

sections off a long time or you will have a much larger percentage of pollen in the sections. If you have a wider starter it gives them a better chance and by the next day they will have that drawn out and the pollen they brought in stored in that.

Mr. Holtermann—Suppose you put in the drawn comb at one side to catch that pollen?

Mr. Smith—I have tried that, too. That would answer just as well. But we always aim to have foundation starters. If you have clean comb to put in there it is all right, but I would not put an old comb in if I wanted fancy comb honey.

Mr. Chrysler—Those ten-frame hives I speak of were the Danzenbaker shallow.

The President—What do you use in hiving your swarms, Mr. Pettit?

Mr. Pettit—I use about six starters and a comb.

Mr. Brown—In hiving on those starters are you not liable to get a lot of drone comb in the hive?

The President—It depends somewhat on the age of the queen.

Mr. Smith—My experience is that if you have a young queen you will have very little drone comb. If it is an old queen, if there are not more than five or six combs there will be a large percentage of worker comb. There may be some drone comb, but not much.

The President—Even supposing you have to take some of those combs out, do you think, in working for comb honey, it pays to use starter?

Mr. Smith—Without any doubt.

Mr. Holtermann—Isn't that partly gauged by whether your flow is going to continue or not? If in the early part of the clover flow you put your bees on starters that way there is no doubt you will get good comb honey if it is to be got, but if you have a bass-wood flow following it are those

stocks then in a condition to to give you good comb honey?

The President—Why not?

Mr. Holtermann—Because they don't rear brood fast enough to make up for the bees which are dying off. I suppose you will notice there is a tendency to cease taking comb honey and going into producing extracted honey, and is it not partly because with all these things that have come to be done in the production of comb honey you don't get enough comb honey in proportion to the extracted? Is that right, Mr. Hall?

Mr. Hall—In my case it is.

Mr. Brown—With regard to the old or young queens swarming, it is usually the old queen that swarms, as there is no other queen to swarm from the first swarm, consequently there must be drone comb.

Mr. Holtermann—There is not so much difference between the young and the older queens of the first or second year in the matter of tendency to swarm and building drone comb as is generally stated. I may be wrong, but I have my doubts about it.

Mr. Hall—My preference is first for starters, second for foundation and lastly comb.

The President—How many frames do you use?

Mr. Hall—That all depends. If you want to keep the stock in the future I use four. If I want to do the same as I have done this year I use the whole hive because I am simply turning them into wax.

The President—After swarming what will we do with our supers or sections that are on the old hive? Remove them to the swarm or do what, Mr. Hall?

Mr. Hall—I put them on top of the new.

The President—Do you put them on immediately when your hive has swarmed?

Mr. Hall—In ninety-nine cases out of

a hundred, but I have no established rule.

Mr. Holtermann—How do you treat your brood chambers. Do you just give them starters.

Mr. Hall—I prefer starters for comb honey. For extracted honey I prefer combs if I am with the bees. Otherwise I would prefer one sheet of comb and starter. That catches the pollen and keeps the bees there.

Mr. Pettit—There is a point I would bring out in connecting with adjusting the brood chamber for the swarms. We know that bees differ in different years as to their desire to swarm. In some seasons where you give them on the six starters and one comb and the rest of the hive filled out with dummies you find they will stay hived all right. Other years they do not like such a small brood chamber and we give them the full set of starters with one small comb. In two or three days, walk around and take out the starters at the outside and put dummies in their place. This contracts the brood chamber and gives more honey in the super and better finished combs in the brood chamber.

The President—In seasons when there has been trouble with the bees swarming out, on a contracted hive, I have often put an empty brood chamber underneath the one with the frames, and after they have got nicely at work removed it.

The President—How shall we remove our sections?

Do you use smoke or do you use a bee escape?

Mr. Hall—Both, and oftener neither. The nicest way for removing comb honey is just to quietly give them a puff of smoke, or, in fact, no smoke at all. Take them off gently and set them down a few inches in front of the hive, and after you have gone all the way around you can take your wheelbarrow and gather them up and take them to your house. That must be, of course,

in the honey flow. The next best thing is bee escapes. Bee escapes are very nice, but the bees sometimes act very contrary. With 19 colonies you can do what I have said very nicely, but the 20th one says, What business have you here? And they begin to sting. I like bee escapes for comb honey, especially in the fall.

The President—How do you remove your sections, Mr. Pettit?

Mr. Pettit—I use escapes mostly, the Smith escape.

Mr. Brown—Just one escape in the board?

Mr. Smith—There is one escape, but it has a number of openings, so that the bees, when they come to it, can simply go the whole width and go out of eight openings and a spring closes behind them. They are attracted to the light. At the same time, it affords more or less ventilation. We find it answers very well.

Mr. Holtermann—There are perhaps some that have not bee escapes. A good many years ago I read in The British Bee Journal of a way of taking off sections. Bee escapes may be better, but it is a question that will be open to argument. That way is this: Carbolic acid is used, and you make a diluted solution, in which you can put your hand without injuring it very much. Dip your cloth in that and spread it over the super, and it is astonishing how quickly the bees will rush out of the sections. Insects object very strongly to carbolic acid. They will go out like a shot, and it is a way of taking off sections for those who have not bee escapes which they will find very advantageous.

Mr. Hall—But, Mr. President, sometimes we have to take off a case of sections when there are six hundred in that case. It will drive them down out of the seventh super. We don't want them driven down. We only want them out of the super we have

to take to the honey house. I have never tried carbolic acid. In the honey season I want nothing at all—smoke or anything else. You better not use smoke, because sometimes they bite the capping, and if they do it makes it unsaleable; also by smoking you disturb the bees in the other supers. Use bee escapes if you have four supers on.

Mr. Holtermann—I was especially referring to taking them off at the close of the season. I can't use carbolic acid for extracting honey, because the effect is not sufficient to drive them out of the extracting supers.

Mr. Craig—It depends on how strong you make your solution.

Mr. Holtermann—You can't make it any stronger than your hand will stand. The skin feels dry when it is about the right consistency.

Mr. Craig—If you use soap liberally on your hands you will find it does not affect them.

The President—Do you use queen excluders in producing comb honey?

