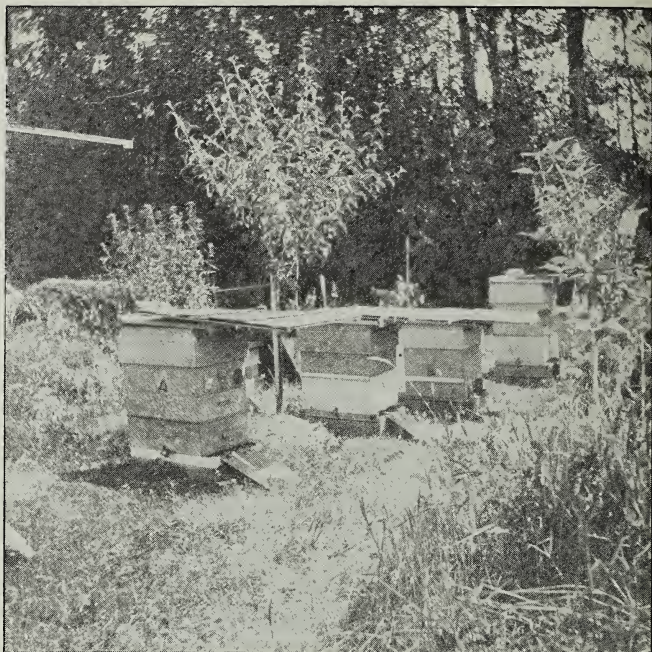


FIG. 3.—Shading the tops and fronts of the hives during the hottest part of the day.

ver to the bee-keeper, the farmer, and the railroad companies, who need something to hold up their embankments. It seems that the Hamilton County Association is sending out to all its fully paid-up members, on the basis of \$1.50 per member, 5 lbs. of sweet-clover seed, recommending such members not only to scatter seed in waste places, but to preach the value of the plant to the farmers. Would it not be well for other bee-keepers' societies to follow their example? In acknowledging the receipt of the editor's membership fee, and saying he had sent on 5 lbs. of seed, Sec. Reddert writes:—[Ed.]

At the last meeting of the Southwestern Ohio and Hamilton County Bee-keepers' Association, Sept. 29, the question of sowing sweet clover in waste places in the vicinity of our fellow bee-keepers' homes caused quite a spirited discussion. We gleaned that sweet clover had been cut down in many localities before it went to seed. This was especially true on the railroad banks. About five years ago the slopes of railroad banks were filled with sweet clover for miles and miles, but the companies cut it down from year to year before bloom, endeavoring to destroy it entirely. We wrote to them explaining the good the long roots would do in holding up the ground during heavy rains and washouts. A few replied that they would look into the matter, but others paid little attention to our requests.

Of the last named, the B. & O. and Big Four let it bloom until about the 18th of June. The Norfolk & Western agreed not to cut it down at all. The C. H. & D. destroyed it as soon as it began to bloom. They thought that if it was left to go to

seed, and dry, it probably would be set on fire by sparks from the engines, and do damage. I have read that the roads in some parts of the country welcome it, and urge the sowing of seed along their lines.

At our last convention we discussed the sweet-clover question—that is, how to get the farmers to use it; but some farmers are too hardheaded to see the value of it, hence we have concluded to do the sowing ourselves. Here in my locality are hundreds of acres of hillside used for nothing but pasturage. I have permission from one of my neighbors to sow as much seed as I wish on his 25 acres of hillside. This, we believe, is the best way out of it; and consequently in the near future we will put the new plan into practice in Hamilton County.

Cincinnati, Ohio.

GETTING A STAND OF SWEET CLOVER.

Its Value for the Soil.

BY GEO. SHILBER.

The experience of C. R. Dewey, page 571, Sept. 15, in growing sweet clover, or, rather, getting the seed to germinate, is decidedly different from mine. I have never tried to raise a lot of it, but have always had several small patches around our premises. It has come up almost as quickly and as surely as radish seed, whether I have sown it in spring, summer, or fall. About Aug. 15 we gathered some seed (stripped it off by hand), some being black and some green. I sowed this where I had had a small patch of early potatoes, first going over the ground several times with a hand cultivator. In a little over a week the ground was all evenly covered with young plants. I doubt whether they will winter; but as the seed was put on fairly thick I think there will be enough that did not come up to make a stand in the spring. The seed was unhulled, of course, and the white variety. My experience, although on a small scale, is that it has never been praised too highly as a fertilizer of the soil.

About six years ago one of our neighbors gave us a small handful of sweet-clover seed for our flower-garden—perhaps a tablespoonful. I sowed it in a shallow trench and covered it with about half an

inch of soil. It came up all right and made a rank growth. The next spring, after it bloomed, I dug out the dead roots, spaded it well, and planted a row of sweet peas in the same spot.

We have always had very pretty sweet peas; but these were a marvel—great sturdy stalks, large dark-green leaves, and the bloom was wonderful—the finest sweet peas I ever saw. I puzzled my head trying to find out what I had done to those peas to get such fine plants; then after a while I “tumbled.” It was the sweet clover of the year before.

Randolph, N. Y.

ITALIAN SWARM FLIES 15 MILES OVER DESERT.

BY C. H. MILLER.

I am sending a view of a juniper log in which I am wintering a swarm of bees. I have often read articles by writers who claim that bees have their new home located before they swarm. Now, the only Italians I know of are at least twenty miles away; so these bees, being Italians, surely must have come from there, over about fifteen miles of desert. I don't think any swarm ever sent scouts that far to look for a new location.

Redmond, Oregon.

[We believe no one has claimed that bees *always* send out scouts before swarming; that they sometimes do has been proven many times. This is an interesting case as it seems to be clear that this swarm actually traveled all this distance.—Ed.]



An Italian swarm that is being wintered in this juniper stump flew fifteen miles over a desert.

THE PRIME MOVERS IN DISEASE LEGISLATION IN INDIANA.

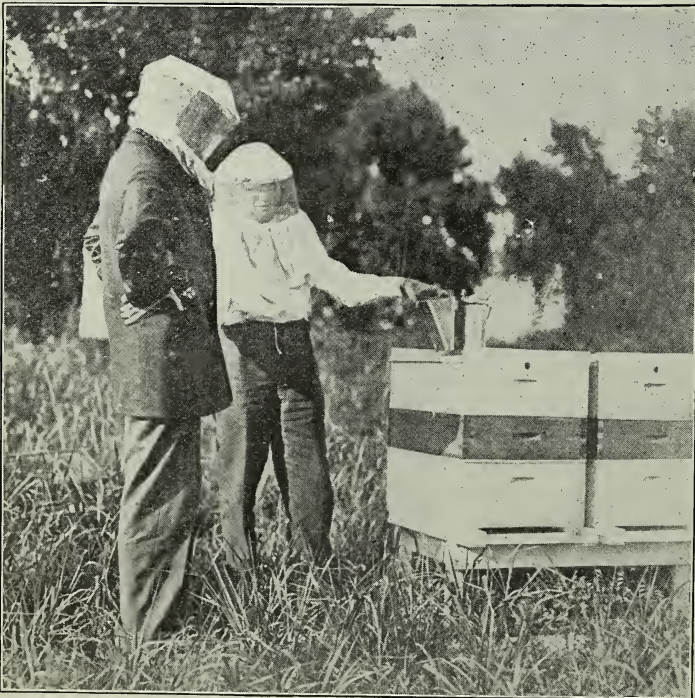
BY JAY SMITH.

I enclose a picture which I think will be an adornment to the pages of GLEANINGS. These men are not White Caps nor members of the Ku-Klux-Klan, neither are they physicians administering to sufferers afflicted with bubonic plague. The further gentleman, having more latitude and longitude than altitude, is Hon. Mason J. Niblack; and, although he is a bachelor, yet he is the father of our Indiana foul-brood law. The other gentleman, having considerable height as well as depth, is Benjamin W. Douglass, State Entomologist, and Inspector of Apiaries of Indiana.

Mr. Niblack prides himself on the fact that the veils they are wearing are a home product; but there are certain features about them that might lead the casual observer to infer that they were made in Germany.

Vincennes, Ind.

☞ [The Indiana law is a good one, and the father of it is to be congratulated. The excellent work that Mr. Douglass has done entitles him to a better picture—one without a veil. The State may well be proud of him and his record.—ED.]



Benjamin W. Douglass, State Entomologist of Indiana, and Hon. Mason J. Niblack, who fathered the excellent foul-brood law of that State.

WHY I PREFER A TWO-INCH GLASS IN SHIPPING-CASES.

BY R. L. TAYLOR.

It seems to me worth while to say something further in elucidation of the case of two-inch glass vs. three-inch, and I am moved to this now more especially because of the manner in which Dr. Miller makes use of quotation-marks in inclosing guesses of his own, which, on a cursory reading, are apt to leave the impression that the words inclosed are mine, and I am confirmed in this view from the fact that the printers suffered them to remain—Oct. 1, p. 582.

Now a few words that the doctor may be informed as to why I think the narrow glass looks the better; and, first, what is the purpose of using glass?

Plainly, it is not primarily to exhibit the quality of the honey, for at most a two-inch glass shows only about $\frac{1}{2}$ part of the surface of the honey in a single-tier box of 28 sections, and a three-inch glass only about $\frac{1}{3}$ part. At most the glass shows only a sample strip; and isn't the two-inch strip about as satisfactory, as a sample, as a three-inch?

