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CONTENTS

Page

Dr. C. C. Miller (Frontispiece)

101	Getting Bees to Work in Sections . . .	Dr. C. C. Miller
103	Foul Brood	D. M. Macdonald
105	Strong Colonies for Spring	F. L. Pollock
106	Woman's Department	Miss Ethel Robson
106	"Tell-a-Me"	Miss M. Davis Field
107	The Winter District Convention . . .	Miss Ethel Robson
109	Co-operative Experiments—Results for 1911	Morley Pettit
112	Mendelism and the Bee-keeper	G. Deller
115	Deaths of David Chalmers and S. T. Pettit	
116	A Chat With a Novice	Joseph Gray
117	Death of Mrs. Jacob Haberer	
118	Moving Picture Shows and the Bee	
119	Developing the Bee Industry in Canada.	H. Harley Selwyn
120	About Bee Escapes	G. A. Deadman

Reviews and Comments

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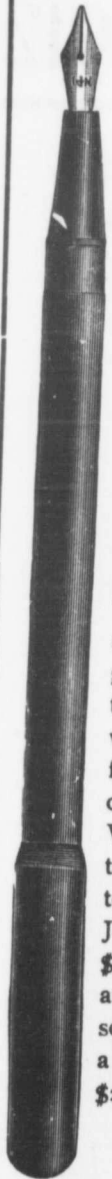
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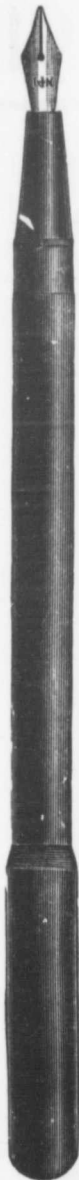
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The Canadian Bee Journal

BRANTFORD, CANADA

**The
Canadian Bee Journal**

Devoted to the Interests of Bee-keepers

JAS. J. HURLEY, Editor
W. WHITE, Asst. Editor

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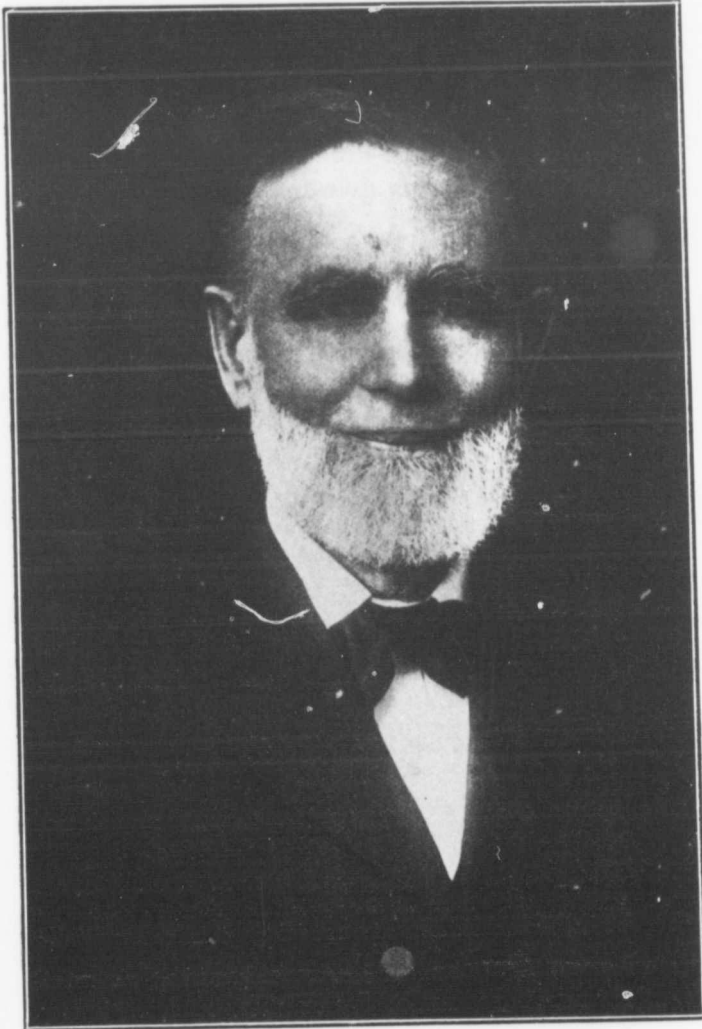
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Dr. C. C. Miller

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Vol. 20, No. 4.

GETTING BEES SECTION

By Dr. C. C.

The ignorance regarding beekeeping is a thing otherwise interesting and amazing. In the past I have been asked why the colonies of the time were not making more progress years ago a man sojourning in a town who taught that the bees should be wintered in hives without the bees, perhaps so that the bees would grow, and he boasted a hive special in such growth. He found

The average beginner is far from being so very wise in some cases not so very long ago once I have been asked why the colonies were not making more progress time to put on supers, and he has been asked in such a way as to indicate that the colonies were not making more progress think that the condition of the colonies or the harvest need not be given consideration, but that it is a matter of the almanac.

When to Put on

The beginner should be warned that the items must be earned. First, that before any surplus is taken in a surplus apartment, there must be a surplus of honey to be stored. Second, that there must be a surplus of honey to be stored. Third, that there must be a surplus of honey to be stored. done in sections, there is more honey coming in than their daily use—a big surplus. The hive must be "boiled" for the bees.

The Canadian Bee Journal

PUBLISHED MONTHLY

JAS. J. HURLEY, EDITOR, BRANTFORD, ONTARIO, CANADA
W. WHITE, ASSISTANT EDITOR.

Vol. 20, No. 4.

APRIL, 1912

Whole No. 566

GETTING BEES TO WORK IN SECTIONS

By Dr. C. C. Miller.

The ignorance regarding bees among people otherwise intelligent is something amazing. In the dead of winter I have been asked whether bees at that time were not making honey. Some years ago a man sojourned in my home town who taught that comb grew in a hive in winter without being built by the bees, perhaps somewhat as toadstools grew, and he actually made and boomed a hive specially built to favor such growth. He found believers!

The average beginner in bee-keeping is far from being so ignorant, but in some cases not so very far. More than once I have been asked for the proper time to put on supers, and the question has been asked in such a way as to indicate that the questioner did not think that the condition of the colony or the harvest need be given much consideration, but that it was simply a matter of the almanac.

When to Put on Supers

The beginner should know that two items must be earnestly considered: First, that before anything is stored in a surplus apartment there must be a surplus of honey to be stored, and, second, that there must be a sufficient force to do the storing. To have work done in sections, there must be more honey coming in than the bees need for their daily use—a big lot more—and the hive must be “boiling over” with bees.

But it is not the easiest thing for a beginner to know just how strong a given colony is, nor how much honey it is gathering. A rule, respectable for its age, if for nothing else, is to give supers when bits of white wax are found stuck on the top bar. But these bits of white wax show that the bees are unduly crowded for room, or they would not be disposing of wax in that wasteful manner. To be sure, that crowding means that they may be thankful for extra room to store their surplus gatherings, but the same crowding may also suggest to them the desirability of “hiking” to some new place where there is more room, and bee-keepers in general are agreed that swarming interferes sadly with the harvest.

So the extra room should be given at least a little before it is needed. If given too early, it interferes with brood-rearing, by making the bees keep warm so much empty room. In white clover regions a good way is to put supers on the hives when the very first clover blossom is seen. That is likely to be about ten days before much more honey comes into the hive than is needed to use in the brood-chamber and to fill up the vacant cells that may be found there.

When the bees begin to feel crowded in the brood-chamber, they may turn their attention to the surplus apartment. Also, they may, as already intimated, turn their attention to swarming. This makes it desirable to offer them some inducement to begin work in the super sooner than they other-

wise would, although it is true that they will too often swarm in spite of all inducements.

If a small starter of foundation be put in each section, there is quite a void to be passed over before the starter is reached, and it is believed that work will not be begun so soon as if the section be filled with foundation, there being a bottom-starter of about five-eighths of an inch and a top-starter coming down within about one-eighth inch of the bottom-starter.

It is well known that bees will make a start at storing in drawn combs much sooner than they will upon foundation. So there has come into use the practice of putting on first an extracting-super, and then when a start has been made in the extracting-super, a section-super is put under it, and this will be at once occupied by the bees. We are told that there will thus be a clear gain of whatever extracted honey is stored. Very likely this is true, at least in some cases. But it is not the whole truth, and it is just possible that some who claim so much gain from preceding a section-super by an extracting-super do not know the whole truth. It is also true that if a super be partly filled with sections and partly filled with extracting-combs, as practised by that very practical bee-keeper, F. D. Townsend, the bees will begin work in it just as soon as if only extracting-combs were in the super. Still further, it is true that if a single section in the centre of the super, instead of foundation, contains drawn comb, the bees will begin work about as soon as if the super is filled with extracting-combs. To them drawn comb is drawn comb, whether it be in an extracting-comb or in a section.

Bait Sections

This central section containing drawn comb is called a "bait section," because it acts as a bait to induce the bees to enter the super. There should

be on hand enough bait sections to allow one to the first super put on each colony. After the first super is perhaps half filled, if it be raised and a second empty super put under it, there will be no trouble about the bees entering this second super without any bait in it, provided, of course, that there is a sufficient flow of nectar and a sufficient force of bees.

There is no trouble about securing plenty of bait sections in the preceding fall. There will be plenty of sections at the close of the harvest that are not completed—some of them but just begun, and some of them nearly completed. Take those that are half filled or more, allow the bees to clean them out in the fall, and keep them over winter to be used the next season.

Here, then, is the situation. If you want part extracted honey, and want as much as will be supplied by giving first to each colony an extracting-super, then that is the advisable thing to do, unless you prefer the Townsend plan, which very likely you will do. The Townsend plan allows you to have extracting-combs at the outside of each super, and that helps to get rid of the trouble about having outside sections finished. But if you do not care to have any extracted honey, then use bait sections, one in the first super given to each colony. Of course, if you have enough bait sections you can put several in a super, but it is not desirable to have too many, for a section may not be quite so nice and white upon second filling as upon first.

The Middlesex bee-keepers will hold their regular spring meeting on the first Saturday in May. We are hoping for a good turnout, as the matter of making an exhibit at the Horticultural Show will be taken up. Owing to the decrease in the grant from the O. B. K. A., it will probably be necessary to increase the membership fee if we are to continue to give a bee journal as a premium.

By D. M. Macdonald

The editor lately an article on Foul tion in the Canada I have pleasure in I have some expect shed some light o much written about understood. It has nized in this count that there were two structive disease—a mild. Many stateme worthy bee-keepers, onistic, can be recor cept this fact, and The most recent na being satisfactory, a them, as both types both in Europe and I will call by the go lus Alvei; the oth White's descriptive n nate Bacillus Larvæ.