Mr. Pettit—I consider it an important question, and I would like to have it discussed more fully than time will permit. I don't use queen excluders when I put the sections on first, but as soon as the swarm is hived I put the queen excluder between the brood chamber and the sections. My object in doing that is, first, to keep the queen from going up, which seldom but sometimes does happen, and to keep them from carrying pollen into the supers. Another point is to keep drones from going into the supers, because we find it very inconvenient getting them out.

Mr. Hall—Whether you hive with a contracted or full hive for comb honey, always put on a queen excluder. Never use it for comb honey after the sections have been on a few days; they are better without it. In hiving for comb honey we always put on queen excluders. If we have got the hive

partially full of comb we prefer to leave the queen excluders off. The bees have a freer passage up and down. They are not crowded, and it feels more like home, and they certainly give you more honey. If I was at your age, Mr. Pettit, I wouldn't take a pound of extracted honey.

Mr. Holtermann—Do you think it is possible to successfully produce comb honey and run out-apiaries where there is no one to watch the bees?

Mr. Hall—I would rather run it with out a watcher than with one. If I had a watcher there he would go to sleep and wouldn't watch the bees on a warm day. One year I was troubled in one of my out-apiaries with foul brood, and I didn't want it there, and your inspector pronounced them half-diseased. He said, "What are you going to do?" We hived them on starters and put the sections right on with the queen excluders, and we got 140 sections to the hive off those bees, and they filled up nicely for the winter.

Mr. Holtermann—Was that a season where there was an exceptional tendency to swarm, or at what part of the season did you do this?

Mr. Hall—I did that just at the commencement of the honey flow, about the 10th June. I stayed for two days in that yard, and did the whole transaction. I shook off every colony, clean or dirty, and we had two of them swarm after that, but at home they swarmed and swarmed unmercifully.

Mr. Holtermann—Do you know how long it was from the time you shook them till the close of the honey flow?

Mr. Hall—I wouldn't like to say. It was a good clover and basswood season, and we got some of the prettiest comb honey that I ever got.

SECOND SESSION.

Wednesday, November 16th, 9.45 a.m.—The President, in the chair, called the convention to order.

The-President—The first thing is an

address by Prof. Harrison. He needs no introduction to the bee-keepers. He has been with us before, and always to our advantage and instruction.

Address by Prof. F. C. Harrison, Agricultural College, Guelph.

Mr. Chairman, Ladies and Gentlemen:

It affords me much pleasure in again addressing this convention of bee-keepers. I had not the pleasure of attending your last meeting, but I am always loath to come before any convention with an old story, even when it is placed in a new dress, and I am afraid I am somewhat in the same box this year, in that I have got to harp again on the old subject of foul brood. Before reading my paper, which I have entitled "Diseases of Bees' Larvae," I should like to make a few remarks about this association, if I may be permitted to do so. I must congratulate the association in, as it were, amalgamating with the Fruit Growers and also with the Horticultural Society of Toronto. I think it adds strength to the meeting, and I think that the attendance so far has been good evidence of the benefit that you have derived from the amalgamation, and I hope that this will continue so in future years.

In looking over the various societies which are helped more or less extensively by the Ontario Department of Agriculture, those of you who have followed it in the public press will have noticed that, not content with holding annual meetings, the Department, through their various officials, are endeavoring to create interests in the various lines in which they are engaged, in horticulture, in agriculture, in dairying, and so on, and during the year they hold meetings, not at the centres, but go out on to the various farms or into the various factories and have meetings of those interested in that particular calling. Now, I think this is a very good system to follow,

and I should like to see it introduced amongst the bee-keepers. I remember a short time ago that this convention actually debated whether it was advantageous to get more people to go in for bees, as there was only a limited sale for honey. I think we have passed all that; we are in an era of greater prosperity, and I think a more effective means should be taken to instruct those who are raising bees and honey, and to endeavor to educate others who have natural tastes in this direction to start to work, for you are not only benefiting yourself, but also benefiting the fruit growers, as the bees have a mission to fulfill amongst flowers as well as the mission which you are particularly engaged in, that of gathering honey. So I would throw out this suggestion: that this Association have, I might say, orchard or apiary meetings, where they send out some instructor recognized by the Association to give instruction in the best methods of handling bees. We come here to learn, and there are very many points from which bee-keepers can pick up information, not only at these meetings, but by an instructor who should be sent around.

Another suggestion is this: that the only place I know of where bee-keeping is taught is at the Agricultural College, and I should like to see this Association recognize the fact that it is one of the subjects on the curriculum—to recognize it and naturally draw more attention to it by that recognition. For instance, if they offered a prize for the best essay upon some subject in bee-keeping, or a first or second prize for those who do the best in their examination, on condition, of course, that their papers are examined by a committee appointed by the Association, I think in that way it would give a recognition to the subject at the college and thus indirectly help bee-keeping. I just throw out these

two suggestions, and hope they will be taken in the spirit in which they are offered.

This paper which I have to bring before you has to do with the diseases of bee larvae. Those of you who have followed bee literature for the last year or two, especially the bee journals from the United States, will have noted that there have been several new diseases spoken about, and how far they are known or prevalent in Ontario I am unable to state. Two years ago I remember there was some talk of 'black brood,' and I think a committee was appointed to send samples to me. Whether they did not meet with any cases of 'black brood' I don't know, but I know I have received no samples, and what I have to say with reference to these other diseases is taken entirely from literature which has come out in the United States bee periodicals.

THE DISEASES OF BEE LARVAE.

(By Prof. F. C. Harrison, O. A. C., Guelph.)

The diseases of the larvae of bees may be roughly divided into two groups, one in which the disease is contagious and the other in which the disease is not due to a special virus, but to some physiological or physical cause. The contagious diseases are the most harmful, as they spread from hive to hive and from one apiary to another, often producing a severe epidemic.

In all cases of infectious diseases there must be present a virus, or living organism, which may be a fungus or a mould-like growth, or due to minute organisms, which are popularly called bacteria. These micro-organisms may be carried from one hive to another in many different ways, and the following are the principal means by which contagion is spread and infection caused:

1. Bees entering wrong hives.
2. Bees robbing a diseased colony.
3. Feeding bees with honey from an infected hive.

4. Inserting diseased combs into healthy hives.

5. Using as a foundation a wax from a diseased colony which has been improperly boiled.

6. Transferring bees into hives that have been inhabited by a diseased colony without first thoroughly disinfecting it.

7. Placing a hive upon a stand previously occupied by a diseased colony.

8. The handling of healthy colonies by the bee-keeper after manipulating diseased hives.

9. The introduction of a diseased queen.

10. Healthy bees visiting flowers which may have been infected by diseased bees.

All these are means by which infection can be carried or transferred from one place to another, and evidence can be brought forward to show that disease has been produced by each of the different means above mentioned. "Foul Brood" being the infectious disease which is best known, naturally affords more examples of these methods of transmission than any one of the other contagious bee diseases.