But who would buy a lot of honey from such a sample, even as shown by a three-inch glass? No one, certainly. Either a knowledge from inspection of the honey in

the interior of the case is demanded, or a favorable knowledge of the person selling. I once offered some fine-looking honey to a grocer in a city where I was not known. He said he would like some honey if it were as good as it looked. "But," said he, "I once bought some honey from a man just as honest-looking as you; but when I came to look inside the boxes, the combs were mostly crooked, and some of the sections were bound together by combs running from one into another." Now, I should like to have the doctor say what difference it would have made if it had

been three-inch glass. So, as I have said, the object of the glass is not primarily to exhibit the honey, but it is to notify the handler that the box contains honey and not soap.

Now, a three-inch glass would perform this function as well as a two-inch, but no better; and against it, it must be said that there is, as it seems to me, a marked misproportion between the amount of glass and the amount of wood—a want of symmetry, a straining for effect, and therefore not artistic; and in another way it violates a canon of art; and that is, in the appearance of lack of strength. I would not affirm that the box is not, as a rule, sufficiently strong for practical purposes, but there is no denying that the narrow strips of wood suggest frailty, and that is an unpleasant blemish in the appearance of the box.

Finally, the doctor propounds as a poser this question: "If two-inch glass looks better than three-inch, why does any one prefer the wider glass in single-tier cases?" I must try to answer it, and my answer is this: Because men who are supposed to know a good deal about bees and honey persist in preaching with persevering energy the doctrine that the wider glass looks the better. False doctrine seems often to be imbibed more readily than sound teaching.

Lapeer, Mich.

THE TEMPERATURE INSIDE A HIVE IN WINTER.

BY O. S. REXFORD.

I have just been reading Mr. A. C. Miller's article, Nov. 1, page 663; and the fact that there are several statements which I doubt, because of my experiments along this line, does not make it less interesting.

Mr. Miller says, p. 664, "In winter the temperature within the hive and outside the cluster is within one or two degrees the same as it is outside the hive." While he has good authority to back him in the statement, my experience has led me to draw a different conclusion.

In packing my bees I have always followed the principle that an effort should be made to retain in the hive as much as possible the heat which I believed radiates from the cluster.

Well, I experimented with thermometers in a hive with a glass cover, and proved to my full satisfaction that, in my yard, and packed as my bees were, the cluster of bees did warm the space inside the hive and away from the cluster.

If his statement regarding the slight difference in temperature is correct, why so

much trouble with moisture condensing on the walls of the hive? Surely moisture would not condense on the inside of hive-walls and cover if it were only one or two degrees warmer inside than out, for moisture never collects on windows in the house when the temperature within and without are nearly equal. It is only when the room is warm and the atmosphere cold outside that water drips down or forms a coating of frost on the glass.

Winsted, Conn.

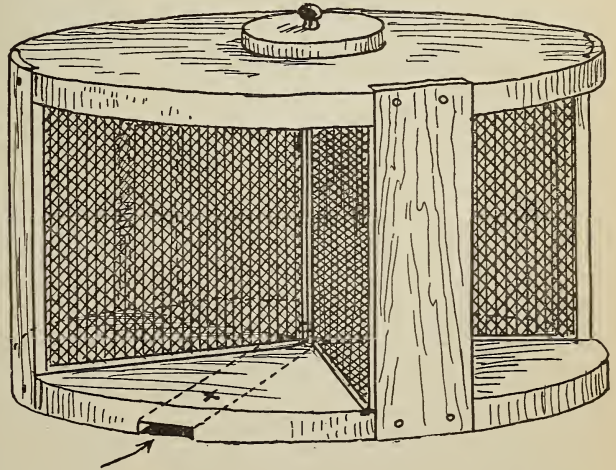
A NEW FORM OF OBSERVATORY HIVE.

Semi-closed-end Frame.

BY WALTER CHITTY.

My observatory hive consists of two circles of inch wood made exactly the same size, and with a three-inch hole cut out of the center of each. At the bottom of one of the circles a bee-entrance is made which reaches as far as the center hole. The bees can run along to the center, and then ascend. Four pieces of wood, about three inches wide, are firmly fastened with screws, as shown, and three grooves are cut in each of these pieces, and corresponding grooves in the two large circles. The center grooves are for foundation, and the other grooves for glass. The foundation could be wired if desired; but if good thick foundation is used I find wiring is not necessary.

The hole at the top may be used for feeding or supering. Special supers could easily be made, another hive of the same sort put on top, or a bell-glass, as fancy dictates. I find this a very useful and handy hive for obser-



vation purposes, and the making and material are not at all expensive.

All the doings of the bees and queen can be seen; and to keep them in the dark I merely put corrugated paper around it, and keep the paper in its place with a piece of

elastic. In winter time, three or four folds of paper could be used to keep the bees warm. These hives would do well for indoor observation, or in a bee-house.



A REVERSIBLE FRAME.

The sides of the frame shown are so made as to be self-spacing. They are not intended to stand on the floor of the hive, as the bees would then fasten them down; but they could stand on metal runners, and these runners would not interfere with ordinary hanging frames—that is, special hives would not have to be made for these frames, as the ordinary hives would answer both for reversible and hanging frames.

High Street, Wiltshire, Pewsey, Eng.

[This form of standing self-spacing frame is quite old. It has been shown a couple of times in these columns, but has never been very popular. We regard a full closed-end frame as warmer and better.—ED.]

HOW TO SECURE A STAND OF SWEET CLOVER.

BY FRANK COVERDALE.

PLAN NO. 1.

Sweet clover must be sown on land well supplied with humus or lime, or both, as it will not grow well on ground badly worn, nor in soil that is strongly acid or sour. In order to start sweet clover on such land, plow the ground to a fair depth; pulverize, and top-dress heavily with manure. Then sow the seed and harrow in the manure and seed together. A light application of lime would be of great benefit; but a good catch can be secured without the lime.

PLAN NO. 2.

Another way to secure a stand is to plow a field that has been seeded for at least two seasons to timothy, clover, or both. While it is better to plow in the fall, the spring will do. Before seeding, work the ground just as you would for corn; sow the seed, and cover, using a common harrow, and your success will be sure. Many have old hog-pastures that are overgrown with bluegrass. Those fields, when broken up, make very excellent ground for sweet clover. Sow one-half of such fields to sweet clover, and note what nice green succulent feed the pigs will have all summer long, when the bluegrass is dead and of no use to the pigs.

PLAN NO. 3.

Any field that has grown fifty or sixty bushels of corn an acre can be sown to Early Champion oats, barley, or wheat, and still make possible a stand of clover. Sow $1\frac{1}{2}$ bushels of oats and one-fourth less of either barley or wheat, taking care that the ground is fairly smooth. This nurse crop will work well provided there is not a severe drouth to spoil the clover. This seldom happens in the corn belt. The clover should be well up in the grain at harvest time. If the grain is cut high from the ground it will be better for the clover. Often a fine cutting of hay will be secured later in the fall, about Oct. 1, or a fine pasture for stock. There is much to recommend this plan.

COMMENTS.

The seed can be sown any time between early spring and the last week of July; but as it makes such a strong growth the first summer, seeding should be done when convenient in April or May, using 20 lbs. of hulled seed per acre. The seed should be hulled. If unhulled seed is sown, about one-third of it fails to germinate the first season, and doesn't come up until another year. Then, again, the unhulled seed often results in uneven growth, too thin in some parts of the field and fair in others. The sower should bear in mind that proper elements of the soil are necessary at first, because of the lack of sweet-clover bacteria in the fields. Just the right conditions are required to start the nodules on the sweet-clover roots, which in time burst and multiply and fill the soil.

Do not make the mistake of trying to grow two or three crops of corn and then sow to sweet clover, as the land has not yet a supply of the bacteria required to grow it. After it has been growing on the land for a few years, and the bacteria are started, you will notice how much better it thrives. Many hundreds and perhaps thousands of bushels of this seed have been thrown away because it was not sown on the right kind of ground. The bluff deposits of the Missouri River basin seem to grow sweet clover at once under any conditions, and in all of the more recently settled parts of the United States it appears to have much less trouble in getting a stand. Sweet clover succeeds on lands so filled with alkali that nothing else grows well.

Delmar, Iowa.

BLACKS VS. ITALIANS.

BY H. D. TENNENT.

W. C. Mollet, page 100, Feb. 15, complains of the excessive swarming of the Italians in his locality, and suggests that it is in some way due to the kind and quantity of honey-plants. Having had a similar experience here, I would suggest that it is not so much a matter of honey-plants as of an over-supply of early pollen which marks this difference between the blacks and Italians.

SOURCES OF EARLY POLLEN.

The country here is rough, with considerable timber, and the average number of wild flowers. The fall flow from goldenrod and aster, though not usually giving any surplus, leaves the hives well supplied with pollen. In the spring a few good warm days suffice to bring into bloom the hepatica or liverleaf anemone, from which the bees bring in whitish pollen. This often comes two weeks before the earliest fruit bloom. This is followed by the dandelion, with its unlimited pollen. Fruit-bloom usually does not give enough honey to start comb-building; but it does start cell-building. From this time the spring beauty, dandelion, buckeye, oak, gum, blackberry, and various wild flowers give a constant supply of pollen without any appreciable amount of honey, and the Italians abandon themselves to reckless propagation.