No name is more l tion with the scientif this disease than tha Cheshire. His main f puted, and most of impregnable, but it bered that much wat der the bridge since 1 a century ago.

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FOUL BROOD

By D. M. Macdonald, Banff, Scotland.

The editor lately desired me to write an article on Foul Brood for publication in the Canadian Bee Journal, and I have pleasure in responding, because I have some expectation that I can shed some light on a subject very much written about and yet not much understood. It has long been recognized in this country (Great Britain) that there were two types of this destructive disease—a virulent and a mild. Many statements made by trustworthy bee-keepers, seemingly antagonistic, can be reconciled when we accept this fact, and in no other way. The most recent names are far from being satisfactory, and I will not use them, as both types are quite common, both in Europe and America. The one I will call by the good old name *Bacillus Alvei*; the other, following Dr. White's descriptive name, I shall designate *Bacillus Larvæ*.

No name is more honored in connection with the scientific investigation of this disease than that of Mr. Frank A. Cheshire. His main facts remain undisputed, and most of his assertions are impregnable, but it must be remembered that much water has passed under the bridge since 1885—a quarter of a century ago.

Bacteriological study has advanced considerably, new and more sympathetic media have been discovered, and microscopic appliances have been considerably perfected. Therefore, without lessening our respect for Mr. Cheshire, or seeking to deduct anything from his claims, we must recognize that more is known now than in his time. For long, indeed, investigators took too much for granted, and, without seeking more light, simply assumed that all forms of bacteria found in cases of foul brood must be *Bacillus*

Alvei, and they treated matters as if no other could be present. That was simple, because even under the microscope, different species might look alike. It must be remembered that it requires a microscope magnifying 600 diameters before these germs or microbes can be even seen. They are so infinitesimal in size that it takes 12,000 of them placed end to end to extend the length of a single inch. It follows that examination of these minute parasites, even under the microscope, can reveal the fact only that they are bacilli.

This Cheshire did, and he also, by culture, reinfected other bees with the bacillus, to which he gave the specific name of *Alvei*. This remains with us, an incontrovertible fact, and aids us in differentiating between these and other somewhat similar bacilli also found in foul brood. Now, if this latter, when subjected to cultural media, such as gelatine, bouillon, potato milk, and many other of the media employed by the bacteriologist, will not reproduce this particular bacillus when they do develop *Alvei*, it should be clearly seen that here is evidently something new. For years past some new organism was observed by several investigators, among them being Drs. Maasen and Burri in Europe, and Dr. White in America. These scientists cultivated this strange microscopic plant on new media, and produced a new species of bacillus. It would only involve us in intricate technicalities to dissert on the various "soils," but it is by the differences which are observed in the growth upon the various media, and the effect produced by the various growths on the media, that one species of bacteria is determined from another. Here we have the secret of it all! By a medium not used by Cheshire, namely, bee larvæ from a healthy hive, Dr. White was able to prove the existence of two species of bacillus—the hitherto investigated and described *Alvei*,

keepers will hold meeting on the y. We are hoping as the matter of the Horticultural up. Owing to the it from the O. B. ly be necessary to ship fee if we are a bee journal as a

and the newer one, to which he gave the quite appropriate name of *Bacillus Larvæ*.

Reverting to the later discoveries of Dr. Maasen, we find that he, too, in dealing with innumerable combs affected with foul brood, found to his astonishment that there was little or no sign of *Bacillus Alvei*, whereas other bacteria were plentiful. Out of 53 cases, when the disease had attacked larvæ before capping, 51 were found to contain *Bacillus Alvei*—just as had been done by Cheshire, and he was able to cultivate these at his pleasure, while he found spores of this disease exceedingly persistent. In specimens of the disease where the larvæ had been attacked after capping, a very large number of a new bacillus occurred, described by Dr. Burri as being difficult to cultivate. He and Dr. Maasen found a medium in the juices of bee larvæ, the resultant growths being identical with *Bacillus Larvæ* of White. Indeed, Dr. Maasen has identified it as the same to which he had given the name of *Brandenburgiensis*, and to which Dr. Burri gave his own name as the specific definition. Dr. White's is the happiest name of the three, and, as the most appropriate, it should be accepted in general. On the contrary, the newer names ("European" and "American") are wholly inappropriate, and ought to be suppressed.

The distinctive features are, I think, clearly established. The one species attacks larvæ generally before sealing, the other mainly after the larvæ in the cells are capped. The existence of two species of bacillus is acknowledged—*Alvei* and *Larvæ*. Both are new, and for long have been indefinitely known in this country, on the continent of Europe and in America. Now a more definite knowledge exists. Bacteria multiply by a process called fission, so that in a short space of time the one end may become two, and under favorable conditions of temperature, mois-

ture, food and the absence of light, that single rod in an hour's time may become sixteen. The process going on steadily, it will become apparent that in a very short period of time, millions and millions may be formed. When the food supply becomes exhausted, these germs or microbes change into spores. Scarcely any degree of either heat or cold can make any impression on these spores, wrapped as they are in a double casing of armor. Americans at times rail against the use of drugs in this country as a "cure" for foul brood. As one who does not use this preventive, I must acknowledge that they may work wonders in a strong hive by enabling the bees to resist the germ formation. Even in the spore stage, when favorable conditions enable the spores to become germs, the effect is, at least temporarily, most noticeable—but sooner or later the trouble develops. Removing the spores is, in my eyes, the one effective cure, and this can only be done in an advanced stage by making a holocaust of all internal fittings, and then thoroughly disinfecting the hive. Thus a cure is certain. All other schemes fall short of perfection. One single spore left, **the hive is diseased.**

The last Canadian Annual Report, pages 14 to 20, of the January issue of the C.B.J., shows that foul brood is still steadily spreading over wide areas. Where it is curbed, and its ravages are circumscribed, is where drastic measures of cure are resorted to. Section 3 of the Act enjoins what I have always advocated—"Destruction by fire of all hives and contents where the existence of the disease in its virulent or malignant type is discovered." Where there are "tainted appurtenances that **cannot be disinfected,**" they, too, are to be burned. I feel very pleased to find that Canadians are thus resolved to go to the root of the matter.

We in this country are, unfortunately, at present suffering from a far

April, 1912

more malignant and compared with which foul brood is a mere trifle. The Isle of Wight disease is like the pestilence of darkness, as the evil before its presence is that trying to cure it is like trying to cure a play.

STRONG COLONIES

Indexed By F. L. I.

In our northern climate for breeding up before is short. Seeing that a month to produce a the egg, and that clovly begin to yield until of June, eggs laid la of May will be of l main honey-flow. Bre begins to any exten part of April, and therefore, that there is a month in which to from its winter cond strength. This is really and the bees need all t be given them.

To get strong coloni it is necessary to be before and have strong fall. The more bees November, the more t March, and in the earl a prolific queen is not as plenty of bees. Alr queen will lay more eg can take care of in A

At that time of year, of a comparatively sma having to keep a lar brood warm, and nothi will help the colony warmly-protected hive. wintered in the cellar, I will help, but nothing i as a well-packed chaff

April, 1912

absence of light, an hour's time may be lost in the process going on. It is apparent that a great deal of time, millions of spores formed. When the bees are exhausted, these spores change into spores. The effect of either heat or cold on these spores is in a double sense. Americans at times use drugs in this way for foul brood. To use this preventive is to know that they are a strong hive by which to resist the germ in the spore stage. The conditions enable the bees, the effect is, the most noticeable — the trouble develops. This is, in my eyes, a failure, and this can be advanced stage by the use of all internal fit-ness, thoroughly disinfecting the hive is certain. All sorts of perfection. In short, the hive is dis-

in an Annual Report, the January issue of the Journal that foul brood is spreading over wide areas. and its ravages are being more drastic measures resorted to. Section 3, what I have alluded to is destruction by fire in places where the extent of its virulent or recovered." Where the opportunities that exist, they, too, are very pleased to find that this has resolved to go on. Matter. Any way, unfortunately from a far

more malignant and insidious disease, compared with which either form of foul brood is a mere bagatelle. This Isle of Wight disease in all its stages is like the pestilence which walketh in darkness, as the evil has such a hold before its presence is fully recognized that trying to cure it is mere child's play.

STRONG COLONIES FOR SPRING

Indexed By F. L. Pollock.

In our northern climate the period for breeding up before the honey-flow is short. Seeing that it takes nearly a month to produce a field worker from the egg, and that clover does not usually begin to yield until about the middle of June, eggs laid later than the last of May will be of little use for the main honey-flow. Breeding also seldom begins to any extent until the latter part of April, and it will be seen, therefore, that there is little more than a month in which to bring the colony from its winter condition to its full strength. This is really not long enough and the bees need all the help that can be given them.

To get strong colonies in the spring, it is necessary to begin the autumn before and have strong colonies in the fall. The more bees in the hive in November, the more there will be in March, and in the early weeks of spring a prolific queen is not so much needed as plenty of bees. Almost any sort of queen will lay more eggs than her bees can take care of in April.

At that time of year, it is a question of a comparatively small force of bees having to keep a large quantity of brood warm, and nothing in the world will help the colony so much as a warmly-protected hive. Where bees are wintered in the cellar, paper wrappings will help, but nothing is quite so good as a well-packed chaff hive, in which

the colony remains all winter and up to the honey-flow—and then they may as well stay there through the summer and up to winter again. The chaff hive keeps them cool in summer as well as warm in winter, thus having a tendency to retard swarming. It is very rare for a chaff hive to be robbed, even though it contains only a weak nucleus, for robbers dislike to venture into a long, dark tunnel like the bridged entrance to a packed hive. Another very great advantage is that before the honey-flow a good queen will fill practically every frame with brood. In my packed hives I commonly find by the first of June even the outside frames next the hive wall filled with brood. This leaves no place to put the white honey in but in the super. Later in the season the queen lays much less vigorously, and leaves plenty of room in the brood chamber for winter stores gathered during the fall flow, if there is one, or fed to the colony by the bee-keeper, who will provide sugar syrup, which is cheaper and better than clover honey.

Ten-Frame Hive Preferred

Other things being equal, I consider a protected ten-frame hive more than equal to a twelve-frame hive without protection. It will produce as large a force of bees, and when the honey-flow comes, the brood chamber will contain a solid mass of bees and brood, leaving no storage room but in the super.