It is important that all bee-keepers should clearly understand these means by which infection is carried, also they should have a knowledge of the appearance of the various diseases of bees, so that they can diagnose or tell the kind and character of the disease, in order to apply intelligently methods of prevention or cure.

"Foul Brood."—The larvae attacked by *B. alvei*, the cause of "Foul Brood," may die during all stages of their development. In every instance the larvae lose their white and glossy appearance when suffering from the disease and turn to a dull yellowish, and later on to a brownish, color. In the further progress of the disease they die and collapse into a darkish brown, coffee-colored, more or less tenacious, shapeless mass. This mass is characterized



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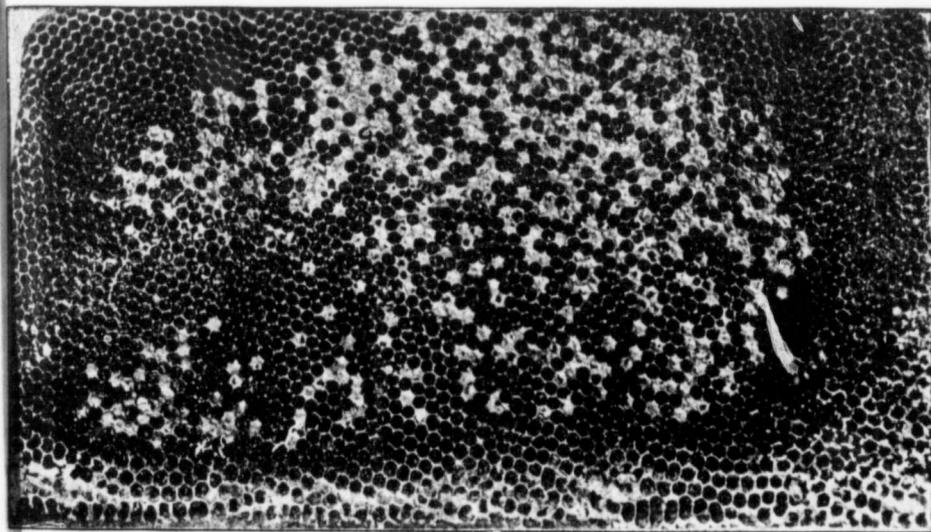
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by its viscid character, and before it dries up can be drawn out into threads when lifted with a match or pointed instrument. It has an offensive odor, which is said to resemble that of glue, and when much disease is present there is an ammonia-like smell. The cap of the larvae sinks and appears concave, instead of being convex or flat, and it is often perforated with a small hole near the centre. Often the appearance of this sunken cell is the first indication of disease noticed by the bee-keeper. The decomposed larvae

ber of brood combs the smell may be noticed some distance away. The bees become more and more despondent over their helpless condition and ultimately succumb, or in some cases desert their hives.

"The New York Bee Disease, or Black Brood"—For a number of years past there has existed in the State of New York a disease known to the bee-keepers of that state as "Black Brood." It has also been called "New York Bee Disease," from the fact that it was first noticed in the state of that name. So



A Diseased Comb (after N. E. France) Showing Sunken and Darkened Cappings also many Cells with Holes in the Cappings.

gradually dry up and ultimately form a dry, black or deep brown crust at the bottom of the cell.

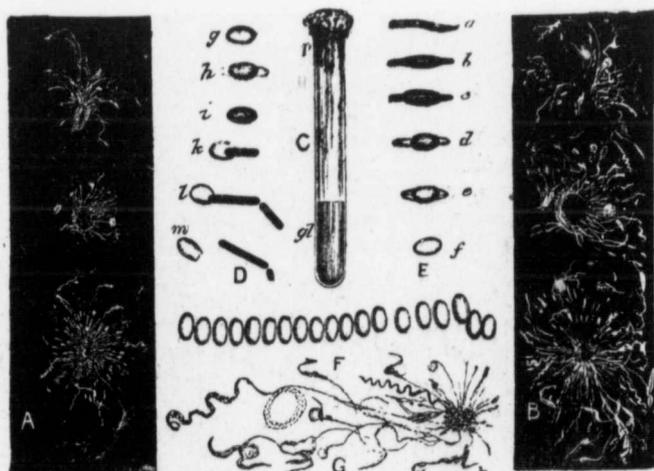
The sunken and perforated cappings, the reduction of the larvae to a tenacious brown mass, the characteristic odor and stringy nature of the mass, and the dwindling of the colony, are the most noticeable indications and results of the disease.

As the disease advances, the offensive odor pervades the hive, and when infection is spread over a great num-

ber as is known, it was reported first from Sloanville, N.Y. The description given by the New York State Bee Inspector is as follows: "The young larvae have a yellowish speck upon the body about the size of a pinhead, while the older brood stand out lengthwise in the cell, sharp at the ends, white, but not capped over. This brood dies, and is either removed by the bees or, later, flattens down in the cell and becomes of a cream-colored and, in a later stage, a coffee-colored mass. Later in

the season some brood that died in the cells which had been capped over becomes a rotten mass—a coffee-colored matter about the consistency of heavy honey. A toothpick dipped into this and drawn out causes this matter to stretch from half an inch to an inch, but does not break and fly back as quickly as in "Foul Brood." The smell is not very bad, but in some cases it has a sour smell, while in some of the sealed, rotten, coffee-colored brood there is a kind of rotten smell, but not like that of the old-time "Foul Brood."

fermentation increases the brownish spot enlarges the larvae dies and stands out swollen and sharp at the ends. In time the brood becomes dark and rotten, and these rotten masses, in time, break down and settle to the lower side of the cells as a watery, syrupy, granular liquid, not like the sticky, ropy or glue-like semi-fluid substance of 'Foul Brood.' It does not adhere to the cell walls like that of 'Foul Brood,' and has not the characteristic foul odor which attracts carrion flies, but a sour, rotten-apple smell. The



Cultures of *B. alvei* (after Cheyne): A. Colonies of gelatine (6 diameters); B, the same colonies 24 hours later; C, Culture tube; D, Spore becoming Bacillus (1800 diameters); E, Bacillus becoming a Spore; F, Spores in line, taken from a gelatine culture; G, Colony developing.