SUPERIORITY OF BLACKS WHERE POLLEN IS ABUNDANT IN SPRING.

The blacks would seem to be naturally adapted to such conditions, for they do not usually "lose their heads" in this way, but defer swarming until there is enough honey to justify increase, and may usually be induced to forego it entirely by giving room for surplus, and that without the baits and full sheets of foundation needed to coax the Italians into the sections.

When the breeding of bees shall have become further advanced it will no doubt be found possible to interchange the characteristics of different races when desirable, just as the different combs and color patterns, and the sitting and non-sitting dispositions of poultry may be so combined by the skillful breeder. It is evident that the same combination of traits will not suit everywhere.

The only points which I have found in favor of the Italians are their quietness and better defense against robbers; but these are more than balanced by their reluctance to enter sections, and their swarming proclivities.

McConnellsville, O.

I will admit that, while hunting these bees, I felt that it looked a little shiftless; but I never spent an hour at it when I neglected my work. All together, I presume I may have spent a month, a day or two at a time. Sometimes in my busy and solitary life (for I live alone) I have felt the need of recreation, and have taken a stroll in the woods when I have finished all of my work. I have been a hunter all my life; but there is a fascination about bee-hunting that is not surpassed even in the fox-chase. I am the only bee-hunter in this community who saves the bees. Does it pay? Some hunters have been kind enough to tell me where they have cut a tree and have left the bees, which they have tendered to me if I would go after them. In every instance I have gone, even when I did not want them.

Two years ago a farmer came to town and told me that he had cut two bee-trees on his land the day before, and said the bees were left in good condition, and I could have them if I wanted them. He keeps a few colonies too. The next morning I hitched up my team, drove to his home, put the team in his barn, and we went to the woods. In a short time I had them in my boxes, and under the buggy-seat. I reached home before noon. One of these swarms was black and the other Italian, so I killed the black queen and put all together in a ten-frame hive and fed them 30 lbs. of good syrup. Last year they made 100 lbs. of honey, and this year an equal amount, besides casting a large swarm.

Even if it did not pay to save the bees, there should be a law in every State in the Union with a penalty of \$5.00 fine and costs for each offense of robbing a bee-tree and killing the bees or leaving them to perish from starvation and cold. I have cut trees and have saved the bees as late as the 24th of November, and have carried them and their honey, my ax, and saw, home on my back, walking a distance of two miles. Here was a case where I really felt that it was a dearly bought swarm, but they made it right the next summer.

Union Center, Wis.

DOES IT PAY TO HUNT BEE-TREES AND TO SAVE THE BEES?

BY ELIAS FOX.

W. C. Mollet, of West Virginia, Oct. 1, p. 590, says the trouble and expense of bee-hunting amounts to more than the bees are worth. In the last few years I have saved from trees (principally of my own finding and cutting) 22 good swarms, and in most instances have had to feed them over winter. Up to the present time I have taken from these and their increase at least 5000 lbs. of choice honey; and two years ago one of them gave me 450 lbs., and I had enough left to winter the bees. Some of the others have yielded 150 to 200 lbs.

Bees do Not Seal Poisonous Substances in their Combs.

In the Aug. 1st issue for 1909, page 476, mention is made of poisonous honey. In December, 1900, I visited a missionary in Sikkim, a native state in the Himalayas. A preacher was just recovering from a severe sickness caused by poisoning from eating honey. My friend told me it was quite common there; and as she described the symptoms, they seemed the same as poisoning from belladonna or datura, commonly known among us as jimson-weed. The night-shade is also common here, yet I never heard of poisonous honey here in Colorado.

When I came home I inquired of a bee-man as to why honey from these flowers is not poisonous, and he said bees never seal any poisonous substance in their cells, and that doubtless the honey the natives of the Himalayas use is wild honey, and they gather it without regard to whether the cells are capped. I am sure that the honey the native preacher ate was wild honey, and I think the other cases my friend mentioned were also caused by eating wild honey.

La Junta, Col., Aug. 19.

E. F. EDGERTON.

Heads of Grain from Different Fields

Can Foundation Carry Disease?

About the middle of May I inspected my bees for foul brood. Four colonies were found diseased. Two of them were in a very weak condition, so that it seemed best to unite them, and, later, to shake them on full sheets of foundation. The third colony was dequeen, and the fourth was shaken on full sheets of foundation. These are now in good condition.

During the latter part of May, and through June, several swarms issued. Some of these were hived on drawn combs, and others on full sheets of foundation. In August they were again inspected, and it was discovered that the three that had been hived on full sheets were infected.

My neighbor caught a swarm of bees the previous summer, and hived it in an ordinary box. During fruit-bloom this year he called on me to transfer them. No trace of disease was evident at that time. They were transferred on full sheets of foundation, from the same batch that I used for my own bees.

These bees built up well during the summer; but in August, when I examined them, they were infected.

So far as we know, these colonies did not rob other bees, as there was no robbing in my yard; and my neighbor, having but one colony, was not annoyed in this way. There are some bees scattered through the country within a mile and a half or two miles, but the condition of these is not known to us.

The infected colonies that were transferred in May were shaken on a different lot of foundation than the June swarms and my neighbor's colony. These facts have led me to think that the full sheets of foundation may have been the cause of the disease, together with the knowledge that some bees render their combs in solar wax-extractors, the heat of which is probably not sufficient to kill the germs.

Thayer, Ind., Oct. 30.

A. DE KOKER, JR.

[If diseased combs were rendered in a solar extractor, and foundation made from the wax with a hand mill, we can see that it *might* be possible for such wax to carry the disease, although we regard the possibility as exceedingly remote. Sunlight alone is a powerful disinfectant, and then the wax has to be heated again before sheets can be made, even by the dipping process.

Foul brood may exist even in bee-trees; and since a little robbing might not be noticed by the apiarist, it is easy to see how the exchange of infected honey (the medium by which the trouble is known to be carried) could spread the disease broadcast.—E.D.]

Gnats; do Bees Start Quicker in Comb or Extracting-supers?

Dr. C. C. Miller:—Do flies and gnats do any harm in a colony of bees? Last spring, in looking over a new swarm I was surprised to see foundation that had not been drawn out covered with black gnats; and now I see them quite thick around the entrances of the hives. They vary in size from gnats to common flies. Are they an enemy of the bees, or is it just a freak abode for them?

Will the bees start work in a super with full sheets of foundation in the section boxes as soon as they would in an extracting-super with only foundation?

Everett, Wash., Oct. 17.

GROVER HAYS.

[Dr. Miller replies:]

I don't believe gnats do any harm unless it be to annoy the bees by their mere presence. Probably there is something to attract them, although one can hardly think of any thing to attract them in undrawn foundation unless honey or something else attractive has been used as a lubricant.

Sometimes the bees will commence work immediately upon foundation just as soon as it is given, in which case there would be no difference. Sometimes they are more slow about it, in which case they would be likely to begin sooner in the extracting-super than in a section-super with the sections separated. The difference might lead to the result, in some cases, that work would be begun on extracting-combs, and not at all in supers. But a proper bait should always be used, and a bait will be accepted as readily in one as in the other.

The Disposal of Cappings.

In the Nov. 15th issue for 1908, p. 1381, I gave a description of a cheap and easily constructed capping-melter. The continued use of this melter has demonstrated that it is a good one for an apiary of moderate size. I have learned a few things in the operation of the machine which may be of use to some who have not as yet tried this method of handling their cappings. Because of the fact that I drain my cappings when the white-honey harvest is on, there is not very much honey left in them to go through the melter. When extracting the fall crop, which is dark, and is sold to the cracker-factories, I run the cappings directly into the melter. My melter is made by placing one pressed-ware dishpan inside of another a size larger, holding them apart one inch by means of little bridges soldered in by the tinner, this one-inch space being for the water. I work this on a Harrison blue-flame oil-stove. A small flame is not sufficient, for the cappings melt quickly and pass out through the tube which runs from the inner pan. The important kink is to know when to shut down and clean the pan. The black slumgum will accumulate, and it is not good policy to run all day, as we did at first, without cleaning it out. Let the melter drain down close, then use a large spoon to take out the black residue, which should be placed in a receptacle to go into the rendering-vat. It is the *cooking* of the honey in this slumgum that has a tendency to color and give the honey a bad flavor.

Here in Wisconsin we can seldom get the late amber honey extracted without using a good deal of heat. We stack our supers in the shop and keep the temperature up to 90 or 95 all day. Where this is done, the ordinary uncapping-knife works very well, and the honey comes out quite clean.

Bridgeport, Wis., Nov. 2.

HARRY LATHEP.

Will Bees Start Cells if their Queen is Merely Caged in their own Brood-chamber?

I want to get queen-cells early next spring to divide with. Will the bees make queen-cells if I cage the queen and leave her caged in her own hive?

If I have to take the queen out to get the bees to make queen-cells, what can I do with her? Will they kill her if I cage her over another hive of bees? If I can cage the queen and leave her in her own hive, will I have to introduce her when I go to turn her out? or can I just open the cage and let her out?

If I have to cage the queen over some other hive, will I have to introduce her when I go to put her back to her own hive?

Courtenay, Fla.