However, twelve frames can be used for brood, even in the ten-frame hive. I put on the extracting supers at fruit-bloom time, with excluders under them, and at the same time I raise two frames of brood into the super, replacing them by frames of foundation in the brood chamber. This foundation will be drawn out and filled with eggs in a few days, making actually twelve frames used for brood-rearing. This also produces two more extracting combs per colony,

which is generally a desirable result; and the frames of brood in the super cause the bees to go up without any delay. With so good a start as this, it is generally easy to keep the colony so well provided with storage room that they will not get the swarming fever.

Stimulative Feeding

Stimulative feeding has lately become rather discredited. If there were neither fruit-bloom nor dandelions, it might well be adopted; but under ordinary conditions, with a warm hive and plenty of stores, if the hive is not packed full of brood by the first of June it is because the queen is inferior. It is better to put a new queen into the hive than sugar syrup.

Carniolans

A Carniolan queen, or an Italian-Carniolan cross, can generally be depended upon to keep her hive full of brood, and there is no better bee for

the north. I have found them winter better than any others, either in the cellar or out of doors. They build up very fast in the spring, and they seem to have a dogged tenacity at work that far out-paces the blacks, and even the Italians. It is true that they need some watching to prevent swarming. They will not stand being crowded for a minute, and this makes them troublesome for comb honey, for which they are otherwise excellently adapted. The queens are rather hard to find, but I have found that an excellent combination is an Italian queen mated with a Carniolan drone. The yellow queen is vividly conspicuous among the dark bees.

It is said that the Carniolan bee is considerably longer-lived than the Italian. I should like to know whether this is true. If so, it would partly account for their better wintering qualities.

Stouffville, Ont.

WOMAN'S DEPARTMENT

CONDUCTED BY

Miss Ethel Robson, Ilderton, Ont.

TELL-A-ME

- "Buzzer, buzzer, buzzer,
Where you going, tell-a-me?"
"I am going after honey,"
Answered back the little bee.
- "Buzzer, buzzer, buzzer,
Where'll you get it, tell-a-me?"
"From the pretty flowers,"
Answered back the little bee.
- "Buzzer, buzzer, buzzer,
Where'll you put it, tell-a-me?"
"In a little cell of comb,"
Answered back the little bee.
- "Buzzer, buzzer, buzzer,
Why'll you keep it, tell-a-me,"
"For eating in the winter,"
Answered back the little bee.
—Margaret Davis Field.

We are glad to note that Miss Field, who has contributed so acceptably to this department, gave an address on "Bee-keeping From a Woman's Standpoint" at the Lincoln and Welland convention. She tells us privately that it required all her courage. We hope to persuade her to send in some of the good things she said, that we may all enjoy them. This will not require so much courage as speaking at a convention.

• • •

After leaving Essex county, my work took me up to Victoria and Peterboro counties. Unfortunately, we were there just at the time of the big storm, and

this seriously interfere. At Warsaw, however, considerable interest in I was asked to take subject. At Warsaw live Woman's Institute the women are opportunity, and, consequently, of them are thinking. We may hear from in this department.

At the time of winter my bees are still so that I cannot wintered. I have had from a number of neighborhood, and their bees have wintered the time at which we a peep into the hives are satisfactory.

THE WINTER DEPARTMENT

Did you attend the Convention held in I you missed a treat—a way of conventions. I once discussed foul brood controversy of Italian did not even raise Anguish, as chairman committee, was indefatigable, and is to be congratulated on their success. Pettit was there; Midwesterners feel that they have on the Provincial Apiculture old member of the Association there was Mr. Tyrrell's 'Review,' with I pointed practical suggestions: Clark of Cainsville, with the "Better Farming" us how fruit, bees and I successfully combined; hiser, of Buffalo, whom O.B.K. convention all man full of good practical and a host of lesser I making good in the bee. The president, Mr. after extending a welcoming bee-keepers, spoke good that could be done District Convention moving

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this seriously interfered with the work. At Warsaw, however, we found considerable interest in bee-keeping, and I was asked to take it for my evening subject. At Warsaw they have a good live Woman's Institute, and as a result the women are alive to every opportunity, and, consequently, a number of them are thinking of keeping bees. We may hear from some of them yet in this department.

At the time of writing—March 20—my bees are still covered with snow, so that I cannot tell how they have wintered. I have had reports, however, from a number of bee-keepers in the neighborhood, and they seem to think their bees have wintered well. This is the time at which we grow anxious for a peep into the hives to see if conditions are satisfactory.

THE WINTER DISTRICT CON- VENTION

Did you attend the Winter District Convention held in London? If not, you missed a treat—a real treat in the way of conventions. And yet we never once discussed foul brood and the old controversy of Italians versus blacks did not even raise its head. Bro. Anguish, as chairman of the program committee, was indefatigable in his efforts, and is to be heartily congratulated on their success. Of course, Mr. Pettit was there; Middlesex bee-keepers feel that they have a special claim on the Provincial Apiarist, as he is an old member of the Association. Then there was Mr. Tyrrell of the Bee-keepers' Review," with his concise and pointed practical suggestions; Mr. John Clark of Cainsville, who stopped off the "Better Farming Special" to tell us how fruit, bees and poultry could be successfully combined; Mr. Orel Hershisser, of Buffalo, whom visitors at the O.B.K. convention all remember as a man full of good practical suggestions; and a host of lesser lights, who are making good in the bee-keeping world.

The president, Mr. Robt. Wallace, after extending a welcome to the visiting bee-keepers, spoke of the great good that could be done by the Winter District Convention moving about. The

Ontario Convention, for many reasons, seems tied to Toronto, and so is out of the reach of many of the smaller bee-keepers. The District Convention is held at a time of the year when bee-keepers are practically free, and could be used with great advantage to work up enthusiasm in outlying districts. In concluding, the president made a jocular reference to reciprocity, saying that it was a good thing it had been defeated, otherwise our American friends would be afraid to come here and give us pointers lest we take their market from them.

Mr. Clark was the first speaker, having for his subject, "Fruit, Bees and Poultry." As this is a seasonable one, and the speaker a man who has made a success of the combination, I will endeavor to give you at least the main points. Nearly every bee-keeper has a few hens and some fruit trees, and it is worth while considering how to get the most out of them. Just here, the C.B.J. for March came to hand containing a report of the address given by Mr. Clark at Guelph to the Short Course, so I will have to cut down my notes to avoid repetition. I was specially interested in this address, having been out on Institute work a few days previously with Mr. C. Stuart of Dalmeny, who also has made quite a success of the combination of bees and poultry, together with a few other lines added to make variety. However, the latter goes in for the production of eggs and table fowl, rather than for fancy stock, and this will probably make a wider appeal to the majority of bee-keepers. Fancy stock requires too much specializing for the average successful bee-keeper to give his time to. However, of this, more anon. To come back to Mr. Clark, as stated in last month's Journal, he combines fruit, bees and poultry on a 25-acre farm. He does not go in much for the small fruits, as they come in at a time when the bees require attention, but confines himself mainly to apples, which can be attended to mostly in the spring and fall, while the orchard provides an ideal run for the hens. Then, too, the poultry require most attention night and morning, when you cannot work with the bees. "Large profits mean much thinking and planning to have things dovetail," said Mr. Clark, and is not this one of the secrets of success in any line?

Mr. Clark is a warm advocate of the

12-frame Langstroth hive. He believes that the large brood chamber helps to keep down swarming, whilst for winter he is able to contract, so giving better protection. The weight may be an objection, but he would rather lift a 12-frame Langstroth than be bothered with so many small ones. He advised a protection of evergreens about the yard, and expressed some rather radical ideas about feeding. His apples keep him busy during the early part of the fall, when most men are doing their feeding, and he often has to feed when it is very cold, even as late as December. This he does successfully by giving the syrup from below. He was not sure whether it was best to have this capped or not; at any rate, he never found his all capped. The syrup never granulated, but he always used a little honey along with the sugar. Speaking of winter packing cases, Mr. Clark uses mostly single boxes, and finds them very satisfactory. However, as Mr. Anguish pointed out, the question was what to recommend to the beginner, and he strongly advised the four-hive case as being much the most convenient.

Now about the chickens, in which it was evident Mr. Clark was more interested than in the bees. Of course, the big money is made from the fancy stock, but this means exhibiting, and it takes years to work up a trade. But here are a few pointers for the production of eggs and table fowl, in which most of us are more or less interested. The only way to raise chickens successfully is to follow the colony house plan. These can be made at a small cost from two piano boxes. Self-feeding hoppers are used, being filled once a week. This is a better system than feeding by hand, as then the chicks can get food when they need it. A coal oil barrel with a tap in it supplies the water. This is placed on runners, and can be taken to the pump to be filled as needed.

Experiments go to show that it does not cost as much to produce a pound of chicken as a pound of beef or pork, yet the price is considerably higher, hence there is money in the production of table fowl. The article should be finished before putting on the market, crate-fattened fowl being several cents per pound higher than birds just allowed to run. When first shut up, starve for 48 hours; then feed sparingly at first, gradually increasing the

amount. A mixture of one-third low-grade flour, one-third shorts and one-third cornmeal makes a good fattening ration, this to be mixed with some sour milk so that it will pour. It takes three or four weeks to fatten.

For the production of winter eggs, the hens will do better if kept cold. They require plenty of fresh air, exercise and green food—roots or alfalfa hay supply the latter best. Buttermilk or skim milk is excellent, and if either is not available, some animal food is needed.

At the end of the discussion on Mr. Clark's talk, the pertinent questions were asked: "Why go into so many branches? Would you not get as much, or more, profit from the same amount of attention devoted to any one line?" Some of the ideas on this I will give you next month.

Mr. Hershiser then spoke on "The Building Up of Bees for the Honey Flow." The only way to build them up is to build them up." Then he proceeded to explain what he did. "I have my yards scattered to avoid the possibility of failure, and so am not able to give them much attention. I give plenty of stores in the fall, and then follow a plan of letting them alone. Early manipulation results in loss of queens. I do not believe in equalizing stores. Weak colonies often have a good queen, so I take the eggs and young larvae from them, thus inducing the queen to lay more eggs, and give them to the stronger ones to rear. The weak colonies are sometimes helped by a card of hatching brood. By giving plenty of room, I have very little trouble with swarming, and am able to run four yards myself."

"Do you stimulate between fruit bloom and clover?"

"No, but I think it might be profitable to do so, if possible, but never before fruit-bloom. It is a good idea to uncup the sealed honey."

Mr. McEwen summed up his system of getting the bees in good shape for the honey-flow thus:

"Good queens, abundance of stores, good packing and a right good letting alone until apple-bloom. If there is a good flow of early honey, there is no need of feeding. If the stores are low I use little tin feeders in front of the hive; if the colony is short of stores I mark it, and feed it extra. When clipping queens, I uncup surplus sealed

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"When you uncap, do you put it in the centre and spread brood?"

