

Technical and Bibliographic Notes / Notes techniques et bibliographiques

The Institute has attempted to obtain the best original copy available for filming. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of filming, are checked below.

L'Institut a microfilmé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut être uniques du point de vue bibliographique, qui peuvent modifier une image reproduite, ou qui peuvent exiger une modification dans la méthode normale de filmage sont indiqués ci-dessous.

Coloured covers/
Couverture de couleur

Coloured pages/
Pages de couleur

Covers damaged/
Couverture endommagée

Pages damaged/
Pages endommagées

Covers restored and/or laminated/
Couverture restaurée et/ou pelliculée

Pages restored and/or laminated/
Pages restaurées et/ou pelliculées

Cover title missing/
Le titre de couverture manque

Pages discoloured, stained or foxed/
Pages décolorées, tachetées ou piquées

Coloured maps/
Cartes géographiques en couleur

Pages detached/
Pages détachées

Coloured ink (i.e. other than blue or black)/
Encre de couleur (i.e. autre que bleue ou noire)

Showthrough/
Transparence

Coloured plates and/or illustrations/
Planches et/ou illustrations en couleur

Quality of print varies/
Qualité inégale de l'impression

Bound with other material/
Relié avec d'autres documents

Continuous pagination/
Pagination continue

Tight binding may cause shadows or distortion along interior margin/
La reliure serrée peut causer de l'ombre ou de la distorsion le long de la marge intérieure

Includes index(es)/
Comprend un (des) index

Title on header taken from: /
Le titre de l'en-tête provient:

Blank leaves added during restoration may appear within the text. Whenever possible, these have been omitted from filming/
Il se peut que certaines pages blanches ajoutées lors d'une restauration apparaissent dans le texte, mais, lorsque cela était possible, ces pages n'ont pas été filmées.

Title page of issue/
Page de titre de la livraison

Caption of issue/
Titre de départ de la livraison

Masthead/
Générique (périodiques) de la livraison

Additional comments: /
Commentaires supplémentaires:

This item is filmed at the reduction ratio checked below/
Ce document est filmé au taux de réduction indiqué ci-dessous.

10X	12X	14X	16X	18X	20X	22X	24X	26X	28X	30X	32X
							✓				

...The Canadian Bee Journal

PUBLISHED MONTHLY.

NEW SERIES
Vol. VII, No. 11.

BRANTFORD, ONT., MAY, 1900.

WHOLE NO
428.

Annual Meeting

Twentieth Annual
Meeting Bee-Keep-
ers' Asso., Ontario.

HELD AT
TORONTO,
DEC., 1899.

Management in Extracting Season.

M. B. Holmes, Athens.

The management of an apiary during the extracting season is perhaps the most interesting feature in connection with the care of bees during the whole year round, interesting in various ways and from different standpoints.

The amateur is enthused at what seems to be the discovery of a connecting link between nature and art. The strict regard shown by the bees for perpendiculars, horizontals and regular angles in the construction of the honeycomb, as well as accuracy in spacing, and all without the aid of square, plumb-line, or trowel, arouses within the breast of the apprentice who has "entered upon" this ground with indifference, the desire for light and advancement until he shall become "a master" of the work. The novice receives fresh stimulus as he sees for the first time the perfect order and discipline under which all operations in the line are conducted, and the neatness, cleanliness, economy and industry so studiously observed by

the little workers themselves.

The master in apiculture at the opening of the season under consideration notes with great satisfaction that each colony of bees has its thousands and tens of thousands already mobilized and fully equipped for service under their queen, ready to move when the order "forward" is given, and possess themselves of the rich treasures in the adjoining territory, and that without any blare of trumpets or display of bunting.