L. LA ROCHE.

[You will have no difficulty in getting queen-cells started if you cage the queen in another hive; but you can not be very sure of getting bees to start cells if you cage their old queen in the middle of the brood-chamber. They will start cells sometimes if this is done, but not very often. For this reason it would be better to cage her in another hive, placing candy in the cage with her, for you can not always be certain that the strange bees will feed her.

Some follow the plan of caging the queen of a swarm when, for some reason or other, the swarm will not remain in the hive where placed, and in some instances cells are started. While we are not sure, we rather think that the bees of the newly hived swarm would be more likely to start cells under such conditions than those of a normal colony where nothing else had been done except to cage the queen on one of her old combs.—E.D.]

Drone Brood Found above an Excluder in Combs that had Contained No Eggs.

Mr. Samuel Simmins questions, Aug. 1, 1910, p. 481, whether bees move eggs. I had three or four cases this year that seemed very unusual to me. I put half-depth extracting-supers on all colonies in the spring as fast as they became strong enough to take them. In each case queen-excluders were put on at the same time; but later I found a small amount of drone brood—perhaps three or four square inches—in three of the extracting-supers of three colonies. There was at no time any queen or

any other brood above the excluder. The drone brood in each instance was at the lower edge of the comb, and just above the zinc.

Last year, in rearing queens I shook a queenless colony on to some combs that had been partly filled with honey, placing a queen-excluder beneath the bees, and giving them at the same time a single comb of eggs and larvae just hatched. Later I found four fine large queen-cells on the face of the comb next to the one which I gave them, and which contained the only brood or eggs in the hive. Mr. Simmins might claim that the drone eggs, above the queen-excluder, were laid by a worker bee, though I never heard of a laying worker in a colony containing a vigorous young queen, such as each of the three colonies mentioned had; and in the latter case, laying workers would be out of the question, for the cells developed fine young queens.

Battle Creek, Mich. FREDERICK H. HARVEY.

More Wasps Going in and Out of a Hive than Bees.

I was interested in reading the letter from Mr. Hand, p. 514, Sept. 1, on outdoor feeding and the comments following, as I had put out two pans of syrup a few days before, and I had the annoyance of seeing it practically all taken by wasps; so, until I have further information, I have stopped feeding this way and am feeding inside the hives.

We have had much trouble with wasps this year, and they seem particularly bad just now, attracted, probably, by the honey extracting. With one of three queens which I bought this season I formed a nucleus; but found, a few days after, that there were more wasps going in and out of the hive than there were bees, and on the alighting-board a very considerable number of bees' legs. I opened the hive and found in it numerous wasps. One of the frames of drawn-out foundation holes had been eaten, and the hive-floor was strewn with bees' legs. The capped brood given to the nucleus had the cappings stripped off, and the brood was mutilated. The queen with a few bees was between two frames.

I added another frame of bees, and closed the entrance with grass. To-day, 48 hours after, the bees have eaten through the grass and seem to be all right. Yesterday, while the entrance was closed I put a bottle of syrup on the hive-cover, and by this means caught a lot of wasps. We find the wasp a serious nuisance. I am unable to find out what becomes of the bodies of the bees. I saw several young bees emerge from the hive in a crippled condition. Had they been stung? Can you give me any information that will help me in my troubles? Okanagan Landing, B. C. K. PETERS.

[Wasps making so much trouble is unusual. See our reply to C. Isaac, p. 636, Oct. 15.—ED.]

Carbolineum to Drive Ants Away; Spiders a Source of Annoyance.

Ants have annoyed me in the way complained of by Mr. Muth-Rasmussen, page 634, Oct. 15. Last spring I painted my bottom-boards with Avenarius carbolineum, and no ants appeared. Later in the season I put out an unpainted bottom-board, and the space between the super and outer covers was soon occupied by thousands of ants, but they did not seem to object to the carbolineum which had been used on the alighting-boards.

Various kinds of spiders have troubled me very much in other seasons by building webs and nests under my alighting-boards, and lying in wait for any returning bees that, missing the entrance, chanced to fall to the ground. After the treatment with carbolineum the spiders were also conspicuous by their absence. This is my experience with carbolineum for one season only. I give it for what it is worth. Speaking of spiders, the big yellow and black fellows seem to me to show as much calculating intelligence as any insect I ever came in contact with. Every fall, morning after morning, I have to tear down the great webs which they have built in front of the hives. In order to suspend their webs in proper position to catch the bees in flight they frequently string their supporting cables from a high fence to small fruit-trees several feet away, showing considerable engineering skill.

Referring to Mr. Rhinehart's question, p. 635, Oct. 15, I never see a picture of an apiary with shade-

boards on the hives, and weighted down with bricks and stones, without wondering why more bee-keepers do not use the deep cover. I do not see how it can be more expensive or more trouble to handle than the flat cover with shade-boards and weights, and in this climate it is good for both summer and winter, with no change except the addition of a few inches of packing between the super and outside covers for winter.

Louisville, Ky.

W. C. FURNAS.

Wintering a Surplus of Queens; a Plan for Re-queening After the Honey-flow.

Some time ago GLEANINGS published a few reports on the question of the wintering of a number of queens in one brood-nest. Apparently it did not attract much attention, as we have heard but little about it lately. Next to better methods of raising queens, I consider this the most promising field for investigation in all bee-dom.

I wish to requeen every year; so, as soon as the honey-flow ends I divide the brood-nest in halves by inserting a close-fitting division-board. Out of this board I cut a space 6 x 12 in., and cover it with wire cloth. To each half I give a select cell from a choice breeder. After each queen has been laying, I take frames, bees, queen, and all from one side of the division-board, and place them in the upper story, putting in their place empty frames of comb or frames of foundation, at the same time removing the division-board. Between the upper and lower story I place a queen-excluder. The result is, two queens breeding strong colonies which are sure to winter. Then if I can not carry both queens over the winter I have a choice of two that have had a good long time to show their worth. But if I can winter both, I have two queens laying in one hive, and large quantities of brood early for the harvest.

At the beginning of the honey harvest, pinch the head of one queen and let the other one survive. Now, what is the matter with that proposition? I wish to avoid useless experiments, and have been very much pleased with the idea. Will it work? Toronto, Can., Nov. 6. CHARLES E. HOPPER.

[Your plan is all right if it will work; but so many have met only failure when trying to work two or more queens to the hive that the prospect for others to make a success of it is not assuring, to say the most. The same failures in trying to winter a plurality of queens to the hive is equally discouraging. We do not wish to throw cold water on either proposition, and therefore we commend your zeal in going at the matter as if you *expected to succeed*. It is that spirit that makes success. We should like to hear from you next spring and summer. If you or any one else can evolve a plan whereby two or more queens can be wintered so as to be available the following spring when they are so scarce, you will place the bee-keepers of the world under great obligation to you. It is well worth the trial.

We know there are some who say they have succeeded; but apparently no one has been able to duplicate their success.—ED.]

How Many Colonies will a Square Mile of Alfalfa Support?

Can you give me an estimate of how many colonies of bees can be kept profitably per square mile of alfalfa in an irrigation project, where it is produced for hay, and blooms twice, being in bloom about a week each time? I consider a yield of nearly 100 lbs. of extracted necessary for success here.

Garland, Wyo., Oct. 26.

JOHN HENDRICKS.

[This question is one that can not be answered definitely. Those who live in the alfalfa region have said that, when conditions are just right, as many as 1000 colonies might be kept on 40 acres of alfalfa. Of course, conditions are so rarely just right that this number is all out of proportion with the average. The truth is, there are times when only 40 colonies would starve on 1000 acres. There is really no way to tell except to start with a few colonies, and cautiously increase. We should say that it would be the exception rather than the rule when more than 200 colonies at the very most could be kept in one location—the average number being, perhaps, not far from 100 colonies.—ED.]

Can a Bee Fly Backward?

A few days ago as I was coming in with a load of hay a bee met me and proceeded to investigate. It tumbled down in the hay; but after a minute's rest it rose and hovered over a bunch of dried flowers. It kept about three inches above the hay, and at a spot not over a foot from my knee, so I could observe it closely, and I am sure it was not touching or holding to any of the hay, yet it remained motionless (relatively) except for the buzzing of its wings, the motions of which were not very rapid. In fact, it reminded me of a hawk floating in the air over one spot, and flapping its wings slower than in ordinary flight. The point is, my team was moving at a brisk walk; and as the bee's head was toward the rear of the load it must have been flying backward; and as it kept its distance of about three inches above the hay while the team went 100 or more feet on level ground, it did not "slide" down and back either. So we must conclude that what a bee ordinarily does and what it can do are different things. Not only did this bee fly backward on a level, but it seemed to do it easily; and when it finished its investigation it turned with a sharp buzz and left us behind.

LOCALITY.

Locality is one of the biggest words in the bee-keeper's vocabulary. Much that we read is misinformation for us because nine writers out of ten do not allow enough for its influence. Every apiarist must know his own location, and use this knowledge as a sifter of all that he reads. For a long time I thought Wesley Foster's conditions at Boulder, Col., ought to approximate mine here at North Platte; but I keep getting rude jolts of difference.

To bring it closer home, just across the river (Platte) from me is a man who harvested this year a lot of honey with a distinct pink tinge, such as I never saw before. A few miles to the west the honey is all the regulation water-white alfalfa and sweet-clover. While I got over 800 lbs. of Spanish-needle honey, and the people in this locality "howl" for it, in both section and chunk form, it would have been a mistake to extract it. If I had been in some locality where the bees are often confined to their hives for months at a time it would probably have been a mistake to leave it in the brood-chamber for winter stores; but in this locality the bees get a flight nearly every week. They are doing well, and I think the honey is the best yet, as it does not granulate as badly in the hives as sweet-clover-alfalfa does.