"No; the queen can spread her own brood best. When she needs more room, I give a super without an excluder."

In the evening Mr. McEwen gave a paper on "Honey From Nectar to Consumer," which we hope to have later for the C.B.J. The following interesting questions were asked:

"Do you try to have many young queens in the fall?"

"I buy a good many queens, but as I am busy with my honey in August, I haven't made a business of queen-rearing."

"Do you keep track of the queen's age?"

"Yes; I would not advise keeping a queen over two years."

"What do you do with your cap-pings?"

"Drain them all night and then turn them into the sun extractor. The honey from the extractor is mixed with the syrup for feeding."

Mr. Hershiser asked: "What do you do with the slumgum from the cap-pings?" the reply to which was: "Throw it out."

Mr. Hershiser—"This residue is about 33 per cent. wax. Propolis consists of about 33 per cent. wax. I can always get at least 8 per cent. wax out of slumgum. Out of a barrel of slumgum of 80 pounds I have got as much as 20 pounds of wax."

Mr. Pettit next spoke on "The Benefits of Organization," pointing out how in union there is strength; how it develops enthusiasm, gives weight in securing assistance and attaining ends which single individuals could not attain. County resolutions won more money for foul brood. All forward moves have originated in such organizations, and the future of organization has the following problems to work out, viz.: Co-operative selling, the disposal of the buckwheat crop, the buying of supplies, and the distribution of the season's honey."

On Friday morning, Rev. Mr. Moore of Springbank took the place of Mr. Elliott, who was unavoidably absent on account of illness, and spoke on queen-rearing. Mr. Moore is a firm believer in having young queens at the head of his colonies, and his crop of five tons from 77 colonies last year would seem to justify it. The discus-

sion brought out various methods for securing young queens, most of which have been discussed in these columns. It all went to show that the bee-keepers of this vicinity are fully alive to the value of re-queening.

Mr. Tyrrell, in the afternoon, gave us a good talk on the selling of honey. My notes from this I will keep for the next number. Mr. Pettit gave a demonstration of hives and appliances, after which the convention broke up with the usual votes of thanks and general good wishes. There wasn't anyone, I am sure, who wasn't glad to have been there.

CO-OPERATIVE EXPERIMENTS IN APICULTURE

Results for 1911 Indexed

By Morley Pettit, Provincial Apiarist,
Guelph, Ont.

During the season of 1911 the following co-operative experiments were sent out:

1. The Prevention of Natural Swarming in the production of Extracted Honey.
2. The Prevention of Natural Swarming in the Production of Comb Honey.
3. Races of Bees—General.
4. Races of Bees—With reference to their power to resist European Foul Brood.

The instructions for Experiment No. 1 were the same as last year. For Experiment No. 2, as the management for comb honey production is so different from that followed in the production of extracted honey, special instructions had to be prepared.

The Experiments in Races of Bees consisted in sending out queen bees for testing some of the different strains advertised in the bee journals. These were offered to the experimenters who showed sufficient interest in the work last year to report on their experiment, or give a good reason for not doing so,

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and this only on condition that a promise be given, if possible, to continue the experiment through the season of 1912. Application blanks were enclosed with the offer. Most of them filed their application and received one queen bee each. It will take another year to get a report on these.

In reference to European Foul Brood, it seems well established that certain races of bees are better able to resist this disease than others. Some strains of Italians have been found to be in this class and are recommended for use by Inspectors of Apiaries. Others are good honey producers, but have not been tested in this respect. In order to test the matter more fully, arrangements were made with a number of bee-keepers in the E.F.B. districts of Ontario to test the queens from a few breeders whose bees have been specially recommended. A few satisfactory reports were received from them this year, and a full report is expected in 1912.

Swarm Prevention and Extracted Honey

Although there was an almost entire change of experimenters, the results are even more satisfactory than in 1910. The main difficulty is in arousing sufficient interest to get a bee-keeper to do something for his bees every week. He will feed his horses or hogs all right, because they would die or squeal if he did not, but the bees will exist and even yield some profit when left to themselves, and he thinks it is "less bother" to be compelled to hive swarms at inconvenient times—or let his wife hive them—than to be systematic about the work. Then there are those who receive the experiment and try it out fairly well, but fail to finish it up by keeping the honey from the two lots separate so as to compare results. There are also those who fail to report on the experiment the second year. The educational value of what

we send out is not entirely lost on any of these persons, but they not only fail to get the best out of it, but they fail to co-operate and give others the benefit of their experience with the information handed them. There is no doubt that the fact of its being a poor season prevented a great many from finishing the experiment.

Of the persons who undertook the experiment, 35 sent reports, from 19 different counties of Ontario. These reported a total of 991 colonies in the spring of 1911, and 1,325 colonies in the fall, being a spring average of 28.3 and a fall average of 38. Their total honey crop was 65,000 pounds, an average of 65.6 pounds per colony, spring count, 50 pounds being white honey and 15.6 pounds being dark honey from fall flowers.

The groups of hives used for the experiment averaged eight hives each. The group was divided into Lot A, consisting of four hives managed according to directions; and Lot B, four hives allowed to swarm naturally. As the experimenters were nearly all new this year, the per cent. of natural swarms from Lot A was still high, being 24 per cent., but even this was far less than Lot B, which was 70 per cent., a difference of 46 per cent. of swarms in favor of the method described in the experiment.

The average honey yield was 11 pounds per colony more from Lot A than from Lot B. That is, if the colonies owned by the experimenters had all been managed according to directions, their honey crop would have been increased more than 10,000 pounds, which means they lost in the aggregate over one thousand dollars by careless methods of management, to say nothing of the loss of runaway swarms, which is considerable.

Some experimenters appreciated the value of the experiment, others did not. A notable example of the latter class

is a man whom for the sake of Mr. X is a bee- tried the exper- vention. He put to be managed a and 50 colonies in by his own plan, let them swarm. 1 or an average of Lot A, and 1,600 pounds each, from ference of eight favor of Lot A. 2 the 50 colonies th would have had equals 400 pounds \$48 at wholesale r it would have take than six days at t this we must bala time spent in hiv swarms he had fr the cost of the e honey to four days thing of the time t ing and the swarm woods. Now what of the experiment? he has derived no from the experiment own method suits h less bother. Does t X is a wealthy mar pleasure, or that h more than \$12 per else? You may say extra 32 swarms, but been made artificial days, with no cost to However, most of are able to do arithme profits a little more Mr. X. The followi benefits derived by i menters: "Can keep them fr fast and get more County. "Saves time and sti experience."—Elgin C.

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is a man whom we shall call Mr. X, for the sake of not telling his name. Mr. X is a bee-keeper in Ontario, who tried the experiment for swarm prevention. He put ten colonies in Lot A to be managed according to directions, and 50 colonies in Lot B to be managed by his own plan, which was simply to let them swarm. He secured 400 pounds, or an average of 40 pounds each, from Lot A, and 1,600, or an average of 32 pounds each, from Lot B, being a difference of eight pounds per colony in favor of Lot A. Now if he had handled the 50 colonies the same as Lot A he would have had 50 multiplied by 8 equals 400 pounds more honey, worth \$48 at wholesale rates. The extra time it would have taken would not be more than six days at the outside. Against this we must balance fully two days' time spent in hiving the 32 natural swarms he had from Lot B, reducing the cost of the extra \$48 worth of honey to four days of time, to say nothing of the time the bees lost swarming and the swarms that went to the woods. Now what does Mr. X think of the experiment? He reports that he has derived no benefits whatever from the experiment. He finds that his own method suits him best, as he has less bother. Does this mean that Mr. X is a wealthy man keeping bees for pleasure, or that his time is worth more than \$12 per day at something else? You may say that he had the extra 32 swarms, but these could have been made artificially during the six days, with no cost to the honey crop.

However, most of the experimenters are able to do arithmetic and figure out profits a little more accurately than Mr. X. The following is a list of benefits derived by individual experimenters:

"Can keep them from increasing so fast and get more honey."—Bruce County.

"Saves time and stimulates my own experience."—Elgin County.

"Had the interesting experience."—Lanark County.

"My own plan is good, but yours is better; it is more systematic."—Middlesex County.

"Better knowledge of bee-keeping."—Ontario County.

"My method was similar to yours, but in 1910 I tried natural swarming, and I am satisfied that the method is better, because you can depend on leaving your apiary for a week at one time; but when natural swarming is practised, you cannot leave and attend to anything else. The only thing I think has to be watched is not to overdo the shifting of brood."—Parry Sound District.

"Pleasure and experience."—Russell County.

"You know what your colonies are like at all times."—Simcoe.

"Your method is the best I have tried yet."—Victoria.

"I have been working on the same plan for years."—Grey.

"Your method is all right, and in some respects is better than mine. It is more thorough."—Middlesex.

"Your method enables me to control swarming."—Middlesex.

"Have a better knowledge of bees."—Oxford.

Last, but not least: "I have used the system for some years very satisfactorily. Had only one swarm altogether from 69 colonies and extracted 9,200 pounds of honey, an average of about 133 pounds per colony." Another bee-keeper ten miles away says: "I do not go to much trouble with my bees now; I am 67 years old." This man had 60 colonies, spring count, and took 5,150 pounds of honey, an average of 86 pounds per colony, or 47 pounds per colony less than the man who cared for his bees. The difference of only ten miles location would not be likely to make so much difference in the crop.

Swarm Prevention and Comb Honey.

Eight persons tried this experiment, and while sufficient information was not sent in to present any figures, the opinions of experimenters are of interest.

"It has taught me that it pays to control swarming to get a good crop of honey."—Grenville County.

"The benefits I derived are more honey and less work."—Russell.

"More honey and satisfaction. Your advice and my experience has done good."—Dundas County.

"I have derived a great deal of benefit from your instructions. I am able to handle my bees with more satisfaction."—Elgin.

"I have learned to produce fancy comb honey and interested others in bee-keeping."—Middlesex.

Now, although the number of reports received is small compared with the number of persons who applied for, and received, instructions for the experiment, results cannot always be counted by figures, and the fact remains that carefully prepared instructions on one of the most successful methods of preventing natural swarming were sent to nearly 500 bee-keepers, and that these bee-keepers had had their interest awakened by filling out an application blank asking for these instructions. Many were unable to conduct the experiment because the bees were too much weakened by the late spring, and the season was cut too short by the drouth for the swarmings to develop under any conditions. Others were too busy with affairs which yield a smaller profit than the bees would give for the same attention.