Howard states, with regard to this disease, that the brood is usually attacked late in the larval life and dies during pupation, or later, when nearly mature and ready to come forth through the chrysalis capping. Even after leaving the cell the bees are so feeble that they fall from the combs helpless. Most of the brood die after sealing. When the larvae show the first signs of this disease there appears a brownish spot upon the body about the size of a pin-head. The larvae may yet receive nourishment for a day or two, but as the

cap is disturbed from without, sometimes uncapped and the cell contents removed by the bees."

It will be seen from these accounts that, whilst agreeing in some particulars, there are points of difference between the two descriptions given of this disease, and probably if a bacteriological examination of the diseased larvae had been made by Mr. M. D. West, the New York State Bee Inspector, the organism which produces "Foul Brood" might have been found.

Howard, in connection with this dis-

ease, described an organism which he considered to be the causal agent of "Black Brood." He gave the name of *Bacillus millii* to it, from its resemblance to millet seed. The *Bacillus millii* is a spindle-shaped organism, which forms spores, and, according to Howard's drawings, forms two spores in each cell, a rather remarkable occurrence, for in most bacteria, as a rule, only one spore is found in a single cell. No description is given of the germination of these spores, nor the cultural features of this organism, so that, except from its peculiar shape and its ability to form two spores, it would be a rather difficult matter to identify this organism.

Howard claims to have produced the disease by feeding bees with syrup containing *B. millii*.

This disease has also been the subject of an investigation by Moore and White, of the New York Veterinary College, Cornell University. These investigators have examined a number of specimens sent to them during the season, and which were labelled as "Black Brood." The ten specimens of "Black Brood" contained a bacillus which suggested by its constant presence that possibly it was the cause of the trouble. It was thought first that the bacillus so constantly associated with the "Black Brood" was the organism described by Howard as *Bacillus Millii*; but a more extended study of this organism showed that it resembled *B. alvei*, the cause of "Foul Brood." A very careful investigation of this organism from the specimens of "Black Brood" confirmed the identity of the species from the different sources, and the only conclusion they come to was that the prevailing bee disease in the State of New York was similar to, if not identical with, the "Foul Brood" of other states, Canada and Europe.

From this evidence there seems to be doubt as to whether "Black Brood" is a new disease, caused by a new or

partly described organism, or whether it is merely a disease closely allied, if not identical, with "Foul Brood," but occasionally showing appearances which are different from the typical appearance of "Foul Brood." Further investigation will be needed before this question can be properly settled.

"Pickled Brood."—"Pickled Brood" is said to attack the larvae about the time of pupation, and the appearance of the larvae is similar to those that are infected with "Black Brood," except that the brown spot is not present and no decomposition from putrefactive germs takes place in "Pickled Brood." The cappings are usually undisturbed and the decayed brood masses do not adhere to the cell walls. According to Howard, the infection in "Pickled Brood" is in bad pollen, and new pollen always causes it to disappear. The cause of this disease is said to be a fungus (*Aspergillus pollinis*). Moore and White, who examined five specimens of "Pickled Brood," report no fungi present, but various microorganisms were found, none of which, however, were specific.

"Chilled Brood."—The cause of the death of the larvae from this calamity is cold, as the name correctly indicates. It generally occurs when, after warm weather, which has induced the bees to deposit brood freely, a sudden change takes place or very cold nights set in again. The brood in the outer combs, and where the bees cannot cover them sufficiently, generally suffer most. The larvae may be killed during all stages of their development, but the capped brood rarely suffers to any extent unless the change of temperature is much prolonged. In cases of "Chilled Brood" the larvae turn gray, afterwards the color darkens and in the final stages of decomposition it becomes black. No ropiness develops, and the putrid mass is more or less watery, and its smell is said to re-

semble stagnant water. No relation exists between "Chilled" and "Foul Brood," although many writers have mistaken the one for the other, or they have stated that "Chilled Brood" turns to "Foul Brood." Schirach, as long ago as 1769, clearly distinguished between the two. In fact, he said that "Chilled Brood" is no disease at all. "Chilled Brood" is caused by putrefactive bacteria which attack the larvae after death. In "Foul Brood" and other infectious bee diseases the micro-organisms attack the living brood and cause their death.

"Starved Brood."—Occasionally instances of the starving of a brood have been noticed. This occurrence can probably be explained by an abundant honey flow having induced the bees to encourage a large brood deposit, when, after a severe extracting of honey, the bees were suddenly checked in the gathering of food for some time through bad weather. The brood do not die suddenly, but become emaciated and dry up rather than putrefy. This affection is of rare occurrence, but it is curious and interesting to note that Virgil, in his *Georgic* on the husbandry of bees, mentions starvation and the cure for it. The lines are as follows:

"When sickness reigns (for they, as well as we,
 Feel all the effects of frail mortality)
 By certain marks the new disease is seen,
 Their color changes and their looks are thin;
 Their funeral rites are formed, and every bee
 With grief attends the sad solemnity:
 The few diseased survivors hang before
 Their sickly cells or droop about the door,
 Or slowly in their hives their limbs unfold,
 Shrunk up with hunger and benumbed with cold.
 Now lay fresh honey near their empty rooms
 In troughs of hollow reeds, whilst frying gums,

Cast round a mist of spicy fumes,
 Thus kindly tempt the famished swarm to eat,
 And gently reconcile them to their meat."

Treatment and Remedies—"Remove the cause and the effect ceases." Practically all the various methods of cure of the infectious diseases of bees adopt this maxim more or less thoroughly. The various starvation methods aim at getting rid of the infected honey and infected combs. The method of conquering the disease by feeding medicated syrups aims at the destruction of the vegetating bacteria, or preventing them from growing and the spores from developing. At the same time, the action of the medicine may in some way exercise a tonic effect upon the bees. Treatment by means of disinfection by formalin, or other vapor, destroys the greater amount of infecting material which is present in the hives and comb, relying upon the natural resistance of the bees to get rid of any micro-organisms that may be present in or upon them. The beneficial results obtained from any of these methods depend upon the thoroughness with which they are carried out. Thus we have numerous instances of the starvation method failing, because of failure to disinfect the hive. Medicated syrups often fail because of faulty methods of application, the use of weak or feeble drugs and not using the medicine for a sufficiently long period at a time. We have also occasional instances of the failure of the formalin treatment, perhaps due to improper methods of application, not using strong enough formalin, or not disinfecting the combs and hives in an airtight box. These failures should not be counted against the methods of treatment, for I am convinced that any of these methods, if properly and conscientiously carried out, will cure even the worst case of "Foul Brood," which, of all the infectious bee diseases, is the most difficult disease to deal with.