At the opening of the clover season the appearance of bits of newly made comb in the upper portions of the hive tells us that more room is required, the new comb referred to is easily recognized by its pure whiteness and freshness of appearance. We now, proceed with the least possible delay to furnish all colonies, which thus indicate that they are over crowded, with supers of drawn comb. This is of no inconsiderable importance, as a delay may mean the issuing of a swarm from the colony so neglected. Having placed supers on all crowded colonies until all are supplied with good combs in which to store the rich and delicious nectar just now being distilled in nature's gorgeous laboratory, the clover blossoms.

In our work we find that the use of perforated metal queen excluders is necessary in the case of new swarms, that is, colonies that have occupied the hive but a short time; older

colonies will generally occupy the combs with honey before the queen finds her way into the super. We now await developments, and if the conditions are favorable the extractor will very shortly be called into use.

A passing notice of our "Honey Hall" may not be out of place just here: An ordinary clap-boarded building, 12 feet wide by 30 feet long, sealed inside with narrow ash boards, dressed and nicely matched, well ventilated and furnished with as good an outfit for our work as can be purchased on the market. This gives you a sweeping glance at our extracting and store-room, and I would only add by way of suggestion that every extracting room or place where honey is handled, should be scrupulously clean and have a cool and airy place where callers or prospective customers may sit and read Bee Journal or the daily papers while they sample your delicious honey, and every manager should always be presentable and courteous to a degree.

When the supers are filled and combs pretty well sealed, we proceed to extract the honey, the uncapping arrangements, reversible extractor, honey tanks, etc. are placed in position, comb box with full set of combs got out, smoker lighted, and we are ready for operations. Carefully removing the cover and quilt from the hive where we wish to commence we blow a little smoke over the comb, just enough to frighten the bees, and start them down towards the body of the hive. The full combs from the super are now removed, the bees brushed from them in front of hive, and empty combs from comb box inserted, and all done so quickly and quietly that no disturbance is created and work goes on in the colony as if nothing had happened. We now proceed to the honey

hall, uncap and extract the case of honey, return to the yard, and treat the next colony in the same manner and so on until all have been relieved of their honey. This operation is repeated as often throughout the season as occasion demands, the favorable climatic conditions prevailing in some seasons rendering it necessary to extract a number of times, while in seasons like the one just closed the work in that particular is remarkably light, and the crop of honey correspondingly so.

As the honey flow from the buckwheat and golden-rod bloom draws to a close we remove all supers and extract the honey, and at a later date the supers are placed outside for a day to allow the bees to remove the little remaining honey which leaves the combs dry and in good condition to be stored away for next season's use.

Returning by way of review to the first day's extracting, I would say that the close of each day's work should find all honey drawn from extractors and put in the storage tanks, over the tops of which there should be stretched a couple of thicknesses of cheese-cloth to catch any small chippings of comb which may chance to be in the honey. Each succeeding morning should find the cappings made on the previous day (and not already rendered) snugly tucked away in the solar wax extractor, so as to get the full benefit of the sun rays.

The honey knife should always carry a "razor edge," as anything short of this does very unsatisfactory work. The knowledge of the honey extractor's use can be gained only by experience, and the only suggestion I would offer to the beginner is "start slowly and study well as you advance."

And now, Mr. President, if in my

address or in the discussion following any ray of light shall be shed on any dark corner, I shall be very much pleased, and I thank you, brother bee-keepers, for the very patient and kindly hearing you have given me.

Mr. Armstrong: To open the discussion on this paper of Mr. Holmes, I will make a few brief remarks. He furnishes all colonies which indicate they are over crowded with supers of drawn comb. I would say drawn combs if you have them, but if you have not, then full sheets of foundation. I want my queen excluders on at the same time as the surplus arrangements. I would not bring the extractor into use until the end of the white honey harvest, or eight or ten days after. As to the Honey Hall I think that a building about half the size would do for 150 colonies. Get a good outfit. I would agree with Mr. Holmes in this, get the very best in the market, don't buy cheap trap-traps, because you get them for little money. He has not told us how he brings his honey from the yard to the honey house. So far as leaving the supers and combs in the yard concerned, I would say, don't leave them out over night for the moth to deposit their eggs in; with reference to this I would like to ask Mr. Hall he ever had any difficulty in this way, leaving them exposed overnight?