YOUNG QUEENS.

The pressure of opinion seems to be so strongly in favor of year-old queens that even Dr. Miller does not try to stand up against it, but simply says that the bees have sense enough to attend to that in his locality. I find that in six of my best colonies there had two-year-old queens, one a three-year old (clipped, so I know), and two had one-year-old queens.

NO NEED OF PREVENTING ALL SWARMING.

The only system I have any use for is the Demaree or Allen, and I don't use that very much. No "slaughter of the innocents," and no cumbersome manipulation for me. In my locality I have had no trouble so far in keeping swarming down to 10 or 15 per cent, and I would rather let them swarm that much than to break my back. Of course, there may come a year that will fool me.

My methods? Nothing new; shade in the heat of the day; plenty of ventilation, and when they get full below I bait them up into a 5/8-inch frame super with a few shallow extracting-combs, or, what I think better, a few nice new unfinished combs, started at the close of the flow the fall before. As soon as they have made a good start in earnest on these, I put on a section-super; then when this is well started the frame-super (bees and all) goes on to a sulker if I have one, and I generally find it is irresistible. As I use only two or three bait-combs in the first super, the other frames have only narrow starters, and, when filled out, these sell as chunk honey in the frame. The customer cuts it out and gets sixteen ounces to the pound, net weight, and that's irresistible too.

North Platte, Neb.

LOUIS MACEY.

Time Required by Bees to Make a Trip.

As an old bee-hunter, I can say, in answer to the questions of Mercie R. Williams, p. 602, Oct. 1, that when bees are being fed and making regular trips, it will take them 8 minutes to go from a third to

half a mile, unload, and return. If they are gone from 13 to 15 minutes they are a mile away. They will not often vary more than half a minute. As to their resting, I am sure they sometimes do so, for about once an hour a marked bee will fall to put in an appearance, and will be absent about twice as long. When a bee-tree is no more than 20 rods away, the time used in going, unloading, and returning, will not vary much between four and five minutes. The distance the bee must crawl before it can deposit its load causes some variation in the time required for the trip. It takes much more time for loading from flowers than from diluted honey. Bees working on a buckwheat field a mile away could not possibly gather and carry home more than three loads per hour.

Jamestown, N. Y.

J. W. WILSON.

If Combs are Frozen, No Moths will Develop.

In regard to the controversy relative to combs and moths, p. 582, I would say that, if combs are stored in an outside building, and subjected to a winter's freezing, no moths will develop or hatch in them the following summer unless the millers come in contact with them and deposit eggs—at least this is the case in this locality. There will be no moth-millers here until they are developed from moths hatched from eggs that are laid in the brood-chambers late the preceding season before the bees are taken to the cellar; and unless combs are stored in an absolutely tight building, some of these spring-hatched and developed millers will sometimes find their way in and start a crop of moths about July or August.

EIGHT-FRAME SUPERS ON TEN-FRAME HIVES.

In reply to J. W. Lowry, of Texas, page 584, Oct. 1, relative to using eight-frame supers on ten-frame brood-chambers, I will say I have no trouble in using them that way by setting the eight-frame right on top of my wood-bound queen-excluders.

Union Center, Wis.

ELIAS FOX.

Preventing Bees from Storing Pollen in Supers Containing Bulk Comb Honey.

I should like to work about ten colonies of bees for bulk comb honey. I had two that I worked for that purpose last season, using extra-thin foundation of full size. In one I got nice white comb that I could sell easier at 10 cents per lb. than I can sell sections at 16; but in the other super there was pollen mixed in so I could not sell it. Would a queen-excluder prevent this?

I also wish to use extra-thin foundation for 4 x 5 sections. Can I put some in full size to fit exactly all around, cementing with wax on all four sides? Would the bees commence work in the supers sooner if I put two or more bulk-comb frames in with the sections?

Leonardsville, N. Y.

C. L. CRANDALL.

[A queen-excluder will help somewhat in keeping pollen out of the supers; but prevention is better than cure. Ordinarily the bees will store their pollen as near the brood as they can; and if you take care to provide a couple of combs containing some pollen on the outside of your brood-chamber, making sure that there is empty space for more, the bees are not so likely to show a tendency to take the pollen upstairs.]

You can put full sheets of foundation in 4 x 5 sections in the manner you suggest; but we believe you would get better results by fastening the foundation at the top, and only two-thirds the way down at each side of the section, rather than fastening it all around. This saves some work, and results in rather better honey, as bulging is thus prevented.

Super work would be begun sooner if you used a couple of frames for bulk comb honey as baits; but we do not know that they would begin any sooner than if you used unfinished sections for bait.—ED.]

Large Italian Queen whose Eggs were Not Fertile.

I once had a queen, only about 20 per cent of whose eggs were fertile. I gave her brood several times; but that did no good, so I gave the queen to a neighbor and told him to try her. He killed a black queen in a strong colony and introduced mine, and he said very few of her eggs hatched. She was an extra-large Italian queen.

Walla Walla, Wash.

C. A. MCCARTY.

Our Homes

A. I. ROOT.

But one thing is needful; and Mary hath chosen that good part, which shall not be taken away from her.—LUKE 10: 42.

I suppose my readers all have a Bible of their own. In our Sunday-school down in Bradentown our good friend E. B. Rood is superintendent. He is not only an enthusiast on bees and gardening, but he is an enthusiast in Sunday-school work. I wish you could all be present and hear him open up our Bradentown Sunday-school. One of his special points is to make everybody bring a Bible—young and old. Just as soon as Sunday-school is opened he asks the question, "How many of you have Bibles? Hold them up." And he has finally succeeded in having almost every man, woman, and child hold up a Bible every Sunday morning. I think that on one morning I was almost the only one without a Bible; and when I ventured as an apology, "*Mrs. Root* forgot to bring our Bible this morning," there was quite a little merriment, even if it was Sunday morning and in Sunday-school.

Well, now, friends, I want each one of you to get your Bible and turn to the closing words of the tenth chapter of Luke, beginning at the 38th verse. Jesus himself, our Lord and Master, was making calls. How would you like to have him step into your little home some bright morning? If you only knew he was coming you would have every thing brushed up, the porch scrubbed off, things put away, and every thing in apple-pie order; for we read somewhere that "order is heaven's first law." I am not quite sure that it is in the Bible you are holding in your hand, but there is something in the Bible, from the pen of Paul, saying, "Let every thing be done decently and in order."

The place where Jesus was going to call was the home of Mary and Martha and of their brother Lazarus—the one we are told about later on. I suppose that, when the Saviour called, he took a seat and began speaking. Martha was busy in picking up things, or in making some preparations for refreshment; but Mary—bless her heart—dropped every thing and sat at his feet to drink in his words—"Blessed are they that do hunger and thirst after righteousness, for they shall be filled." Mary was *hungering* for his precious words, and we can imagine how eagerly she drank in the Master's teachings. Now, these women or girls—we do not know how old they were—were both good women. Martha was one of those busybodies who must have every thing just so or they can not live, or at least live and be happy. She was a good housekeeper—a model one, and there are many of them left nowadays. May God be praised for them. I do not know what we should do without them. Marys and Marthas are both needed in this world of ours. Martha, however,

was not satisfied to bear her particular burden alone. She reasoned, naturally, that Mary might come and help; and after they had got things in order, and the dinner going, perhaps they could both sit down and listen. But our good friend Mary was so delighted with the opportunity of listening to the great teacher she forgot all else. We are not sure she knew just then that he was the Messiah, but she had wisdom enough to know that he was a wonderful man and a prophet. She dropped every thing and forgot all in her devotion, and left Martha, as we are told, to serve alone. Poor busy Martha! I am afraid she got a little cross, as such women often do. She finally made a protest to her guest, and asked him to send Mary to her that she might assist just a little while she was engaged in the necessary household duties. I am glad that we have a record of this little incident. What did the great Teacher, *God's only begotten Son*, think about it? Listen to his reply: "Martha, Martha, thou art careful and troubled about many things."

We may be sure that his words of address were loving ones. Even though it was a rebuke, the words were tender and kind. And now come the words of our text. I do not know but it is a sort of lack of faith, but some way it does seem to me that the Savior at times spoke extravagantly. These very words, "but one thing is needful," seem to poor humanity almost too strong. If he had said "comparatively," from our human standpoint it would seem more natural; but he replies to that busy, efficient house-keeper, that only *one thing* is needful. Did he mean that this word should apply to your busy life and mine? Did he mean that we should neglect the children, leaving the porches looking untidy where muddy feet have thoughtlessly tracked over them just after they have been mopped off? Did he mean we should let the dust accumulate, the children go with dirty faces, soiled clothing? Oh, no! We are not to understand just that. But when we are thinking of the household cares we should remember that spiritual matters are of *more* importance than any thing else.

Down in Bradentown I am not only always on hand at Sunday-school and preaching, but I am also on hand, usually, promptly at the midweek prayer-meeting. There is always a good attendance at our prayer-meeting in Bradentown—often a better one than at our Medina prayer-meeting, where we have three or four times as large a church enrollment.