It remains for each bee-keeper to decide for himself as to the method of treatment he intends to follow, and, having made up his mind, he should carry out that treatment intelligently and thoroughly.

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Editor, W. J. Craig.

FEBRUARY, 1905

EDITORIAL NOTES.

To cleanse wax, Dr. Miller, in "Gleanings in Bee Culture," quotes the German Bee Journal, "Pfaelzer Bienenzeitung" as recommending to boil the wax in salt water, two or three repetitions making it beautifully clear. We use sulphuric acid. Salt, if as effectual, would be much more convenient for bee-keepers generally..

* * *

The "British Bee Journal" gives a picture of the Canadian honey exhibit at St. Louis and says, "Canada had a splendid trophy of honey, both run and in comb.. About fifty exhibitors had contributed toward this collective exhibit which weighed about one ton."

* * *

We regret to learn of the sudden death of one of our British bee-keeping friends and readers, Mr. S. J. Baldwin, of Bromley Apiaries, Kent, England. We had the pleasure of meeting Mr. Baldwin when over in this country on business a few years ago. The old gentleman was in New Jersey on business when the sad event took place. His family have our sincerest sympathy.

* * *

Mr. Arthur Laing, writing us from Morant Bay, Jamaica, draws our attention to an error in our statement regarding the price of honey on the Island (C. B. J. Dec., 1904). He says "the price is from 2 or 2½c to 3c a

pound. A bee-keeper sold several barrels the other day at 1 5-7c, the purchaser furnishing the barrels, of course. The above are facts and not "hobgoblin dreams."

* * *

Mrs. R. H. Smith has joined her husband on the Island, where they purpose remaining until toward the end of March, when they will return to prepare for the season in Canada. Mr. Smith writes that his bees on the lowlands are working well on the logwood bloom. Like Mr. Laing, he has come to the conclusion, however, that bee-keeping in Jamaica is not without its difficulties. To use his own words: "I find that for Jamaica, bee-keeping needs to be studied up as much as for any other country, and I am satisfied, so far as I have seen, that it is as easy to keep bees in Canada as here, and that the winter in Canada is not so much of a drawback after all."

* * *

The Norfolk County Bee-keepers' Association is arranging for a meeting with Brant and adjoining counties associations at Simcoe, on February 9th and 10th. The sessions will be held in the council chamber Thursday, February 9th, afternoon and evening, and Friday, February 10th, morning and afternoon, and will be conducted principally in the form of a question drawer on general management, and addresses and discussions on the marketing of honey. These joint meetings have become an annual affair between the county associations, and are conducive of much benefit to the industry, owing to the similarity of conditions.

* * *

There were a number of new apicultural inventions on exhibit at the recent show in Toronto. First prize was awarded to Mr. William Bayless of Grandview, Ont., on an adjustable division board for closing off a part of the hive in case of a weak colony, or for

dividing a large hive into two or more apartments for nuclei in queen rearing. The extension is worked by a lever, as



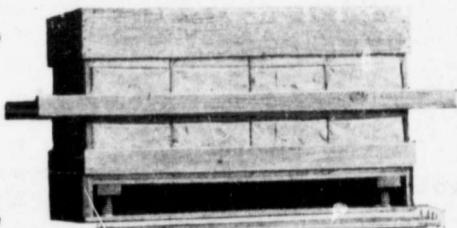
shown in the illustration. Second prize was awarded Mr. R. H. Smith of St. Thomas for a concrete hive stand. These are angular blocks of concrete, 14 in. long, for the front and back of the hive to rest upon. Mr. Jacob Alpaugh of Galt came third, for a splint system of bracing comb foundation in frames. These splints of wood, 5 or 6 in. long, and about the thickness of a toothpick, are inserted in small holes in the underside of the top bar, and are imbedded in the foundation. The idea is a good one, but we cannot see where there is much advantage in it over wiring. Perhaps Mr. Alpaugh will tell us in an early issue of The Journal.

Other inventions worthy of mention were: A spring balance and portable derrick for weighing hives, by Mr. Henry Smith, St. Thomas; an entrance contractor, by Mr. Grainger, Toronto, and a wintering case bridge and entrance contractor, combined, by Goold, Shapley & Muir Co., Brantford.

To our mind inventions in this department are very difficult to decide between. What might appeal to one man's judgment as of value might not to another, and in order to give exhibitors an equal chance definite lines would require to be suggested, such as "the best automatic smoker," "automatic hiver," "queen-clipping machine," etc.

There were a number of entries for the "best long-distance shipping crate for extracted honey," but nothing particularly new was brought forward. The comb honey crate awarded first

merit was fitted with double bottoms and wire springs between to break the



Comb Honey Crate with Springs.

jar of handling. The package, which we illustrate, was exhibited by the Goold, Shapley Muir Co., Brantford.

* * *

The Board of Directors of the National Bee-Keepers' Association, United States, have decided that "in case of litigation hereafter, the financial aid extended by the association shall not exceed the sum of one half the expense incurred in such case." The "American Bee Journal" reporting the above says, "this will allow more attention to adulteration, and possibly the time may not be far distant, when something may be done in general advertising of honey." The change, no doubt, has been carefully considered, and is probably a wise one on the part of the directors. As it was, a great many joined the association merely for its protection and assistance in case of disagreement with neighbors, and we are inclined to think that in some instances the privilege was abused, rendering much carelessness and indifference to neighbors rights and comforts.

Our New Clubbing List

Canadian Bee Journal \$1 00	}	\$1.15
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Canadian Bee Journal \$1.00	}	\$1.25
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Canadian Bee Journal \$1.00	}	\$1.50
Canadian Horticulturalist \$1.00		
Canadian Bee Journal \$1.00	}	\$1.50
Weekly Sun (Toronto) \$1.00		

NOTES AND COMMENTS

By a York County Bee-Keeper.