The greatest hindrance to the honey industry in Ontario is not foul brood, serious as that may be; it is not the cold winters and late springs, and it is not the difficulty of controlling the swarming impulse. The greatest hindrance to the development of honey pro-

duction in Ontario is the Indifferent Farmer, who does not realize that while good horses, fat steers and all the other live stock on the place, will eat their heads off if he does not watch out, honey bees will gather what costs nothing, is going to waste, and will pay 50 per cent to 100 per cent dividends annually on time and capital invested. When good extracted honey sells readily at a good price, and the average crop ranges from 50 to 100 pounds per colony, and 200 hives of bees require less work than a 50-acre general farm, how is it that the proper care of bees is "too much bother?"

MENDELISM AND THE BEE-KEEPER

By G. Deller. *(Indexed)*

Whether or no the science of genetics holds forth the same promise to bee-keepers that it undoubtedly does to breeders of other kinds of stock is at present largely a matter for conjecture. Much has been said by writers, in whom enthusiasm has impaired their sense of proportion, as to the economic importance of the results of recent biological investigation; and in consequence, much that has thus been said remains to be justified. It should not be forgotten that, hitherto, the efforts of those working in this particular field of science have been directed principally to extending the bounds of man's knowledge of the various life phenomena—to the investigation of the nature of living things by analytical methods analogous with those employed by the chemist, to the establishing of truths and principles, in themselves of vital significance in the higher life of mankind; and that whilst the intelligent application of these truths and principles invests us with the power to mould within certain limits the various forms of life over which we may have control, yet much research work re-

mains to be done before we are able to predict with any accuracy the results of any particular breeding for purposes of "improvement"; and this is especially true in the case of the bee, for practically no work has been done to subject the various strains which we are professing to breed to the necessary an-



Gregor Mendel

The race characters of the bee, for practical purposes, still remain to be determined. There can be but little doubt, however, that the bee, in common with other animals, shares the same "improvement"; and it is therefore, that efforts are being made by bee-keepers to work out strains that appear to point to a definite goal. During the past few years a new light has been thrown upon the subject of heredity, in fact, the whole

mains to be done before we may be able to predict with certainty the results of any particular matings made for purposes of "improvement." This is especially true in the case of the bee, for practically nothing, so far, has been done to subject the insect in which we are professionally interested to the necessary analytical scrutiny.



Gregor Mendel

The race characters of bees are, for all practical purposes, still unknown to us.

There can be but little doubt, however, that the bee, in common with most other animals, shares the capacity for "improvement"; and it is inevitable, therefore, that efforts should be made by bee-keepers to work along lines that appear to point to the desired goal. During the past twelve or thirteen years a new light has been thrown upon the subject of heredity, illuminating, in fact, the whole field of bio-

logical research. Many of the problems of life are now largely divested of the mystery that formerly enshrouded them, and we may perceive in the various life-phenomena a marvellous coherence and simplicity of plan.

The great pioneer in this work was Gregor Mendel, the monk of Brunn. Mendel, like many other students of his time, was deeply engaged in an endeavor to solve the problem of the relationship existing between the fixed varieties to be found within a species, and he spent eight years in experimental work. In 1865 he published the result of his labors, failing, however, to attract the notice his discoveries deserved. He appears to have abandoned his investigations, and for thirty-five years his work was almost completely forgotten.

Before describing Mendel's experimental work in detail, it will be well for us to obtain a conception of the nature of living things in the light that Mendel himself was the means of throwing upon it.

We recognize the adult form of any animal or plant by means of certain typical characters of form, size, color, behavior, etc., and the more intimately acquainted we are with it, the more numerous are its recognizable characters. We may readily understand, then, that any animal may be regarded as an aggregation of characters, each of which in heredity may behave as a unit, a separate entity. These characters may be modified or influenced by environmental conditions, and until some few years ago, it was almost universally assumed that such modifications of character could be transmitted to the offspring of the individual. But in his "Germplasm," one of the most notable contributions to biological knowledge, Weissmann showed clearly that the theory of the inheritance of acquired characters broke down completely when subjected to critical ex-

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amination. In fact, the "individual" has but little to do with inheritance, nor, strictly speaking, are the characters of the individual inherited from parents or ancestors. In heredity, the individual is the **carrier** for the "germ-plasm," the physical basis of life, of which is formed the substance of the germ-cells, and by means of which the various properties of living matter are transmitted from generation to generation. In the modern science of genetics the germ-cells have acquired a peculiar and all-important significance, in that in them are borne the **factors** that give rise to the characters in the adult individual. The exceedingly minute mechanism of the sex cells is specially adapted for the marvellous processes of inheritance, as suggested by the Mendelists, whose conclusions as to the manner in which characters behave in transmission, are fully confirmed by the brilliant work of modern microscopists.

To explain the Mendelian scheme of inheritance, we can not do better than describe the experiments carried out by Mendel himself.

Experiments along these lines have been made with the most diverse forms of life—plant as well as animal. Mendel, after working upon the pea and various other plants, turned his attention to breeding and crossing of bees, but, unfortunately, has left behind no records to show with what result. Successful mating experiments with insects have been conducted by recent investigators, but in the case of the honey bee, the peculiar difficulties encountered in attempts to control mating, appear to have acted as a deterrent. However, this work is now being undertaken by several capable biologists, and the near future may hold in store for the bee-keeper some very interesting and curious results.

Mendel selected for his own special purpose the ordinary pea plant, and taking two varieties—a tall and a dwarf—he crossed them artificially

with one another. The result of the crossing was a progeny that consisted entirely of tall plants—all as tall as, or even a little taller, than the tall parent. There were no dwarf plants, nor were there any intermediates between the tall and the dwarf types.

The second stage of the experiment was to sow the seeds of this hybrid tall generation. These resulted in a second generation of plants which consisted of both tall plants and dwarf plants. There were no intermediates. Numerous repetitions of this experiment have always produced a similar result, namely, that the tall plants outnumber the dwarf plants in the ratio of **three to one**.

If we cross a "pure breed" of poultry bearing single combs with a pure breed with rose combs, we find that the first generation of the cross consists of birds all bearing rose combs. This generation of hybrid rose-combs, when bred together, will give us another generation of birds of two kinds as regards the comb characters, viz., rose-combs and singles in the same Mendelian ratio of **three to one**.

Let us examine these results somewhat more closely. When we cross two forms which differ as regards a certain pair of characters—in the case of the pea, tallness and dwarfness, or in the case of poultry, rose-ness of comb and singleness—only one of the pair of characters appears in the hybrid offspring. This is called the **dominant** character, whilst the other which temporarily disappears is called the **recessive** character. At the second stage of the experiment, when the hybrids are bred together, both forms appear in the resulting generation, the **dominants** being three times as numerous as the **recessives**. Careful testing of the individuals of the second generation shows that the recessives (the dwarf peas and the single combs in our experiments) are absolutely pure as regards those characters; and also that, of the dom-

inants, although the able in appearance and will breed true, two-thirds are bred true, but will the same way as the Mendelian scheme may be comprehended the following:

Pure Rose Comb..... (Pure)
 Hybrid Rose Comb (1st generation of)
 One Pure Rose Comb (Dominant) Two Hybrid Rose Combs (Recessive)

From results such provided an interpretation conceived of the genes each the bearers of giving rise to particles the adults. One gene could contain only one pair of factors. Thus the pea, the cell contains the two factors for tallness, but not both. Each cell, each containing tallness, resulted in developing the tall character of two cells each containing for dwarfness results individual. But the one the one bearing the and the other the recessive an individual exhibiting character. In the case which are said to "1 sex-cells produced by are all of the same kind characters for which true." But if two forms which differ in a certain every hybrid resulting union produces sex-cells and in equal numbers—ing the dominant factor the recessive factor. tial law of Mendel, is e

A CHAT WITH A NOVICE

Spring Manipulation of brood

By Joseph Gray.

(Continued from Page 87)

"In your early spring examination, mark the progress of each colony by the brood thus—10-3-12—2 of brood, or 4 brood, putting the date and number of combs of brood on the hive side or back. I am assuming all are well off as regards stores. The weakest will have the most, if you placed them into winter quarters properly. Next to your brood come the pollen combs, and on no account move these from their natural position. They form an important part of the early brood-nest. There is one point I wish you particularly to note. Just as a comb is a unit of the hive, so a hive is a unit of the apiary, and each unit must be brought to full strength in time for the harvest, at which time the brood-nest should be full and overflowing into the super. The whole thought of the apiarist is concentrated into one sentence, "Turn honey into bees." Each of the four points contribute their quota towards the fulfilment of that sentence.

"The practical work is based on a fortnightly system. The reason for this system is twofold. Half the stock can be attended to one week, and the other half the following, so that it falls into line with other work. The second reason is a scientific one. The eggs are incubated and hatch on the fourth day; the larvæ are fed and cared for up to the ninth day. If two or three days are spent by the bees in preparing the cells of the comb for the queen's use, we have only a margin of two days for our comb of honey to become sealed brood, so that at our next visit one week only remains before the pupa issues for the perfect imago. In less than 24 hours these young bees are

ready to take their place in the hive as nurses, at which labor they continue for about a fortnight. Then a change takes place. The gland system which enabled them to prepare the milk food (chyle) dries up; and the nurses become field workers—real little cupids, as they flit, pollen-laden, from flower to flower, their sacs filling with nectar. Thus they continue, day by day, until death overtakes them.

"No better aeroplane ever sailed the skies than our humble workers, for the honey bee can instantly reverse and fly backwards—a thing unknown in bird life. This remarkable feat is accomplished by a change in the beat of the wings. The study of the honey bee, from an aeroplanist's standpoint, is fascinating and instructive.

"I am digressing and must get back to the hives, which we are now ready to open, having learned the general principles on which our practical work is based.

"First Fortnight—Let the weak stocks alone. Nature must have her own way in the opening of spring. We can only step in when numbers warrant it; for instance, if you open a stock containing three combs of brood, and put one comb of honey in the centre, leaving two of brood at one side and one of brood on the opposite side, the bees would desert the one comb of brood, and no stock is fit to commence work until it reaches four combs of brood stage. This rule applies equally to California as well as Canada, and is Nature's own guide to the apiarist. So our first visit deals only with those that contain four of brood and two pollen combs. Our work is to spread these six combs, three on either side, and into the centre place one of the outside combs of honey—first bruising all the honey, and with our hive tool flattening down the comb so that it will fit in its new position in the centre of the brood nest. Mark your hive. I always date this operation

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is a habit I have
well, for when I
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of brood.

"On 14th March
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"On 28th March
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forward, thus: 5 brood, 14-3-12. I cannot say if this is an advantage, but it is a habit I have got into, and it works well, for when I come to the stock on 14-3-12, I know there will be five combs of brood.