For several months past here in Medina we have had no pastor, and the prayer-meeting has been permitted to run down as a natural consequence. Others as well as myself have tried to keep it up; and when somebody said, "Why, there will not be over a dozen there," and gave *that* as an excuse for

staying away, I tried to remonstrate; but it did not seem to do much good. Well, last evening, Nov. 2, our prayer-meeting room was crowded. It was the second prayer-meeting since our new pastor has been with us, and he is getting a great hold on the people. At the close of the meeting I expressed my joy at seeing such a roomful, and exhorted them to keep it up during my absence of six months. I quoted the words of our text, and told them I knew what it was to be so tired when it came Thursday night that I felt as if I could not go out anywhere; but I added that I always felt glad when I overcame that feeling. I am glad to say that Mr. Calvert is also always on hand at prayer-meeting. He told us on one occasion that the prayer-meeting is the "power-house" of the church. Now, what I am getting at is this—which is the more important—the prayer-meeting or something else—worldly matters, for instance? When you come to die, and memory goes back over the long life God has given you to live, what will seem to be of the most importance at such a time? When you come to invoice and sum up all the cares and responsibilities of life, shall we not agree, or at least nearly agree, with the words of the Savior—"But one thing is needful"?

Bee-keepers are busy men. I think their wives, as a rule, are busy women. Perhaps their husbands' many enterprises help to make them busy. Well, I confess I have often felt sorry to see the bee-keepers I have visited having so many "irons in the fire." I am guilty myself, I know. In my old age I am trying to profit from past experience. A great many say to me, "Mr. Root, do you not keep *bees* in Florida?" They seem surprised when I tell them I do not. I just keep chickens (and *ducks*), and nothing else. I have been longing for some Hungarian partridges, like those so dear to my heart around the deserted cabin in the woods in Northern Michigan; but I am determined not to have too many things on my hands in my old age. Once last winter I did not prepare any Home paper, and there was quite a little complaint. I was so busy with the chickens and incubators that I did not have time.

Now, friends, when you are thinking of getting something on your hands to make money, or, if you choose, to have fun with, please do not forget the "one thing needful." I presume a large part of the world nowadays would think, at an offhand glance, that money—more money—is the "one thing needful." Money is a good thing to pay honest debts with. Be square before the world, of course, before you die, and let us beware about *having* such debts when death comes. Prevention is surely better than cure in such cases.

Finally, what *is* the one thing needful? Does the Savior really mean it when he just narrows down all the business of a human life? Here are his concluding words, found in the 42d verse: "Mary hath chosen that good part which shall not be taken

away from her." Dear, good, wise Mary! All her thoughts and energies were absorbed in "laying up treasure in heaven where neither moth nor rust doth corrupt, and where thieves do not break through nor steal."

Let me mention once more a dear friend of mine who thought he had not had his share in the division of the parental property. He talked it over and thought it over, and it made his whole life unhappy, and yet he had money out at interest. He did not *need* that money that made his life unhappy, and he had no use for it. Finally a relative, who saw his state of mind, in order to relieve him gave him outright the sum in question. Did it make him happy? Perhaps it diverted his mind from that one subject. But the money was put out at interest; and as he had no use for even the interest, it just accumulated; and all at once, to the surprise of every one, he took a sudden cold, which developed into pneumonia, and he died with scarcely time for a thought about death. Such things are going on all around us. Dear friends, what is the use of fighting and quarreling over a little money, especially money we do not need, and for which we have no use? We are told that heaven and earth shall pass away; "but," says Jesus, "my words shall not pass away." Again, in I. Peter, 5:4, we read, "When the chief Shepherd shall appear, ye shall receive the crown of glory that fadeth not away."

A few years ago I bought quite a nice suit of clothes. As soon as I went out into the sun they began to fade, and in a little while they were "hardly fit to be seen," as Mrs. Root expressed it. If I am correct, there is quite a little trouble nowadays with cloth that "fades." Over ten years ago I paid a little more than usual for a suit of navy blue, and it has not yet faded a particle. When I brush it and clean it up, it still looks good, because it does not fade. Will it not pay us to invest in that crown of glory that fadeth not away? As I take it, the Savior meant that we should give less time to worldly affairs that fade and pass away, and more time to the things that not only make us happy through life, but go with us beyond the grave. We can not literally go and sit at the feet of the Savior as did Mary of old; but we can listen to the teachings of God's holy word. We can be prompt in attendance at the house of worship. We can be on hand at the prayer-meeting; and, furthermore, we can, with a little effort, take somebody along with us. That reminds me that, at the close of the first prayer-meeting led by our new pastor, he asked how many would try to come to the next meeting, and bring somebody along. All hands went up; and the consequence was, the prayer-meeting room was full to overflowing.

Now, if you are not interested in my talk about the one thing needful, you will surely be interested in another visit our Savior paid to the home of Mary and Martha. See the 11th chapter of John. It is a beautiful sequel to that part of the chapter we have

been considering, and to which I wish to call further attention.

This Home paper is dictated to-day, Nov. 3, just before Mrs. Root and I start out (with the birds) to our southern home for the winter.

BEE CULTURE AND SOME OTHER THINGS IN
SOUTH AFRICA, REPORTED BY A
MISSIONARY.

Dear Brother Root:—As I was returning from town the other day I stayed all night with Mr. Haviland, a neighboring farmer. I found he was interested in bees, and he said he was taking an American magazine on bee culture, by "A No. 1, Root." As I was an American, perhaps I knew him. It is not an unusual thing for some one out here to ask me if I ever met such and such a person of his acquaintance in America. As America is a pretty big place, I have generally had to confess that I never had that pleasure. But in this case I was glad to say that I did know him very well; that I was born and brought up within a dozen miles of where he holds forth, and I have also been to his hive establishment and talked with him face to face. This is not a solitary instance of my making friends through the honor of your acquaintance. I find that only the A. I. Root bee-supplies are to be bought in this part of South Africa. I found at the two government experiment stations, at Cedara and Weenen, that GLEANINGS is taken and read with interest. In fact, any one who has any thing to do with bees on the modern plan knows of "A. No. 1, Root." I did not know before that is what "A. I." stands for. But perhaps it is not altogether a bad title.

Years ago, when I first came to Africa, I wondered why more was not done with bees out here. You may remember my telling you how the natives at Inhambane do a thriving business with wax, making rude hives of the bark of a tree which they place in the trees for wandering swarms to occupy; and how in some places in the wilderness the only food we could get was honey, which was as clear as water, and of a delicious flavor. Now I see the business is being taken up in a scientific way, and one correspondent of GLEANINGS from Natal confirms what I have believed all along, that apiculture ought to be "A. I." business in this country. The price of honey is twice what you get for it; there are plenty of flowers, and no cold weather nor diseases to contend against; and if feeding is ever necessary the price of sugar produced in the land is cheap. I have long thought of going into it myself, but I have been deterred by various reasons, among which are some unfortunate personal experiences.

The first was the loss of a fine mare. She was hitched with other horses near a hive of bees which the missionary with whom I was staying undertook to rob of its honey. The enraged insects drove the missionary away, and then lit on the horses. We managed to get the others loose before they suffered much hurt. But mine, being the nearest, received the most of the swarm. She was in terrible agony, throwing herself on the ground and pounding her head, and in about two hours was dead.

My next experience was with one of my children, a boy about six years old. A hive had been enraged by some schoolchildren, and the boy innocently ran among them. They settled on his head; and no doubt but for the heroic efforts of our governess he would have been killed too. She heard his screams, and ran and covered his head with her apron, receiving many of the stings herself. Then she carried him into the house. He went into a high fever, and for a day or two his condition was serious.

Another time I was visiting a missionary and the bees got on a rampage, so that no one dared go outdoors. They stung chickens, turkeys, and pigs, and killed some of them. Only lately I saw in the paper, an account of a man who went out to take up some honey, and he was found dead beside his hives. The bees had stung him to death.

Yet ordinarily these bees seem to be gentle and docile enough. I have seen the natives nearly naked taking out honey from an ants' nest. The bees were all around them and over them, and they did not seem to mind it. Swarms often take pos-

sion of corrugated-iron houses, and establish themselves between the outside iron and the ceiling-boards inside, and they are often very hard to get rid of. But I have seen them located over the door in a railway station where people were constantly passing in and out, and no one seemed to get stung.

Now, can you explain these outbursts of rage? I saw in your pamphlet that it was because their food was taken away from them, or something of the kind. But that does not explain every case, as it seems to me. Sometimes they are very quiet when their honey is being taken up. I took up the honey from the parent of the swarm which killed my horse, without any smoker, and I did not get stung more than once or twice. Then I have known the bees to "run a muk" when they had not been disturbed at all. I have known swarms that could not be approached at any time. I encountered such a swarm in the wilderness on our way down from Gaza Land, hundreds of miles away from civilization. It was in an immense baobab-tree. The tree seemed to be hollow, and full of bees. But you could not go within a hundred yards of the tree. My native carriers said it was because they had much honey in store. They had often taken up wild honey, but not one of them dared go near that tree.

Nevertheless I am going into the business. I am ordering a Danzenbaker hive and all the up-to-date accessories. The mimosa-trees are full of blossoms which last a long time, and are swarming with bees. Then we can plant alfalfa and sweet clover, and there are many wild flowers which the bees seem to like. So, count me as one of your disciples.