Does White Clover Winter-kill?

In a recent issue of "Gleanings," a correspondent advances the theory that white clover never winter-kills; that it is in no way affected by the cold; that in the supposed cases of winter-killing, drouth has really been the cause of death to the plants. Possibly some will remember that at Woodstock, a few years ago, Mr. Hall, in commenting on a paper by Mr. Sibbald, also refuted the idea of clover winter-killing, claiming that drouth was responsible for all mischief done to the plants. While I will not for a moment dispute the statement that drouth does kill white clover plants, on the other hand can give positive evidence that the plants are sometimes killed between December 1st and April 1st; call it winter or spring-killing, as you will. A few of the farmers near me annually raise from five to ten acres of white clover for seed, cultivating it like alsike. Some three years ago, no doubt many bee-keepers will recollect how all the snow left about 1st of February, followed by a spell of Arctic weather which continued till nearly April. Then we had some two or three weeks of warm days, with severe freezing every night. The result was that fields that had a luxuriant show of plants in the fall were as bare as a floor in the spring, the dead plants being literally heaved out of the earth. In our locality this same thing happens about one year in four to the common red clover. Alsike and white clover are more hardy, and I only remember two seasons when these two varieties were killed to any great extent. Before leav-

ing the clover question, would add that some of the farmers mentioned as growing white clover were first induced to do so by the writer paying for half of first lot of seed sown. Rather costly at first, but think investment paid all right.

Foul Brood Treatment.

Mention was made in January C. B. J. of the fact that scientists and practical apiarists cannot agree when it comes to methods of treating foul brood. But just listen what that intensely practical apiarist, E. R. Root, has to say in "Gleanings" in answer to a correspondent who reports failure in combatting the disease: "It is my opinion that in administering the treatment you failed to disinfect the smokers and tools, and possibly your own person. I would advise scorching out all the hives as an additional precaution." It makes me wonder why the operator is not advised to disinfect the bees and clean out their toe nails. Surely the bees, in running over the combs, would be more apt to have disease germs clinging to them than would the clothing of the operator, which has not come in contact with contents of the hive? However, we bow to the inevitable; so, friend McEvoy, take notice that on your next official visit to York county we will have a portable fumigating tank on hand and will give you "treatment" every time you inspect an apiary before we allow you to visit another.

Cleaning Propolis From Separators.

Miss Emma Wilson, in the A. B. J., tells of a handy and effectual way of cleaning propolis from separators, hive tools, etc. It consists in simply immersing them till clean in a kettle full of water, into which a quantity of the common concentrated lye has been dissolved. No exact measures are given as to quantity of lye to use, but the matter can easily be determined by a little experimenting. The plan has

since been endorsed by a number of practical apiarists, who pronounce it an unqualified success.

The Question of Overstocking:

Feel to beg pardon of the readers of the C. B. J. for again mentioning this rather threadbare question, but, as Mr. Stachelhausen, in an article in the "Review," "hits the nail" so squarely on the head, cannot refrain from making a short extract therefrom: "My experience is that, in many localities, during the main honey flow, where a single variety of honey plant is present in large quantities, and all of these plants are covered with unnumbered blossoms, 1,000 colonies may probably give the same average crop as 100. During this flow, especially if the flow is a good one, such a locality can hardly be overstocked. The difficulty arises during the light honey flows in spring and fall. In the spring a few colonies may gather enough honey for stimulating the bees to brood-rearing—possibly a little more—but a larger number of colonies may not find enough honey for such stimulation." If the foregoing remarks are applicable to Texas, much more are they to Ontario, with our short seasons. During a good flow from alsike our locality would be hard to overstock, but, as Mr. L. remarks, during spring and fall a large number of bees in one place in this country would not get enough to live on.

Size of Hive.

Truly "Novice" (C. B. J., page 118) is to be pitied, owing to the fact of him being in such a dilemma as to what size of hive to use. After attending such an important function as a convention of the Ontario Bee-keepers' Association, too bad that he should be undecided about anything. "Why was there no better defence of the big hives?" Why, bless your heart, don't you know that if "you convince a man against his will, he's of the same opin-

ion still"? The most of us big-hive fellows have simply given up the other chaps as incorrigible and well-nigh inconvertible, and then again, you know, "size of hive" is a question (or should be) lacking in dignity as a subject for discussion for such an august body as our Association.

"As Others See Us."

Mr. Editor, please don't let us look into other people's "looking glasses" unless you are prepared to show us something more flattering than that "opinion" by "Farming World." Why, it makes us feel like "going 'way back and sitting down." Joking aside, wonder if about three-fourths of members of O.B.K.A. will not unreservedly sanction the rather caustic criticisms of our "Farming World" friend? Have no remedy to propose, but it certainly will do us no harm to think over the matter between now and next convention. By so doing possibly so much "scum" would not have to be "skimmed" off in order to get down to the root of different subjects we may have to handle.

Winter Up to Date.

Steady, moderately cold weather has been our lot here in York county ever since November 1st. No flights for the bees, but think they (the bees) are wintering O.K. Only one week had anything nearly approached severe weather of last winter. The week in question was very cold; in fact, many seemed to think that one day at least, namely January 25th, was the very worst day we have had for 32 years.

York County, Ontario.

Honey ointment for sores. Honey and flour mixed to the extent of half the quantity of honey with water is stirred into a stiff mass. Linseed oil and yolk of egg to be added in order to give the same a tenacious tendency. —Deutsche Bienenzucht (Germany).

JAMAICA

BY ARTHUR LAING

AS I HAVE FOUND IT.

To commence where I left off, and explain the meaning of the quotation, "And only man is vile." When we landed we found a host of girls and women, somebody's wives, mothers and sisters, who were acting as "beasts of burden," carrying coal by the bushel on their heads, and their clothes!—oh, horrors!—rags filth and dirt, and I can assure you that in many cases even the rags were scarce enough; in fact, I have seen shirts on men's backs that were simply a mass of strings, and the strings were so small and the holes so large that if the thing were thrown down I would not consider it fit to pick up to wipe the grease off my gasoline engine. The men, women and girls go barefooted almost entirely. Many of them have done so much of this "beast of burden" work their heads and faces are actually beastly, and I have the best authority for saying that morally they are very low indeed. As for their speech, if it were to save your life you could not understand one-third of what they say when conversing with one another. The white population is very much in the minority. There are very few white people, and, if reports are correct, I fear a great proportion of the white population are little, if any, better morally than the black. We had a sermon to "men only" in the English church a week ago Sunday by the pastor, whom I consider one of the truest and noblest Christian ministers that it has ever been my pleasure to meet, and his remarks left no doubt in my mind that many of his hearers were far from being "angels of light."