Mr. Hall: They are never put in; they are on the hive three months, and off the hive, exposed to flies, and spiders, to moths and to mice, but from rain and snow for nine months of the year.

Mr. Post: Mr. Holmes has been accused of making a slight mistake in extracting his honey. If I understand the paper rightly he extracts his honey when the bees are all on it, and at the time it is finished and

and capped.

Mr. Holmes: Yes.

Mr. Post: Then, I infer, Mr. Armstrong, you raise your supers and keep raising them up until the honey season is over?

Mr. Armstrong: Yes.

Mr. Post: Ten days after the honey season ceases the bees will shrink back from the top supers, and as honey has an affinity to absorb water, and if the weather turns a little cool the top supers will not have nearly so good honey as if extracted when it was covered with bees and warm. I claim that Mr. Holmes' system will give the best honey. Extract it, place it in a barrel or some tight receptacle.

Mr. Armstrong: Perhaps it is the locality. My honey season closes about 12 or 15th of July, and it is left until the 20th. My honey gives 12 lbs. to the wine measure gallon, and I have no difficulty in getting that weight.

Mr. Newton: I think our friend here, after the information we had today, will never be able to send his honey across the ocean unless he changes his method of working, because he says he never takes any honey off till the white honey is in, and of course, he has his basswood and clover honey together, and they don't want that kind of honey on the other side of the ocean. I have not any reception room in my house; I think it would be too much like home sweet "Holmes."

Mr. Armstrong: I don't keep my honey mixed up; I get my clover separate. If I find I am going to have a flow of bass-wood I take off my crop of clover.

Mr. McEvoy: Mr. Holmes lives in one part away down in the north-

east of Ontario, and Mr. Armstrong lives away in the south, it is a great deal warmer there, and the time he takes it is all right, the time he leaves it on would not do in the other place.

Mr. Dickinson: I agree with regard to taking off the extracted honey at the time it has ripened. There is a great deal to be gained by taking it off then, and nothing to be gained by leaving it on. You can get bees to accept combs that are slightly extracted much quicker than if they are clean and dry. If you take off the honey that is nicely capped, and give those combs back again when extracted, they will go to work right lively. Another feature is to be sure there is not a particle of bass-wood honey with the clover. It would be very necessary for me at least to have off all the clover honey I intend taking, not to say that I would take off all the clover honey that is there, but all the clover honey that is capped would certainly come off as soon as it was capped, if I could find it out.

Mr. Holmes: That is the plan I follow, and I follow it just as closely as possible, removing the clover honey as soon as possible before the basswood honey comes in. In Mr. Armstrong's criticism I think he did not catch my meaning in reference to the queen excluders. I intended to say that young swarms—those that had been occupying the hive only for a few days—got the excluder; and, of course, they get it immediately before the super is put on.

Mr. Evans: I understood from Mr. Holmes that he takes the supers off one hive and extract them and put them back before he touches another hive. It seems to me that would be very slow work. I take eight or ten of them into the honey house, and if

there are any robber bees they get quieted down before I come back. I suppose Mr. Holmes' object is that each hive should have its own frames back again to prevent the spread of disease; but it seems to me that is a tedious way of doing business. As to the size of the honey house I think Mr. Holmes' is not too large. I have a two story house 20x30, and I find it none too large, and I find one of the things you should have is plenty of room in the honey house.

Mr. Dickson: Does Mr. Holmes put on a queen excluder down on the old colony?

Mr. Holmes: No; I do not find them necessary.