"On 14th March we again open up the brood-nest, and this time we insert two combs of honey, one on each side of the first comb put in. This comb is now sealed brood, but in a week, by the time the two new combs are full of eggs, the first comb is empty and ready to fill again. A crowd of nurses has also been added to the colony. The hive is now marked '7 of brood, 28-3-12.' We also examine and give one comb of honey in the centre of each stock that has reached four combs of brood.

"On 28th March our work varies in that from those hives marked '7 combs,' we take one comb of sealed brood and adhering nurse bees, place it in the colony with five combs of brood, withdrawing a comb of honey and using it in the hive that had seven combs of brood. We thus equalize the two colonies to six combs of brood, by putting two combs in the centre with a brood comb between, marking the hives '8 brood, 4-4-12.'"

"Will not the bees kill the nurses you took to the smaller stock? Why not take the sealed brood only?"

"That would be a fatal mistake, resulting in chilled brood. By giving sealed brood only, the colony has more brood than it can cover, and so it is necessary to give nurses sufficient to cover the extra brood. The nurses are equal to an extra comb of brood, and the stock has most need of nurses. You will not get the nurses killed if the work is done properly. The field workers are all busy in the fields on a bright sunny day, and if sufficient smoke is used, the brood comb with its nurses will be accepted without trouble. Field workers with empty sacs are the bees

to fight, and when a stock is subdued sufficiently not to fight you, they will not fight the new bees. Thus the work goes merrily on until each unit down to the weakest has eight combs of brood and two outside pollen combs, thus utilizing valuable queens in weak stocks. Our work is complete, and we are ready for the supers."

"What would you do if you are still ahead of your harvest—say a fortnight?"

"Ah! now comes a critical time. We have used all our stores, and increased the number of mouths to fill, and if we are ahead of the harvest we must feed, and pretty liberally, if there is nothing coming in. The thin syrup outdoor feeding is good at such a time, if you are not feeding to many neighbors' bees. All that you need is just to keep the stock from going backward, until the harvest opens, and to keep your stock from swarming. Delay and neglect just at this critical moment may mean starvation to your finest stocks. If you have a little nectar coming in, there will be no need to worry, but be on the safe side and feed if at all necessary."

DEATH OF MRS. JACOB HABERER

Our readers will regret to hear of the very heavy loss sustained by our friend and esteemed contributor, Mr. Jacob Haberer, in the death of his wife on March 7th. For several years Mrs. Haberer had suffered much, and in the hope of obtaining relief from her ailments, consented to undergo an operation. This proved to be a very serious one, the shock to her system being such that she passed away in her husband's arms on the following day. Six sons and two daughters are left with Mr. Haberer to mourn the loss of their mother. The sincere sympathy of our readers will go out to the bereaved family.

MOVING PICTURE SHOWS AND THE BEE *indeed*

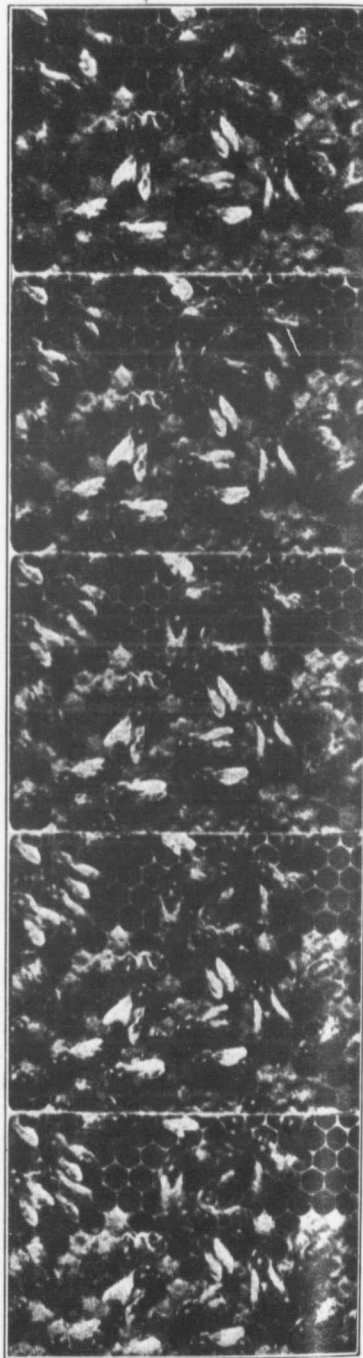
We referred a short time ago to Mr. Mason's kinematograph productions, and have reproduced on this page a small portion of one of his films. On the yard or more of film that Mr. Mason has kindly sent us, it is possible to trace very clearly the movements of the queen as she travels from cell to cell depositing her eggs. The reader will be able to pick out the queen on our cut (which is enlarged from two or three inches of film), and he will readily imagine how intensely interesting must be the exhibition of a whole series of moving pictures of bee-life, showing the movements of the insects in an absolutely life-like manner.

Mr. William Archer, the famous critic, writes in an English paper regarding the debasing uses to which kinematography is often put. Many thousands of "shows" have sprung up within the past ten years in every city, town and village of the habitable globe. The capital invested in the business must be very large indeed.

"Great buildings have been erected at enormous cost in different parts of the world for the production of films. People have risked and lost their lives in pursuit of real-life episodes on battlefields, at sea, in the jungle, among the ice-floes. We have here, in short, an unlimited quantity of ingenuity, energy, and capital devoted to—what? To very little, I am inclined to think, except the debasement of popular taste. . . .

"Why should so wonderful a mechanism run utterly to waste? At present, take it all round, the kinematograph is devoted to the service of childish romance, cheap sentiment, and more or less vulgar humor: why should it not be made to minister, also, and in a gradually increasing degree, to the sense of Beauty and the desire for Knowledge?"

Mr. Archer gives a list of subjects of an educative nature that readily lend themselves to kinematographic reproduction. We are sure that those of



April, 1912

our readers who n
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DEVELOPING THE IN CAN

By H. Harl

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our readers who may have witnessed some of the childish representations at the picture shows will recognize the truth of Mr. Archer's remarks, as well as the desirability of a better class of exhibition being placed before the public.

We hope to hear further from Mr. Bee Mason regarding his interesting work with his camera among the bees.

DEVELOPING THE BEE INDUSTRY IN CANADA

Induced.

By H. Harley Selwyn.

It is with great pleasure that I have read over the issue of the C.B.J. for March, just to hand, and noted the good work incorporated in its pages. There is nothing to prevent the Canadian Bee Journal becoming as powerful a publication as its esteemed contemporaries across the border, for we have as great a country at our disposal. It is only a case of building up the industry to a sufficient extent, thus warranting—necessitating, in fact—the circulating of a thoroughly up-to-date periodical.

Miss Robson's Tour

Miss Robson's description of her itinerary in connection with her Institute work is most interesting, and, undoubtedly, in her various travels, she has been greatly impressed with the work that could be done along the lines of advancing apiculture all through the provinces. To tell the truth, until one gets out and sees the slipshod methods employed by the average individual, it is hard to realize the extent to which this very remunerative calling could be benefited; and it might be said that the Farmers' Institute meetings will be the great medium through which knowledge of this kind will be distributed to the farming community, especially by actual demonstrations and practical talks by men of experience. The time will come when the Government of Can-

ada will realize the importance of this industry in connection with successful agriculture, and will be willing to employ numbers of lecturers and demonstrators, who know the business, and can put the facts before the farmer in such a way as to win his confidence.

Corn Syrup versus Honey

See what Miss Robson says about corn syrup (glucose) being so much in evidence throughout the remotest districts, whilst honey is conspicuous in such places by its absence. A strange state of affairs, indeed, when we consider the ease with which honey could be produced in these regions abounding with nectar-yielding flora—regions where manufactured goods of any kind would be difficult to secure. Yet the corn syrup finds its entry! Will the day ever come to pass when from the hoardings of our city thoroughfares signs will call down to us with ceaseless repetition the fact that the "United Honey Association" controls the gateway of Canadian honey, or that we should use "Co-operative Stores Brand—the Hub of the Honey Trade," and the day of the petty trader shall have passed, making way for the specialist or the man who controls apiaries extending over a hundred miles of territory?

Honey Advertising Campaign

An interesting article on this subject of formulating an advertising campaign is that in the American Bee Journal for the month of January by Dr. A. F. Bonney. Dr. Bonney is of the opinion that because we can never absolutely guarantee the production of a given amount of honey, such as would be required to meet the yearly demand, it would be unwise to inaugurate an advertising campaign on a large scale by the combination of bee-keepers great and small. He says: "Take it from me, Mr. Editor, that we bee men never can and never will be able to



"do national advertising while the output of honey is so uncertain. Look what we ran up against in 1911—almost a total failure. How about "Karo (trade name for glucose)? The manufacturers merely put up a little more room, bought a few more carboys of sulphuric acid, and proceeded to supply the demand for a sweet that we could not." This national advertising question is one on which there is undoubtedly great room for controversy.

Mr. F. Dundas Todd has honored us with an excellent account of apicultural conditions in British Columbia, and his remarks on the Foul Brood question are well worthy of close attention. If we here in Ontario wish to hold this dread disease in check, the sooner we get Federal legislation such as British Columbia has, the better. It is to be hoped, however, that it will not be so constructed as to act like a two-edged sword; in other words, restrict the shipping of honey, bees, etc., locally and inter-provincially, to such an extent as to be detrimental to the business side of the question. We will need to be sure of our ground before bringing into force legislation which may prove to be detrimental to the good of the country, although intended to act in an opposite manner.

Another question arises as to how an inspector sent by the Government to issue a certificate giving an apiarist a clean bill of health can definitely determine whether or not European or American Foul Brood is present. Disease may often be present, yet be quite invisible to man, and capable of breaking out later, to the despair of the apiarist. Thus it seems to me that it would be difficult for us to conform to any law which might be passed; and yet if the industry is to be expanded there must be a distribution of honey from the points of production.

It would be a pleasing task to pass

on through the numerous pages of our good Journal and comment as above in the passing. But space forbids. Let us wish our editors every success in the good work they are doing for the bee-keeping community of Canada.

Ottawa.