I did not come out here to make honey or money. I came to bring the gospel of love and light to a people who are in great darkness. But the change from the life of a naked savage to that of a clean Christian is so great that, if there is not found some means of self-help, the converts are discouraged, and are tempted to fall back or get the means of the more expensive mode of life in a dishonest way. So I am ready to take up any industry which seems to offer the means of help for the benefit of these people. It appears to me that bee-keeping rightly managed should be one. At any rate, I am going to try it. Will you not pray for my success?

Bethany, M. S., March 20.

W. C. WILCOX.

My good friend, I am inclined to think the bees in your region are a little more vicious than ordinary ones, if what you say is true. At certain times and under certain conditions we know bees are very much worse than at others. Where they are accustomed to see people and horses passing daily they seem to take it as a matter of course. I have before mentioned that our big heavy work horses go right through our apiary a dozen times a day; and although there are several hundred colonies on both sides of the narrow driveways, the bees never pay any attention to the team nor to the driver; and I am pretty sure that bees that have not been handled, and that have not seen either people or horses passing in front of the hives, are much more apt to be cross. May God speed you and hold up your hands in your attempt to clothe the naked savage and bring him to the foot of the dear Savior, where he can be taught Christianity and civilization.

CATCHING RATS BY THE DOZENS AND
HUNDREDS.

The following, which we clip from the *American Poultry Advocate*, is something similar to what I saw years ago. As I understand it, you are to provide yourself with a wire trap, big enough to hold a score of rats or more all at one time. My impres-

sion is that such a trap costs from 50 to 75 cents. See the report below:

When one proves a good thing, I believe in passing it on to our neighbors—and we are all neighbors; therefore I want to tell you that the best "bait" for a wire rat-trap that I have ever found is a few good-sized live rats. I caught one in a new trap, concluding to leave it in there a few days, thinking it would probably scare the others away. Imagine my surprise the next morning to find seven or eight very large ones in the trap. This gave me an idea; and, killing a part of them, I left the others as "bait," putting a good-sized meat bone in with them. I made a good catch every night this way until I got all of them. I could not "stand for" rats killing my beautiful Buff Orpington chicks, so set about to get rid of them, and so I did.

I loaned a neighbor two of my catch for "bait," and the next morning he had sixteen—completely filling one end of a large wire trap. He caught over a hundred, using the live rats as "bait" every night. A good many have tried it with good success. If rats are bothering you, get a new wire trap and put in a fresh bone, and then use the bone and one or two rats, and you will get them.

Madison, Ga.

DR. A. W. VICKERS.

On page 575 I mentioned an arrangement for catching rats. Well, shortly after, we swept up some corn mixed with dirt and chaff from the barn floor. I put this into a barrel in the poultry-house, intending to look after it later. This barrel had a hole in the bottom, and some of the corn sifted through it. Before I got around to see to it the rats had dug out quite a cavity under the head of the barrel, and were holding high carnival, apparently, in their snug retreat. I went and got a ten-cent wire trap, and placed it in that cavity, and, without putting any bait in it at all, I caught five large rats, one after another. In their efforts to reach the hole in the barrel of corn they stepped on the trap. I am ashamed to own up that we had as many as five rats on our premises all at one time.

GROWING CROPS IN THE NORTH IN THE SUMMER TIME, AND OTHER CROPS IN THE SOUTH IN WINTER.

We clip the following from the *Rural New-Yorker*:

As the weather grows colder, northern people begin to talk of going south. The following letter from Ohio is like dozens of others:

I understand your people spent last winter in Putnam County, Florida. I have a business which is not very lively in winter. Could I buy land in Putnam Co. and go there during winter and raise a profitable crop of vegetables, coming back to Ohio in late spring?

You can buy thousands of acres in Putnam Co., and much of it mighty cheap. As a winter home it is a delightful place. Many of the permanent residents there are well satisfied to remain. As for going there for a few winter months to grow a profitable crop, my advice is, do not attempt it. Go there first with the full price and spend a winter. Look around, examine soils, watch the growth of crops, and do your own figuring before you invest. We have tried winter cropping, and have been beaten by frost, drouth, flood, and disease. The last few seasons have been so dry in Florida that, unless one had an irrigating-plant, there was little show for a crop except on the low lands. Northern people somehow will not understand that farm conditions in Florida are entirely different from those in the North. The theory of "farming both ends of the country" by having a hay-farm or orchard in the North and a truck-farm in Florida is very pretty, but will not work well unless you have two families, one on the job at each end. Let this man spend a winter in the South, observing and figuring, and it is ten to one he will not buy land expecting to work it in winter and abandon it in summer.

The above refers particularly to Putnam Co., Fla.; and as we own 160 acres near there, we know the editor of the *Rural* has got his statement about correct. Now, please contrast the above with the boom stories ("Burbank Ocala," for instance, near by), that land speculators tell us, about getting rich on two or three acres of sweet potatoes, etc. With every thing favorable, and an experienced man in the locality, there are quite a few who do well. Friend Collingwood speaks of the frosts and the drouths. Our home in Manatee Co. is so far south that a killing frost is a rare thing; and in regard to the drouth, artesian wells are an almost sure remedy for dry seasons. If I am correct, Putnam Co. has a frost more or less every winter, and they do not have artesian wells.

ELECTROPOISE, OXYDONOR, KINDRED SWINDLES AND SUPERSTITIONS.

While it is true that the world is progressing to a point where most people begin to distinguish between sense and science on one hand and superstition on the other, there are some things, or perhaps I should say some follies, that "down" hard. The following clipping from the New York *Tribune* hits the nail on the head:

A veteran Philadelphia soldier, apropos of Lincoln's birthday, said at the Union League:

"Lincoln used to joke me about my superstitions. I carried, you know, a rabbit's foot for luck. 'Look at this,' he said one day, and he took from his pocket a potato.

"'What's that for?' I asked. 'For rheumatism,' he replied. 'I haven't had a twinge of rheumatism since I began carrying it.' 'Wonderful!' said I.

"'Yes,' said Lincoln, with his whimsical smile, 'and still more wonderful is the fact that it's retroactive too; for I never had a twinge before I began carrying it either.'"

After I read it all except the closing sentence I said to myself, "Why, is it really possible that Abraham Lincoln, with all his breadth and comprehension of things, should cherish a senseless superstition?" But after I had finished the clipping I thanked God that Lincoln had wisdom enough to give such a sensible reply to his friend who insisted on carrying a rabbit's foot for good luck. "Retroactive?" Sure enough; why not?

THAT "HUNDRED-STORY" BUILDING IN NEW YORK CITY.

Mr. F. J. Root, of New York, calls my attention to the fact that the enormous structure is to be 55 stories high, and not 100. Of course I am glad to correct any false statements; but I am sure I read in some of the papers that the building was to be 100 stories high. I think said statement also added that it was to be 100 stories to the top of the tower surmounting it. Mr. Root adds that, while I have got the building a trifle (?) too high, within a stone's throw of the same place, says my estimated cost of rent is very low, and adds, "We pay \$35.00 on the fifth floor." Our own rooms were on the third floor, about a minute's walk of the same place.

Poultry Department

FORECASTING THE LAYING HEN—SEE SPECIAL NOTICES IN OUR NOV. 1ST ISSUE.

Well, my laying hen kept on laying, something as I described about forecasting, until we had some severe stormy weather. Then she commenced laying every other day, instead of two eggs and a skip. Then she skipped three days, not laying at all. But Nov. 6 the weather moderated considerably, and she laid one more egg about 10 A.M.

Summing up the whole matter as the experiment stations do, this hen did lay according to the forecasting something like two weeks, two eggs and a skip, two more and a skip, and so on. Now, she may have been doing this some little time before I took notice. There are two reasons that may be put forward why she did not keep on according to the rule for forecasting; namely, the cold stormy weather I have spoken of, and that my whole flock are, most of them, in heavy moulting. I have not watched long enough to be certain she had finished moulting or had not commenced. Here at my Florida home I purpose making some careful experiments with quite a number of my best layers. It would seem pretty clear that ducks do not follow this program, for the 100 eggs I got last winter from a single duck were all laid in the morning, either before daylight or pretty soon after. My relative, Mell Pritchard—you know he is quite a chicken man—informed me that he once had a turkey that laid from sixty to seventy eggs consecutively, so far as he can recall, absolutely without a skip. Now, are chickens molded on a different plan from ducks and turkeys? I am sure it will be a benefit all around to have this matter thoroughly investigated by a number of observers. The better we get acquainted with our biddies, the sooner we shall be able to furnish a hen that will lay 300 eggs in a year, or something like it.

FORECASTING THE LAYING HEN, ETC.

Mr. Root.—Hens do not follow a fashion of laying an egg every so many hours. If you have not access to trap-nest records I will send you some leaves from mine so you may see for yourself. I have been breeding Barred Rocks for fifteen years for egg production, using trap nests; and while it is true that a pullet that starts out laying well is almost invariably a good layer, they will vary from one egg a day and skipping a day to laying every day for two or sometimes three weeks. I mean that every pullet varies in this manner. You say Mr. Stoddard's article is worth \$10.00 to you. Well, it isn't worth 10 cts. to me, because it is only partly true. I agree with Dr. Bigham, p. 641, Oct. 15, about dosing chickens; but I have used the permanganate ever since I have kept chickens, using it as a preventive of disease, and I rarely have a sick fowl. When properly and carefully used, it is a valuable remedy.