Mr. Dickson: In my case I do. As regards the honey room I have no doubt it might suit some to have a large one. Mine is not. Possibly mine would be a little too elaborate for its size to suit some people. Mine cost considerable, but there was money in it. As regards putting my honey, when extracted, into a barrel I cannot agree with that. My honey room is 15x18 and it will hold four tanks and everything comfortable. You cannot stay in there long on a hot day, because the temperature will sometimes run up to 125 degrees and in connection with this same room I have a steam apparatus for any liquifying we may have to do. The tanks are covered with a cheese cloth or cheese binder, two ply, and right above that is another screen to keep the under screen clean. But flies occasionally will get in and fly around. It is not long till you get your covers soiled. Also in this same room I have above that again what you call a shelf to store away the honey when it is packed. This room is very elaborate, but I consider it a room that pays me, and I can produce first-class quality of honey. It is

room that a good many tried to see and failed, for the simple reason that I had a notice on the door "no admittance here." I have had bee-keepers very anxious to come about ten years ago, and who tried a good many ways to see it. I think, however, in our present day human nature is inclined to yield a little more, and so the last ten years I have been more inclined to let bee-keepers see what I have there if they come in a proper way to see it. As for a large honey room I won't agree to that, because you must have heat; nature's heat is what will cure honey in first-class shape. In regard to taking in the comb, one box at a time, I think would be very tiresome when extracting 1700 pounds a day. We have gone as high as that, but we begin by taking off as many as 20, 25 and 30. Of course we have a big supply of combs to do it.

Mr. Chrysler: It might be profitable to some to know how Messrs. Holmes Brothers get their extracting combs drawn out; how they get that quantity, and also how the uncapping is done, and what kind of arrangement they have for catching the cappings.

Mr. Holmes: That is a point that was passed very lightly over in the paper, how the combs are obtained. They are obtained by the use of full sheets of foundation, foundation in the super combs in the first place, and I might add in case of shortage of combs we insert odd frames filled with foundation here and there throughout the supers. We get them drawn out in that way.

Mr. Chrysler: But increasing those supposing you get about 50 to 100 the first year, and the second you wanted to take 400, would you advise putting two or three of the drawn combs, and the balance foundation or

starters? Would not starters answer after you got them to start?

Mr. Holmes: It might be that starters would answer as well. However, I have used the full sheets, and, therefore, I am not able to speak. With reference to the manner of uncapping I do not know whether I can describe the uncapping arrangement. However, it is a frame work that holds the comb, and the cappings drop into a square tin arrangement that is a little low to one side, and gives the liquid honey in the capping a chance to drain out.

Mr. Chrysler: Sometime ago there was a great deal of discussion upon bees wasting the wax, and if they have extracting combs all the time without having to build any they will waste the wax secreted and so I have considered it advisable where chances are good always to keep fresh frames with starters, probably one or two.

Mr. Holmes: I might say in that connection I wish to give my bees the very best possible chance while there is light honey to be gathered and stored; when the fall flow comes on, golden rod and buckwheat, I then give them more of a chance to work at comb building, I get a good many of my combs drawn out during the fall flow.

QUESTION BOX.

The Question Box was opened by Mr. J. B. Hall.

QUESTION—Does the mating of the queen affect her drone progeny?

Mr. Hall: I suppose by that is meant, is there any possibility of the young drone having any of the characteristics of the queen.

Mr. Post: We are told it does not, and I don't believe there is a man in the room that actually does know.

Mr. Hall: I do not know; my

conviction is that they take after their grandfather. The only way I have of judging of that is from the marking of progeny of the queen. If the grandfather has any Carniolan blood in him the queen will produce some pretty Carniolans, if she is an Italian queen she will produce some like herself, and all grades between mullatoes, darkies and white.

Mr. Heise: Carniolan bees—is that the worker or the drone?

Mr. Hall: I mean both, but the drone don't take after their father in their characteristics or in their color, that is my observation. My observations may not be correct. It should be answered by the people, because one man's opinion is not sufficient, for example, in one case in Detroit I was very anxious to know if the bees would winter in a cellar, and I asked the question, does the furnace affect bees in the cellar in an adjoining room? The answer was simple, yes, and not beneficially. I came home, and thought I was very much dissatisfied. My experience since then is that it affects them beneficially. If a man gives his opinion without any other discussion you may get the wrong impression.