ABOUT BEE-ESCAPES

indexed

By G. A. Deadman

"Many men of many minds" seems more applicable to apiarists than to any other profession or calling. The old saying, "When doctors differ, who shall decide?" would lead us to suppose that apiarists are not alone in this respect. Of course, we all know that, but they seem to outdo them all. It is no wonder beginners are puzzled as to "who is right," and so we would advise them not to believe all they may read, even in our best journals on apiculture, but rather have a good textbook on the subject, and when this is well in the mind, then they can "try" and see whether the writer is in advance of the age or away behind the times. "But what has all this to do with bee-escapes?" you ask. Well, it is just because one whose name is familiar to most of us has recently been giving his experience with these appliances. Now I could refer you to the page where you could find this, but I am not going to do it. I am getting "tired" of this thing. The editors of some of the various departments in one journal, at least, are too prone to this way. They make you inquisitive by saying "that is a good idea of friend So-and-so on page 54," or some such. One of two things await you, either to stir yourself and hunt up the journal and the page or to pass it by. Perhaps you are one of us who do not like to miss a good thing, and so look it up, but only to find that you know it already or you do not care whether

April, 1912

you do or not. So too far from my any reference is so that the reader to recall what it is stand repeating condensed form. Well Getaz, in the Rev trouble, bees clust cape and blocking ing, producing saing, producing attracting robbers, et this trouble, he puts nest, only to find and blocking the ex ally he puts on a h gives the bees an h fore putting on the l Before I would use l this trouble I wou wood of all I had. how he empties the nor what one is to de which is more prof that Holtermann, fo for them, and afte experience will be n his ideas than ever. ago, like Holtermann, with them, but afte would not like to "k out them. For comb unexcelled. For extr times, they are very used in cool weather ar to remain long in the necessary to warm up extracting, but this c With bee-escapes one matter how bad robber way we did some wa under as many supers tract that day. To do to lift the super and an the escape, are necessa be done very quickly, n you can walk along. No time we can begin ex course, the bees will no but the few remaining

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BEESCAPES

indexed

Deadman

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you do or not. So if I am not getting too far from my text, I would say if any reference is made, quote enough so that the reader will possibly be able to recall what it is. A good thing will stand repeating especially in a condensed form. Well, this writer, Adrian Getaz, in the Review, has no end of trouble, bees clustering under the escape and blocking the exit, honey leaking, producing same results and attracting robbers, etc. Then to remedy this trouble, he puts on an empty brood-nest, only to find them building comb and blocking the exit in that way. Finally he puts on a super of sections and gives the bees an hour to clean up before putting on the bee-escape. Dear me! Before I would use bee-escapes with all this trouble I would make kindling wood of all I had. He does not tell us how he empties these sections of bees, nor what one is to do who has not any, which is more probable. You know that Holtermann, for one, has no use for them, and after reading Getaz' experience will be more confirmed in his ideas than ever. Until two years ago, like Holtermann, I never bothered with them, but after using them I would not like to "keep house" without them. For comb honey they are unexcelled. For extracted honey, at times, they are very helpful. When used in cool weather and supers allowed to remain long in the hive, it may be necessary to warm up the honey before extracting, but this can be avoided. With bee-escapes one can extract, no matter how bad robbers may be. The way we did some was to put these under as many supers as we could extract that day. To do quick work, one to lift the super and another to put in the escape, are necessary, and it can be done very quickly, nearly as fast as you can walk along. Now in an hour's time we can begin extracting. Of course, the bees will not be all away, but the few remaining ones are easily

got rid of, and if robbers are about they alight on the extracting combs and do not interfere with the bees in the hive below the escape. Nor can the bees below interfere with the taking away of the honey—only those that are still on the combs—and all fight seems to have left them. Without the escape, the bees below could only be subdued by much smoke, which leaves them much more susceptible to attack and very cross as well. Some of us know how cross bees can be with no honey in the fields and robber bees helping themselves. Well, with the escape, there is no trouble, and, used this way, the honey does not have time to cool, as it certainly would if this was done the day previous. This is one way, and a good one, too, of using a bee-escape, but not always necessary.

When more than one super are on the hives, I find it an advantage to take off one at a time from each. McEvoy has recommended disturbing a comb or two, as the bees will then more quickly take their departure. I find that the usual bee-space between the escape and the frames below furnishes ample room, as the outgoing bees will quickly congregate in the front of the hives. So much leaking of honey, as friend Getaz speaks about, would indicate poor workmanship somewhere. Before using on strong colonies make sure that the escape is working properly, otherwise there may be many dead bees and a loss of honey.

Another use of a bee-escape is in the cure of foul brood—but that is another story.

Brussels, Ont.

TO PUNCH THE HOLES

Mr. H. S. told us about a good feeder but omitted to inform us how to make the holes. Well, break the eye off a common sewing needle, and push the needle through a cork from an ale bottle, lengthways, till the point just comes through. You can punch as much tin as you like with it and a light hammer. Good morning.

A. BUCKINDALE.

Jarratt, Ont.

REVIEWS AND COMMENTS

An Index to the Best in Periodical Apicultural Literature

LEADING ARTICLES IN THE BEE JOURNALS

American Bee Journal—Swarming Problem, Dr. C. C. Miller; Foul Brood Treatment, G. C. Greiner; Solar Wax Extractor, C. P. Dadant; Handling Bees, G. M. Doolittle; Requeening—When and Why, A. C. Miller; Mendelism Applied to Bees, Dr. Bonney.

Australasian Bee-keeper—How to Manipulate so as to Get as Few Stings as Possible, J. F. Munday and W. Reid, Sr.; Pollen Famines, R. Beuhne; Bees and Spraying, E. E. Pescott and F. R. Beuhne; Does It Pay to Fuss With Bees?

Bee-keepers' Review—Improving Your Bees While Producing Honey, G. B. Howe; Rational Hives, J. E. Hand; Swarm Control by Forced Swarming, Geo. W. Stephens; Retailing Extracted Honey to Farmers.

British Bee Journal—Fruit Growers and Bees, C. H. Hooper; Helpful Hints for Novices, W. Herrod; Text of Proposed Bill for Controlling Bee Diseases; Pitfalls Besetting the Path of the Novice, D. M. Macdonald.

Cleanings—Wintering at Medina, E. R. Root (editorial); Preventing the Swarming Impulse, Dr. L. A. Simmon; How to Get a Stand of Sweet Clover, Frank Coverdale; Overstocking, Doolittle; Bees and Horticulture, H. Harley Selwyn; How to Prevent Grapes From Being Punctured by Insects and Birds, Prof. H. A. Surface; Honey Bee as a Fertilizing Agent, Dr. E. F. Phillips; How Pollen is Collected, F. W. L. Sladen.

Irish Bee Journal—Spring Work, J. Tinsley; How a Bee Spends a Day, A. Beatrice Rambaut; Notes From Very Rev. F. M. Masse, Buckfastleigh.

South African Bee-keepers' Journal—What to Sow for Bees, F. J. Haarhoff; South African Bee Pirate, A. J. Hopper; Granulated Honey, H. Martin.

BEE DISEASES IN ONTARIO

The revised bulletin on Bee Diseases has just reached us from the Ontario Department of Agriculture. All bee-keepers who have not received a copy should make application to the Director of the Fruit Branch, Parliament Buildings, Toronto, for one. We learn that American Foul Brood is evenly distributed over that part of Ontario lying to the south and west of the Trent Valley. European Foul Brood is spreading rapidly from three main centres of

infection, so that the counties of Carleton, Russell, Renfrew, Northumberland, Hastings, Prince Edward and ~~and~~ are diseased.

Mr. Pettit gives full information regarding the treatment of both forms of foul brood.

THE PROBLEMS OF HEREDITY AND THE BEE-KEEPER.

The subject of "Improvement" is a very live issue just now amongst bee-keepers of all nationalities, and the various bee journals have recently published numerous articles dealing with some phase or other of this subject. Much uncertainty, however, exists in the bee-keeping world as to the precise manner in which heredity affects the problems the bee-keeper has to solve, and with a view to helping our readers in this respect, we have arranged for the publication of an article in this month's issue covering the ground indicated, and dealing specially with Mendel's law and the results of the investigations made by scientists along these lines during the past 12 years or so. We believe that this article will prove of great interest to our readers, in view of what has already been written on the subject.

SPRING REPORTS WANTED

Will our readers be so good as to forward us at once their usual reports on wintering conditions and prospects for the coming season? We wish to hear of the failures as well as of the successes. Names will not be published if you do not wish it. A postal card is capable of carrying a great amount of invaluable information.

POLLEN FAI BROOD — Eggs, Bu

In the Australasian Bee-keeper illustrates the value of the condition of Mr. Beuhne occurs nevertheless, bee-keepers interested in this to the necessity of brood-rearing. We Beuhne's own words

Up to the end of came in freely, pin wattle and thistles. the month was the 1 season—106 degrees Since then there has been pollen of any kind a There was, however, cumulation of pollen colonies have been rearing to a moderate 7th, a large swarm is at the out-apiary. D also large, from 201 at I hived both on start ment—No. 91 on a n 253; No. 201 on the honey was coming in the out-apiary, I put 3 tions on 253, but only body below 201 (to 1 for clustering). I exa 13th and 14th. Combs way, all worker and larva yet and no pollen 21st, No. 201 showed 1 young larva and a few eggs in profusion.

No. 253, same date, eg no larva, no pollen, sect Dec. 29th, No. 201, co ished, a fair supply o weed), eggs hatching i mally.

Same date, No. 253 combs nearly complete, along top bar, eggs in larva, no pollen, section Jan. 4th, No. 201, norm No. 253 (out-apiary), st no pollen; removed 16 fin Now here is a strong good queen and a fair h without a single larva

**POLLEN FAMINES PREVENT
BROOD REARING** ^{indexed}
Eggs, But No Larvæ

In the Australasian Bee-keeper, R. Beuhne illustrates in a most striking manner the value of pollen to the bee-keeper. There is but little likelihood of the condition of things described by Mr. Beuhne occurring in this country; nevertheless, bee-keepers will be much interested in this fresh testimony as to the necessity of pollen to the bee in brood-rearing. We will give Mr. Beuhne's own words:

Up to the end of November pollen came in freely, principally from black wattle and thistles. The last day of the month was the hottest day for the season—106 degrees in the shade here. Since then there has been very little pollen of any kind at the home apiary. There was, however, a considerable accumulation of pollen in the combs, and colonies have been keeping up brood-rearing to a moderate degree. Dec. 7th, a large swarm issued from No. 91 at the out-apiary. Dec. 8th a swarm, also large, from 201 at the home apiary. I hived both on starters as an experiment—No. 91 on a new stand as No. 253; No. 201 on the old stand. As honey was coming in more freely at the out-apiary, I put a rack of 28 sections on 253, but only an empty hive body below 201 (to give more space for clustering). I examined both Dec. 13th and 14th. Combs were well under way, all worker and well egged, no larvæ yet and no pollen in combs. Dec. 21st, No. 201 showed some half-dozen young larvæ and a few cells of pollen, eggs in profusion.