Rushmore, Minn.

C. E. BODDY.

FORECASTING THE LAYING HEN.

Seeing your remarks about the time it takes a hen to lay an egg, I would say that, when I was a boy in England, my father had a speckled Hamburg hen that would lay a little later each day, as you say, until she would miss one day entirely.

But now, my good friend, hold your breath. The next day she would lay two eggs. She worked that way repeatedly. I also had a hen that I believe laid from 250 to 275 eggs per year. I think climate makes a wonderful difference in egg production, and I should not think the 300-egg hen would be a curiosity in that country.

Sloan, Ia., Oct. 27.

LEWIS LAMKIN.

THE FLY AS FOOD FOR POULTRY, ETC.

Mr. Root.—Several years ago I had some trouble among my chickens, and appealed to the poultry press for aid. I was informed that the disease was commonly known as "timber neck," an intestinal disorder caused by eating putrid meat; but while I had, on previous occasions, allowed them access to meat that was more or less decomposed, at that particular time I was quite sure the chickens had had no meat of any description. My own reasoning classed the chicken as a scavenger, and hence built to care for such an article of diet; but I was not in position to contradict such distinguished talent, and I carefully guarded the yards against the trouble.

The disease still continued, even attacking peeps that had not been out of the brooder, my former opinion being thus confirmed; and as I have lately been feeding maggots (larvæ), without a return of the disease, I can fully assure the celebrated physicians among the poultry fraternity that they must seek further for the cause of the malady.

I obtain from the butcher, at intervals, the lungs of the smaller animals. These are placed in iron vessels, in an unused loft. They are thus out of the way; and as I use only eight or ten at a time, they are not annoying. Flies of many kinds are attracted, and deposit their eggs. When hatched, the worm proceeds to devour the meat, and to get fat. When thoroughly ripe I mix the mass with bran, which removes much of its offensive nature, and allows it to be handled easily.

There are several days after hatching before the worm begins to spin its cocoon. During this time it has no desire to escape, and I have abundant time in which to use the stuff, but am usually ready to use it in the beginning of this later stage, and can not be accused of perpetuating a troublesome pest.

When ready the article forms a poultry food that can not be surpassed, and is much cheaper than the food advocated by Briggs at 15 cents per bushel. Being live grubs it is sought eagerly, and eaten by the chickens with a relish. I make no attempt to remove the meat, and have had no trouble of any kind since I began to feed it. It must not be fed on the ground, as this allows the grub a chance to escape.

The procedure answers a twofold purpose. First, I obtain an excellent article of food. The supply, however, is of a limited nature. Twelve or fifteen lambs' lungs furnish what I give weekly to 150 or 200 chickens. Second, as a sort of by-product there is not a fly about my stable, which is directly under the loft, and none around my house, which is about 200 feet from the stable. My close neighbors, those within 200 yards, report no flies, while the neighbors at a greater distance report an abundance of the little disease-bearing pests; and were one to see the bucketful of grubs carried out by me four or five times each week he would imagine that I had relieved the whole county of flies.

I am not in position to ascertain definitely whether I am doing a harm, which does not appear; but if not, I am quite sure that I have solved a difficult problem, and a community may be rid of flies by having them breed where the young may be collected and destroyed, rather than to allow them to breed in indiscriminate out-of-the-way places just where the young may escape to torture the inhabitants, and to spread disease throughout the community.

Lake Roland, Md.

BENJAMIN B. JONES.

My good friend, very likely your plan is an excellent one for furnishing chickens an animal food at small expense; and although it may be new to you, almost the same plan was used and described more than sixty

years ago in a book called "Miner's Domestic Poultry-book." It was the first poultry book I ever saw or heard of, and to my boyish imagination it was a veritable goldmine. Miner advised putting a piece of liver in a stone crock and covering it mostly with bran, but allowing enough of the meat to be exposed so the flies could get at it. While down on Shumard's island, where they catch and clean great quantities of fish, he told me his chickens almost lived on the larvæ of the fly, and, if I am correct, he said he feared they neglected

other food to such an extent that they stopped laying. I should be a little cautious about feeding chickens meat that smells bad, especially as so many of the poultry-journals have declared it *would* make trouble. As I take it, your plan of ridding the neighborhood of flies is to coax them all to some out-of-the-way spot where they will lay eggs that will never be permitted to hatch out. In this way you secure a sort of race suicide. If a fly can not bring to maturity any offspring they will soon all be gone.

HIGH-PRESSURE GARDENING

POTATOES ON THE "HALF-SHELL;" ALSO SOMETHING IN REGARD TO "GILT-EDGE" POTATOES FOR QUALITY.

In my boyhood days we children (for I was one of a family of seven—three older and three younger than myself) were very fond of having a little fire outdoors for roasting potatoes. We not only got our fingers blackened, but I fear our good mother had quite a time in getting the black off from our faces. You see our potatoes that were served on the half-shell were not even "shelled" at all. You know how much is said nowadays about the beneficial effects of charcoal for chickens and other animals. Well, we children had the charcoal all right, as well as the delicious roasted potatoes. Now, this expression, "potatoes on the half-shell," came from an article in the October number of the *Farm Journal*; and it so vividly recalled to memory those childhood days I have been speaking about that I want to copy it.

POTATO DAY AT CARBONDALE; THE LAND WHERE PEACHBLOWS GROW TO PERFECTION.

One of the agricultural fete days of the West is "Potato Day" at Carbondale, Colo. It is celebrated each year on the last Saturday in October. On that day the Potato Growers' Association of the Valley, from a mammoth tent put up in the center of the town, serves thousands of visitors with Carbondale potatoes baked and stuffed in the half-shell. In booths near by are fancy Carbondale potatoes of many varieties on exhibition.

The Carbondale potato, although a more newly perfected product of Colorado soil than the Rocky Ford melon and the Grand Junction apple, is fast receiving equal recognition with them in eastern markets. It took its biggest jump into prominence last fall when in whirlwind succession it carried off the grand prize at the Colorado State Fair, the first prize at the Omaha Corn Exposition, and the first prize at the Chicago Land Show. There are several Carbondale potato-ranches of from 1000 to 3000 acres in size. One of these is owned by the Cleveland millionaire, H. W. E. Yeomans. Most of the valley, however, is in the hands of small growers who are applying intensive methods of cultivation to tracts of small acreage.

The land is economically irrigated from the Crystal and Roaring Fork rivers, which traverse the region. The soil is disintegrated granite, and sandstone amply supplied with phosphates and potash. The wash from the neighboring mountains keeps its vitality constantly renewed. The climate, due to an altitude of 6000 feet, is ideally suited to the best development of the potato. Under these admirable soil and climatic conditions, by careful seed selection and scientific methods of cultivation, the Carbondale farmers have brought the Peach-blow to a perfection that has not been elsewhere equaled. It commands top prices in New York and other eastern cities.

It is not only the quality of the potatoes raised at Carbondale that is making the region famous as the habitat of the spud; but in quantity produced it is breaking records. The yields are reaching enormous figures. Five hundred bushels have been grown on a single acre. Yields of 300 bushels are common.

Canon City, Colo.

FLORENCE L. CLARK.

If Carbondale, Col., has succeeded in making its locality "famous" in the same way the Rocky Ford region has become famous for its melons, they are certainly doing a wonderful thing for the lovers of fine-flavored potatoes as well as setting a good example before potato-growers.

SWEET CLOVER COMING TO THE FRONT.

A few issues back I said a certain article in one of the poultry-journals was worth \$10.00 to me; but some of my friends thought me a little extravagant. But *The Dakota Farmer* of Nov. 1 gives us an account of a single article that might be worth \$1000 to any good farmer. What do you suppose said article was about? Why, our poor abused old friend sweet clover. We clip the following from the paper in question:

A THOUSAND-DOLLAR ARTICLE.

At the State Fair, at Huron, I heard a man say that on page 924 of the September 1st issue of *The Dakota Farmer* there was an article worth \$1000 to any good farmer. The article was "Melilotus, or Sweet Clover," by F. H. Hoyt.

At first thought it seems ridiculous to think of a newspaper article being worth \$1000 to one man; but let us look into this matter a little:

Can any farmer in South Dakota afford to practice wrong methods? Can he afford to think wrong for one year—or, what is just as fatal, be thoughtless? The next thing to doing wrong is thinking wrong.

What I am getting at is this: The farmers of the Northwest have wrong thoughts in regard to the plant known as sweet clover. Mr. Hoyt in his article has endeavored to set them right, and it's worth \$1000 to any farmer who fully comprehends it.

In certain localities in this Northwest during the present year, farmers can be found who tilled 160 acres of land and didn't harvest a dollar's worth of crop. They will tell you it was too dry. Now, if a farmer had 40 acres of sweet clover—as dry as the season was—he could have put up two crops of sweet-clover hay, or 4 tons per acre—160 tons on the 40 acres—and that at \$8.00 per ton would be worth \$1280 from the 40 acres, giving him \$1000 for his knowledge and \$280 for his work on 40 acres. And besides this he could have followed it with wheat the next year, and been almost sure of a large crop.

All I can say is, read Mr. Hoyt's article again in the September 1st issue of *The Dakota Farmer*, and prove for yourselves the truth of it.

Vermillion, S. D.

R. A. MORGAN.