Mr. Stewart: You have partitioned off your cellar with a furnace in it. I have a cellar I cannot use for bees on account of being too warm; the thought came to me if I put a brick wall through the centre could I use it for bees?

Mr. Hall: It would affect them beneficially; that has been the way with mine.

Mr. Walton: Surely we as bee-keepers are endeavoring to promote apiculture, and I think nearly all the interest centres around the queen, is it not necessary that we know something about the mating of that queen,

and how it affects her progeny?

Mr. Hall: I have given you all I know about it.

Mr. Heise: According to what we have accepted as an established fact the drone egg has never come in contact with the male influence, consequently how can it be that the drone progeny can possibly be affected by her mating? If that is not true it alters the the circumstances. Some are questioning whether that is a fact or not?

Mr. Hall: Are you not one of the class who doubt it?

Mr. Heise: Not in the least.

Mr. Hall: I doubt it, and I have doubted it all along. It was said that the egg was unfertilized, and the mating of the queen does not apparently affect that, because we take it for granted the father of the drone is the grandfather.

Mr. Heise: Who is the grandfather of the drone?

Mr. Hall: The father of the queen. We want to mate our queens with the class of drones we like best, because we calculate those queens to produce us drones as well as queens and because in our future breeding we get the potency of their drones.

Mr. Walton: I would like to know whether bee-keepers would like to breed from unfertilized drones? For my part, I certainly would not. It seems to me it is something we ought to understand if we are raising queens for our own use? How do the other breeders look at the matter?

Mr. Hall: They look at it that the drone has no effect on the drone progeny of the queen, but we must look a little further on for the next crop of queens we get; they affect the second crop of queens. If the drone bee is the grandfather as well as the

father of the drone he is not the grand-father of the female or of the worker bee, he is the father only of that. Then, when we go to raise queens or bees from the father in that progeny we shall get the blood. I have a record slate on every hive; I have the age of the queen, when she was clipped, and when I saw her last. I use the letters A.B.C. C is killed at once; B. is killed when I can do so profitably; A. we don't breed from; A. 1. we do some times; A.I.X. we breed from; A.I.X.X. we mark to raise queens from the next year. I could not raise them to sell that way unless I got two or three dollars each for them.

Mr. Walton: I have been selling at a dollar each, but there is not anything in it.

Mr. Hall: Not if you raise them that way.

Mr. Walton: If the second generation of queens is affected possibly the first is, but not so perceptibly.

Mr. Hall: Yes; we cannot notice it.

Mr. Walton: It must be there.

Mr. Hall: Yes.

Mr. Walton: I think it would be well for all bee-keepers to have their queens mated with good first-class drones.

Mr. Hall: That is another question. I cannot tell you how to do it.

QUESTION—What is the best method of handling swarms so as not to increase the number of colonies?

Mr. Hall: In 1883 we took 25,000 lbs of comb honey on that principal. We had more swarms that year than ever we had. In one apiary we had eighty colonies, and we increased to 84; in another, 120 colonies and increased to 128. We had an abundance of swarms; we hived

every swarm on half combs and half foundation, full sheets of foundation, (4 sheets to the pound,) placing the old colonies alongside the new swarms, six or seven days after we shook all the young bees that had hatched in that time into or in front of the swarm making it very strong and took the brood away and hived a swarm on it. There was no eggs and little or no uncapped larvæ. Every swarm of bees we put upon those combs stayed and went right to work, we carried that out throughout the season. We started with 200 stocks of bees and we finished with 212, and we took 25,000 lbs. of honey.

Mr. Walton: You did very well.

Mr. Hall: It was that method, and it meant a lot of work; and we sacrificed our young queens.