No. 253, same date, eggs in all combs, no larvæ, no pollen, sections half filled. Dec. 29th, No. 201, combs nearly finished, a fair supply of pollen (flat weed), eggs hatching into larvæ normally.

Same date, No. 253 (out-apiary), combs nearly complete, sealed honey along top bar, eggs in profusion, no larvæ, no pollen, sections sealing.

Jan. 4th, No. 201, normal as to brood. No. 253 (out-apiary), still eggs only, no pollen; removed 16 finished sections.

Now here is a strong stock with a good queen and a fair honey-flow still without a single larva 28 days after

hiving. If this were the only colony I possessed I would think that the queen laid dead eggs; but during this period I have examined the brood chambers of all colonies in both apiaries, and find that at the out-apiary, where there is an absolute dearth of pollen, all colonies which have exhausted their stored pollen are in the same condition, viz., eggs, but no larvæ.

From the experience with the two swarms, as given above, it will be seen that not a single young bee can be raised without pollen, and we may assume that even the brood, which is raised during a time of scarcity, does not receive its proper share of nitrogenous food, and the resulting generation of bees cannot be expected to be as long-lived, vigorous and disease-resisting as bees reared under normal conditions.

^{indexed}
**“DETERMINATION OF SEX IN
POULTRY”—AND IN BEES**

In the Fruit Magazine (Vancouver), the Rev. W. N. Scott makes the assertion that “The Determination of Sex” stands as the greatest economic problem of the poultry industry. We should not regard the article in question as possessing any importance or interest for the readers of this Journal were it not for the fact that Mr. Scott had appealed to the case of the honey-bee in support of his contentions. “We are all familiar,” he writes, “with the three classes of inmates of a beehive as queens, workers and drones, or as fertile females, imperfect males, and males.” On first reading this passage, we supposed the very obvious error in referring to the workers as “imperfect males” to be due to a misprint. But as the writer of the article is endeavoring to prove that “intensive feeding,” together with other factors, largely determines sex, it is clear that he is under a wrong impression as to the nature of the worker bee.

The selection of the bee by Mr. Scott as furnishing evidence in support of his contention, is exceedingly unfortunate. The bees, in fact, afford an

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AT MASSACHUSETTS AGRICULTURAL COLLEGE

usual short course at the Massachusetts Agricultural College is to be held from the 31st next, under the direction of Dr. Burton N. of the apicultural (College and State). In addition lectures and displays will be given by lecturers, supply merchants.

will wind up with a lecture on the 12th and 13th, at which the gentlemen are anticipated. A. H. Byard ("Insect Foundations of the Beekeeping Industry"), R. C. Shook ("Swarm-baiting"), J. H. Baker ("Electric Foundation Wire Embedder"), J. E. Cutter for Secretary ("Queen-Rearing System"), R. C. Shook ("Queen-Rearing"), P. Porter ("Life of the Honey Bee"), M. E. Root ("Production of a Queen"), V. Yates ("Bees in Culture and Planting").

of attending the course and communicating with the college on Gates, Amherst, Mass.

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FROM A VETERAN

[We are exceedingly glad to hear from Mr. W. T. Huntsman of Alsack, Sask., from whose letter we take the subjoined extract. Mr. Huntsman is a bee-keeper of some 52 years standing and many Ontario readers will be glad to renew their acquaintance with him through this column.]

"In a few weeks I shall be 79 years of age. My first acquaintance with bees commenced in 1860 through reading Huber. My interest in that wonderful insect was excited and I obtained a colony of them in the old box-hive, gradually increasing until I built up an apiary. At various times I have sold three apiaries. In 1898, being engaged at that time by the Upper Canada Tract Society as missionary to the sailors around the northern lakes, I could not attend to them, and had to give them up.

"In the spring of 1910 my son-in-law and daughter came west to Alberta, where I homesteaded and preempted half a section. My intention was to start an apiary in or near Maple that same spring.

"Last spring, April 2nd, by accident one of my eyes received a severe hurt from a flying stick, causing ulceration. After suffering for nearly five months the ball of the eye was saved, but the sight lost. The specialist, Dr. Marse, at Saskatoon says that I was fortunate to save the eye, although I lost the sight."

CELLAR WINTERING

There has been quite a lot said on cellar wintering and outdoor wintering recently and I am tempted to add a few words upon the same subject. Several years ago I lost a number of good colonies out-doors, although they were packed well. Since then I have always celled the bees and they always come out fine, provided they have plenty of food, and good dry air. I lost three out of ninety-three last winter, but these three were starved, and so it was my own fault and not the cellar's. I have 100 hives stacked in a small cellar 15 feet x 11 feet and 9 feet high. I have just been in to see them and I find they are doing splendidly, some of them right down on the bottom board. I always winter with the bottom board under them. I have at present six or seven of the different races of bees, Goldens, 3-banded, Carniolans, Caucasians, pure black, and I don't know how many crosses. It would be hard to say which are doing the best.

On the 18th of October we cut a tree and saved the bees, giving them lots of stores, and they are doing just as well as the others. I should like to be able to winter outside. I know that many succeed that way. Bees have not been able to fly here ever since long before Christmas. Are they not safer where the cold winds do not strike them. Two of us carried them all in and stacked them up in three hours, and it will take about the same time to put them out. We could not pack them in that time, I am sure. There is also the matter of the expense of the boxes to be taken into consideration when one proposes to winter outdoors.

Jarratt.

A. BUCKINDALE.

THE SEASON IN MISSISSIPPI

The bees are wintering fairly well considering the tough weather we have had.

The bees have been shut in sometimes for three weeks. Lost a few nuclei by being robbed out after feeding and found one hive queenless in consequence of which the latter had to be united with another. For this I was myself more or less to blame, and of course not the winter. About the middle of last month, (January) while looking into some hives I saw plenty of eggs, and in two rather weak hives, one of them a 3-frame nucleus, noticed some newly-hatched young bees. The weather became blustery, though not enough to keep the bees in all the time. On the contrary they were out and gathering pollen on several days but on account of high winds and cold nights, the hives were not opened again till the 8th of this month, when I found but little capped brood and very few eggs, except in one hive (10-frame Jumbo size) where I found brood in four frames, of which one had only a little bit of capped brood in it, but the other three contained at least 3000 larvae and eggs each. About one-fourth of it was eggs. There were also plenty young bees and hatching brood on and in those frames.

As to location I may say that Greenwood is in North Mississippi on the Yazoo River and therefore in the Yazoo Delta (a stretch of low lands interlaced with bayous), about midway between the latitudes 33 degrees and 34 degrees. The climate is rather changeable, especially in winter, when the mercury drops sometimes more than 40 degrees in twenty-four hours. Of course in summer it is correspondingly warm, sometimes so much so as to make anyone wish he were the iceman. As to the season, early potatoes are planted between the 1st and the 15th of February.

P. RUDLOFF.

Greenwood, Miss. 2-12-1912.

INFORMATION WANTED

While walking around, inspecting my bees on the morning of July 12, as is my custom every morning, I noticed in front of three very strong colonies that had not swarmed, and were working in two full size hive bodies above the brood hive a quantity, (perhaps 200 or more) of bees, jumping and crawling among the sand and grass, radiating from these three hives for four or five feet distance. They seemed to act like bees that had been stung, or maimed in a fight with other bees. As I could not tell from which hive they came, I picked up a number and put them on the alighting boards of all three hives, but they only turned tail and tumbled off the boards and crawled away as fast as their little legs could take them. I picked up a lot and examined them carefully, but nothing seemed wrong with them, except that they showed a desire to get as far from the hive as they could. The bodies were not swollen, nor were the wings much worn—not at all in many instances. In short, they did not look at all like old, useless, bees. This strange occurrence seemed to cease as the morning advanced and the bees were working good. Wishing to find out from which hive the affected bees came I was up at daylight next morning and found that they all came from the centre hive, and I made up my mind to examine the brood chamber later in the day, to find out if possible whether anything was wrong. At eleven o'clock on the 15th this hive

sent out a monster swarm. I think it was the largest mass of bees I had ever handled. I hived them on the same stand, changed supers, etc., and all went well. The other colonies did not swarm, neither was there any further trouble with bees crawling from their hives. We have a lot to learn about our little friends yet. I have never witnessed anything like it before. They must have had plenty of ventilation as the entrance was seven-eighths by twelve inches. It was in the height of the flow so there were both air and food. Can any bee-keeper suggest the cause of so strange an action on the part of these bees just before swarming?

E. F. ROBINSON,

Victoria, B.C.

Want and Exchange Column

Advertisements for this column will be received at the rate of 50 cents for 25 words, each additional word one cent. Payments strictly in advance, as the amounts are too small to permit of book-keeping. Write copy of ad. on a separate sheet from any other matter, and on one side of the paper only. Say plainly how many times ad is to be inserted. Matter must reach us not later than the 23rd of each month.

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WANTED—A good strong boy, handy with tools, to learn the bee business. Also want to buy some beeswax. Address Jacob Alpaugh, Galt, Ont.

WANTED—To buy, Bees, Honey and Wax. Bee-keepers' supplies for sale, especially the A. I. Root Co.'s line of goods. Address F. W. Bell, 4 Cherrier St., Montreal, Que.

WANTED—Representative wanted in each locality to mail circulars for Cut-Rate Grocery Mail Order House. Few hours' spare time will easily earn \$20 weekly. Any one can do the work. Outfit furnished free. Dominion Grocery Co., Windsor, Ont.

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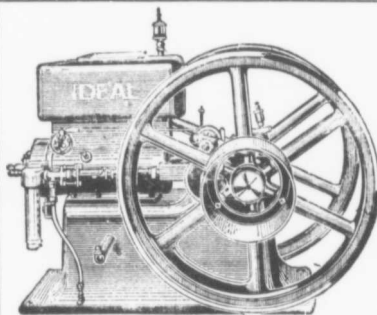
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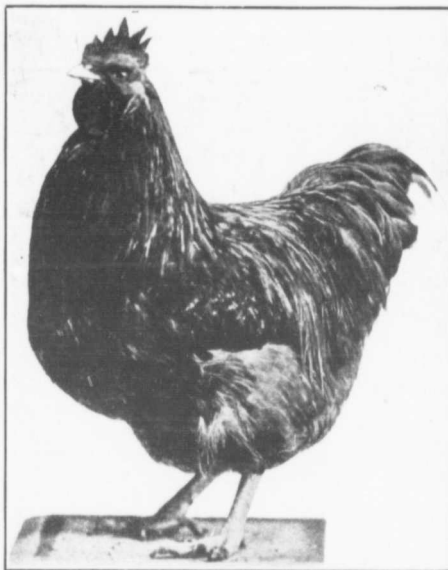
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