The nights here are delightful; in

fact, they could scarcely be more ideal. The air is warm, but there is always a breeze at night, and the windows are left wide open, but the days are much too hot for my comfort, though I am standing it O.K. The temperature during the day is somewhat similar to our hottest northern weather, and this is said to be the cool season, remember, so it must be hot indeed during July and August. Of course I am right on a level with the sea here; up in the mountains, they say, it is cooler, but, unfortunately for the bee-keeper, the logwood does not grow, I am told, at any great elevation, and a location for an apiary in Jamaica without logwood would, I fear, be like a district for an apiary in Ontario without clover—it would be a very poor affair, indeed.

Jamaica has been described as a "bee-keepers' paradise," but I am becoming more and more satisfied every day that we have in Canada a better chance for success as bee-keepers than we would have in Jamaica. I do not believe that the annual average yield would be over 100 pounds per colony; in fact, was told to-day by a gentleman who has 400 hives of bees that his best average in any year had been 84 pounds per colony, and last year, after the hurricane, he only averaged 42 pounds, and this honey, mind you, will not bring more than from 2½c to 3c per pound above cost of package, and out of this the expenses of the apiary must be paid, so that the apiarist here must keep at least three times as many bees as our Canadian apiarist in order to make the same money; then just think of three times the number of hives, barrels, extractors, honey knives, smokers, etc., that have to be bought and the extra help that must be paid for. Lumber for hives costs from \$50 to \$60 per 1,000 feet. Money can undoubtedly be made here by bee-keeping, but, in all sincerity, I say again, we Canadian bee-keepers have a better

opportunity in Canada than we would have in Jamaica.

I wish here to mention a few of the little unpleasant things one comes in contact with, such as scorpions, centipedes, frogs, land crabs and fleas. The scorpions are quite plentiful, but, fortunately, it is rare that any one is stung by them; the frogs are immense in size, almost enough to give a fellow the nightmare to think of them; then there is the land crab, that crawls into your house and rattles his metallic-sounding legs—the appearance of the thing would almost send a nervous woman into hysterics, and I assure you they are abominable to look at. I have three little closets off my room, and one night I heard a peculiar sound in one of them. I opened the door, and there was one of those crabs—well, I got a stick and demolished it, while the cold chills fairly ran up and down my back. I came out and heard a similar sound outside my window. I looked out, and there was another of the creatures, rattling along on a projecting board towards the window. I got a stick and sent it sailing to the ground in a hurry, thinking as I did so of the lines of the song, "They are after me, they are after me." It certainly looked like it. Last, but not least is that awful pest, fleas. I killed four one morning, six the next, about twelve the next, and the next count was 25 between supper and breakfast. Then I began to get discouraged, so now I just take my clothes to the window and shake them before putting them on. Monday morning last, about 2 a.m., one of these fleas got in the right sleeve of my night-shirt, and, getting desperate, I concluded the thing could have the whole shirt if he wanted it, so I pulled it off and hung it up and went back to bed without it. In the morning I looked in one end of that sleeve, and Mr. Flea promptly jumped out at the other. I hunted high and low for him and

could not find him, but he found me in about ten minutes after I went to bed the next night. I got out, lit the lamp and after him again, and found him, but he jumped like pop-corn in a frying pan and got away. I went to bed, but not to sleep, for that pesty flea came back during the night and worried and bit me until in desperation I got up again, searched the bed carefully, but found him not; pulled off my night-shirt, carefully searched that, with no better success:

"Oh! wouldn't I like to catch him,

Oh! wouldn't I like to see,

Oh! wouldn't I give him particular fits—

That fellow that's after me!"

Just then, in a last effort, I put my foot on the bed, and here he was, sitting quietly above my ankle. He got "particular fits" all right, and I got a little sleep for the rest of the night. One gentleman, whose word I have no reason to doubt, said he killed over 200 by actual count in one night in Kingston, and he said when there was a high wind it sometimes blew them from one house to another.

I am not writing these articles for the benefit of parties who have \$10 a day to spend for hotel, carriages, etc. No doubt such persons would escape many of the annoyances I have mentioned, and have a fairly enjoyable time; but I am writing for the benefit of the man who has been contemplating coming here to earn his bread by the sweat of his brow, and such a one, if he comes to this neighborhood, will find things as I have represented them, unless his skin is a good deal thicker, and his eyesight much poorer, than mine.

I notice the comments of that fellow with the York County "nom de plume" in his hat on Mr. Morrison's article re "Canadian and West Indian Honey in the British Market," and the "high Canadian tariff," and all I have to say

about it is that Mr. Morrison does not need to waste any sympathy on Canadian bee-keepers, for unless Cuba can put up a much finer article of honey than Jamaica, they are not in it with the Canadians for a minute, and though the Englishman is set in his opinions, he will eventually learn that Canadian honey is equal to any that enters the British market.

Before bidding my readers adieu for the present, I will just refer for a moment to the buildings and sidewalks here. They have no sidewalks in the city of Kingston, except on the most important streets, and in this village of Morant Bay, with 700 population, they have not one foot of sidewalk, and the buildings look as though they had been erected about the time Columbus discovered America—most of them are only fit for a bonfire. I could write much more of a similar character, but I refrain. If the reader is not satisfied, come down and get thawed out—the mercury is nearly 80 deg. Fah., and it is now 8 p.m. I have four windows in my room, and they are all open. I have a good wide bed and a large room, and if any of our Canadian bee-keepers come down here this winter I will be pleased to share my bed and fleas with him. As for meals, I live principally on bananas and condensed milk. I will agree to furnish the bananas if the other fellow will furnish the milk. The bananas are given to me, and I have four bunches in my room at the present time. If this menu does not suit, I can add in a pinch some plain bread without butter and boiled rice with a little sugar, and if this does not suit, mum is the word.

The bees are working on the famous logwood just now, but this is only a very light flow. We do not expect the heavy one until February or March.