Mr. Heise: I think I remember of hearing someone relate how he handled swarms so as not to increase the number. He hived swarms that issued in the hive that had previously cast swarms throughout the season.

Mr. Hall: We have practiced that to our detriment.

QUESTION—What is the easiest method of managing out-yards in regard to controlling swarming?

Mr. Hall: You will have to get a better man to answer that than me I have had out-yard, for years; I am not satisfied with any method I have tried.

Mr. McEvoy: Give us your best method.

Mr. Hall: Is it extracted or comb honey?

Mr. Heise: Extracted.

Mr. Hall: The best way I have found with extracted honey is to go out once a week and look through the brood nest and if the queen cells are started take away all brood (mak-

ing a new colony of the brood) giving room in the supers and they are safe for another week, but I find it a job lifting the heavy supers and would like to learn of a better and easier way to accomplish the end sought.

Mr. Sibbald: I have had some experience, but my experience is, perhaps, exceptional. My bees were all at home for the winter, and in the spring in moving them, I moved them just before the season, I picking out an average lot to take to the out-yard and put on the supers the day after they were taken there. They went into the supers immediately. The queens were clipped. Friends were there so that if one would swarm they would mark the hive, when I came out they would say, such and such a hive came out yesterday and went back again, and, of course, I would make an examination of that one, and cut out the cells or take away a frame or two or do whatever I saw fit, and in that way I managed first rate, and I was not in the yard very much.

Mr. Hall: But you had a watcher. I had no watcher.

Mr. Walton: Is it advantageous or desirable to put a queen excluder over the entrance?

Mr. Hall: I have not tried it, and I don't like anything over with a heavy stock of bees. It makes them warm, and keeps the drones in.

Mr. Miller: I do not know that I have anything to add to this: it is something I would like to know, but last year I practised a system that worked very well for a time and was prepared to follow it, but found later that it would not work: I should like some information. I made an increase from two colonies by shaking the first colony out and placing that brood on the stand of another colony

that was about to swarm, and in removing the second colony from the location.

Mr. Hall: How long did they stay without getting the swarming fever again?

Mr. Miller: Last season they did not trouble me much.

Mr. Hall: My experience is they remain just eight days and then they swarm again.

Mr. Post: "Necessity is the mother of invention." I used to screen my bees top and bottom as I handled them in carload lots, and I experimented on leaving the bottom board off entirely from say June to September, and I have never been troubled with swarms. From 300 colonies I may get four and five, sometimes ten swarms through a season, but a plan that I would say would be almost sure to keep them from swarming would be as follows: When you put the super on the hive in the spring I would leave the bottom, of course, screened, although there is no bottom boards on it; put the first top story on without a queen excluder, and as they store some honey and put in a little brood, I would raise it and put an empty one under, and then put a queen excluder between the brood chamber and the first top story.

Mr. McEvoy: I do not think you will be understood. You say about screening the bottom—how high up?

Mr. Post: A wire cloth is close on an inch square frame attached by Van Deusen clamps to the bottom.

Mr. Darling: That simply takes the place of the surface of the board work?

Mr. Post: Yes.

Mr. Hall: That is just what I have done the last two years; it is location.

Mr. Gemmell and myself expected to have the results Mr. Post got by acting that way. It has retarded swarming and kept the bees at work, but it has not prevented swarming.

Mr. Post: This last season was a very good season for swarming. I put out 110 colonies out at Springbrook. There was a man a quarter of a mile from my place began the season with nine colonies and his increased up to about thirty-three or thirty-four; I did not have one that offered to swarm.

Mr. Walton: What was the percentage of honey coming in every ten days?

Mr. Post: I did not have any scales with me; I have scales at a place four miles over, and there it would be from eight to eleven pounds a day, not every day. There is something very strange about that; some days we would get eight and ten pounds, and some days we would get two pounds, and to all appearances both days the same kind; there is something about the climatic conditions of the atmosphere that we do not know exactly about. Some days the blossoms will secrete honey more abundantly than others.

Mr. Saunders: I have no regular rule in out-yards.

Mr. McEvoy: How have you checked them?

Mr. Saunders: As far as I have done it I let them swarm; I try to be there everyday, in the forenoon especially.

Mr. Hall: If you had three apiaries you could not be there regularly.

Glow-worms are much more brilliant just before an approaching storm than at any other time.

Spreading Brood.

R. C. Atkin writing in The American Bee Journal says:

As the season advances and the colony begins to have so many hatching bees that the birth-rate is freely gaining on the death-rate, then is the time that one may spread brood if it is done carefully. The first act in that direction is to turn the combs rear end foremost, at least the ones containing brood. The brood-nest is almost invariably started next the entrance. If the combs containing brood be turned front end to the back, keeping them in the same position to each other in other respects, the brood now to the back and the honey to the front—thus arranged the honey will be removed from between the brood and the entrance, and placed unsealed close around and above the brood, and the comb from which the honey has been emptied will soon be occupied by brood.

This manner of spreading brood is quite safe—it is really causing the colony to do the spreading, and for stimulating breeding it is almost equal to a honey-flow. It also has this merit, that combs will be filled from end to end with brood instead of nearly every comb having the front end with brood and the back with honey.

Read this again, and think awhile over it—it is a valuable "kink."

"Honey can be used in cooking wherever sugar would be used, many things being greatly improved by the addition of it, such as fruit pies, pastry, puddings, cakes, etc.

It will be found to have the effect of keeping cake moist and fresh for a very long time.—Rev. G. W. Baucks, M. A.

THE
CANADIAN BEE JOURNAL

Devoted to the Interests of Bee-Keepers,
Published Monthly by

GOOLD, SHAPLEY & MUIR CO.

(LIMITED)

BRANTFORD - CANADA.

Editor, W. J. Craig.

MAY, 1900.

EDITORIAL NOTES.

Bees have come out healthy and strong from winter quarters, the season has opened fine and they have been doing good work on the soft maples and willows. If the weather keeps right during fruit bloom, they will be in excellent condition when the clover opens.

Those who are disposed to contribute something to the relief of the famine in India should not forget that Sir Wilfred Laurier announced in Parliament the other day that Mr. Courtney, Deputy Minister of Finance, is raising a relief fund, and that sums forwarded to him at Ottawa will be placed in responsible hands and used as promptly as possible.—Toronto Star.

In a private letter to the editor Mr. A. R. McRae of Bearbrook, giving his impressions of the cause and cure of spring robbing in the apiary, says that queenless colonies when set out are restless and discontent and their actions attract the stronger colonies to robbing. He believes that the best

thing to do with such is to unite them early as possible with the weaker colonies having queens, thus saving both.

The Publishers of the A. B. C. of Bee Culture informs us that the 1899 edition is just about exhausted and that a new edition is in course of preparation. It is being thoroughly revised again this year and a great deal of pains taken with the whole book. It will probably be September or later before the new copy will be complete, but orders may be entered at any time and the book will be sent as soon as ready.

We would tender our sincere sympathy to Mr. D. Chalmers, of Poole, in the death of his wife who passed away on April 11th, after a lingering illness of nearly four years. Mr. Chalmers is one of our leading Ontario Bee-keepers' and known to many of our readers. His dear wife will be sadly missed in his home and especially among her four children the eldest of which is scarcely eleven years.

Editor Root in Gleanings gives Mr. Bryon Walkers method of bleaching comb honey when pollen stained and how it was discovered. "Mr. Walker had placed in his show window a case of sections, the faces of which were stained yellow. When he came to get them a few days afterwards he found they had bleached out almost white and that portions of the sections shadowed by the case were of the same yellow tint, showing that the

sunlight had done the work. This accidental discovery led Mr. Walker to place more sections of the same sort in the window, with the result that these likewise were bleached as the first were" This may be of no little importance to bee-keepers who aim at placing No. 1 white comb on the market. Often we have seen beautifully filled sections tinged and spoiled as above; if these can be bleached and made equal to No. 1 this item is valuable. We know from experience that sunlight will improve the color of extracted honey when exposed to it for some time.