Morant Bay, Jamaica,

December 7, 1904.

Hints for Beginners

R. F. HOLTERMANN

How often the bee-keeper is greeted with the remark, "Well, the bee-keeper has a fine time of it, in the winter he has nothing to do." Doubtless there are many who do nothing all winter, and yet there are many things a bee-keeper could do and quite often there are things which he should do, but which he does not. The successful bee-keeper is one who does not do things when he is forced by circumstances, but one who will do the work as soon as circumstances will allow. The difference in this method indicates the individual. The man a little behind cannot do justice to bee-keeping, a day lost can never be regained; conditions, the honey flow, etc., shifts as a panorama and the past with its opportunities is gone forever. Every day in which there is a honey flow and in which the bees are not ready for it is a reduction in the honey harvest, and this makes, so often, a poor season for one man when his neighbor has full honey vessels. In business life, to me, there are largely two classes. The one by toil skilfully applied, and through adverse circumstances and conditions, perhaps, is a producer, he produces something, as the mechanic, or as in agriculture in its various branches. The other class are traffickers, they barter in what the other man has produced. Buy as cheaply as they can and sell at as high a figure as they can. I never like to set one class against another, but the producer whilst he may and likely never will, make the vast sum of money the trafficker does, yet he is, in a true sense, if what he pro-

duces is a needed and wholesome article, the richer man of the two.

If a man does not get out in the spring, and in the raw, wet and unpleasant weather plow and sow he cannot reap. His work must be done in faith and hope in the future, and so a bee-keeper must, long before he can hope for results, do requisite work. I know well, many bee-keepers, especially beginners, tinker too much with their bees, they are like the little boy or girl that sows the corn and then keep digging it up to "see if it is growing," but that does not make it wrong to weed the corn and carefully cultivate about it to keep the soil in proper condition and the moisture from escaping.

During a trip in the Maritime Provinces, giving addresses in bee-keeping for the Dominion Department of Agriculture, I contracted what I never had before, genuine la grippe, and not being able to take care of myself for some time, by the time I got home I had a slight pneumonia. This is the reason why this department did not appear last month in *The Canadian Bee Journal*.

After an absence of over a month I went to the bee-cellar with its colonies. The temperature had remained steadily at from $41\frac{1}{2}$ to 43 degrees. The seven hundred colonies with plenty of ventilation had kept the temperature sufficiently high. The hives are largely under similar conditions, but owing to pressure from hives above, and the blocks being small and of soft material the brood chamber and bottom-boards at the back were not 3-8 of an inch part as intended, but less. We intended to have the brood chambers 3-8 of an inch up from the bottom boards at the back. I found where it was less there was some moisture on the 7-8 under edge of the brood chamber back board and the 7-8 rim on the bottom board upon which the brood

chamber ordinarily rests. The back of the hive is two inches higher than the front, the intention being to have the fresh air go in at the entrance and the foul air escape at the back. This was evidently taking place, as the moisture-laden air escaped at the back of the hive a portion was condensing on the hive. This condensation is not desirable, and I found that where the space was 3-8 inch none took place. Now, I consider this matter of raising the brood chamber from the bottom board very important, my intention is, in future, to make the opening one-half inch. I find the bees winter better, and an entire absence of mouldy combs in the hive.

The day before yesterday I met an amateur bee-keeper who sometimes consults the writer. He stated that some of the comb upon which the bees were not clustered were moulding, and asked the reason. (He has an observatory hive with glass at the side, and by loosening a button can remove the wooden piece that cover the glass. He keeps the hive all summer in the library window, inside the house, and handles them there and entertains himself and his friends in no mean manner by either watching the bees through the glass side of the hive, or by removing and examining the combs.) I asked him if he had the hive up 3-8 of an inch at the back. He said yes, but to my surprise, after a little more conversation, I found he had the cover raised, not the brood chamber from the bottom board. In cellar wintering let us remember that unlike the outside, where the air is practically never at a standstill, and air currents are forcing themselves in every direction, the air is practically stagnant in the cellar, the bees are giving off all the moisture there is in the honey, and to say nothing about carbonic acid gas, which is just as

real, this moisture must be carried away, if the stock is to remain in a healthy condition. I can produce dysentery in a very short time. Take a strong stock, leave the cover on it, do not raise the back of the hive and leave say an inch entrance in the front to keep the bees from smothering, and you will soon have what you want; I have tried it.

Brantford, January, 1905.

HOW TO DETECT THE DRIED DOWN SCALES OF FOUL BROOD.

(By N. E. France)

Use very little smoke in opening the suspected hive. Do the work just before sundown.

Open the hive without any jarring, leaving the bees in a natural condition.

As soon as the cover is slightly removed, place your nose near the opening just made over the suspected brood combs. If the peculiar, stale, glue-smell is noticed, go carefully to avoid danger from robber-bees, or from any honey leaking.

Take out carefully the oldest hatching brood in the hive, and notice if the brood is capped over regularly, and smooth, or if cappings are scattering on the comb, many sunken, and some with ragged holes in the cappings. This is more noticeable in old, black, brood combs.

Here is the way to look in the comb. Bring the brood comb up from the hive to the level of your chin, then tip the top of the comb towards you, so your view strikes the lower side-walls (not the bottom of the brood cells) about one-third distant from the front end of the cells. Then turn so that the rays of bright light will come over your shoulder and shine where your eye is looking. The white line in front-piece shows both the angle of the sunshine and your vision. Gas or electric

light will not take the place of good daylight.

What to look for? Dried down scales.

On the lower side-wall, a little back from the front end of infected cell, will be seen the dead larva bee, nearly black, with sharp pointed head, often turned up a little, the back portion of the bee flattened to a mere lining of the cell, often no thicker than the wax in the wall of the comb. The base or bottom of the cell, likely, looks clean; also all of the other side-walls of the cell. The last effort of the dying bee often is to throw out the tongue, sometimes touching the upper wall of its cell, at other times, falling short, will strike the body near the middle of the bee. In either case it will stick as fast as if held with glue. This thread of a tongue will hold and cause the head of the dead bee to turn up some when the larva dries down to a very thin, black lining on the lower side-wall of the cell. Before this stage is reached the bee often becomes a light brown, dead matter, foul smelling and ropy like fresh glue.—"Bee-Keepers' Review."

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