The appeal for help which rang through our fair dominion from the destitute and homeless thousands of Hull and Ottawa was generously responded to by our people. India, our own India, where 50 millions are affected by famine and 5 million on the verge of starvation, still cry to us, they too need our help and need it quickly. Mr. A. I. Root in his touching appeal in *Gleanings in Bee Culture*, says, and we thoroughly agree with him that: "It is a burning shame on the present age, that anybody should be starving for food in this whole wide world." Our American friends are helping nobly, and we note that Bro. Root's sympathy lies not in word only but in deed. "The Congregationalist" reports his worthy contribution of \$40.00 to the fund, besides smaller sum from other members of his family.

The matter of preventing the spraying of fruit trees when in full bloom

has been taken hold of with determination by the O. B. K. A. Executive. Secretary Couse has had posters printed in the name of the Association, containing a copy of the act of Parliament relative thereto, and warning offenders. Each member of the Association and affiliated society will be furnished with copies to be displayed in local Post Offices and other conspicuous places, where they may be read by the public. The publishers of *The Canadian Bee Journal* have prepared a private post card for the use of bee-keepers who may wish to notify personally the fruit growers and others in their surrounding districts. On one side space is left blank and lined for name, address and postage, on the opposite side a notice drawing attention to the spraying act, a copy of the act, and lined space for signature of sender. These will be found neat, courteous and convenient. Price, 50c per hundred, post free.

The National Bee-Keepers Association of the United States, has published a pamphlet entitled: "Bees and Horticulture, their Relations Mutual," with the idea to put into condensed form for the use of Bee-Keepers and Fruit Growers, such information as is at hand derived from experience and recent investigation relating to the economy of nature in plant and insect life and to show their mutual interdependence. The pamphlet is edited by Eugene Secor, of Iowa, is neatly and carefully arranged, and selected from the best

authorities as to the value of bees as pollen distributors and in cross fertilization of blossom. Regarding the evil effect of untimely spraying, the editor says: "The practice of some unthinking farmers of spraying trees while in full bloom is considered by all horticultural schools and by the Government experimenters as useless, if not injurious to the bloom and harmful to the insects which are valuable assistants in making fruitful orchards." The Ohio Agricultural and Experimental station, Professor John Craig, of Iowa Agricultural College and Professor L. H. Bailey, of Cornell University are quoted in support of this, both of these gentlemen agreeing that the proper time to spray apples, pears and plums, is just before the blossoms open and again just as the last blossoms fall. We consider that the pamphlet is valuable and opportune.

BEGINNING IN BEE-KEEPING

We reproduce the following article from the pen of Harry Lathrop, Wisconsin, which appear in the Wisconsin Agriculturist, and recommend it to the consideration of our readers:

I advise those who have mastered some other branch of agriculture, and are doing well in it, not to take up bee keeping for the purpose of making money out of it; better invest more time and capital in the business you are already in than to take up something new. Of late I have become somewhat interested in sheep-farming, and thought strongly of starting in the business, as I have some land that is well adapted to sheep; but after more thought and

deliberation, have decided to enlarge my bee business instead, rather than to take up something in which I have had no experience, although I am satisfied there is more money in sheep than in bees if one has the necessary capital and experience. The case is different with those who wish to keep a few bees for pleasure or pastime (with the stings thrown in). The question has been asked, Is it best for a person to work a season or two with an experienced bee-keeper, or go ahead and learn by experience? The school of experience is all right, but the tuition is often too high.

If one, knowing nothing about bee-keeping, is determined to take it up as a business, I think it would pay them well to work a season or two with a successful man, even if they had to pay for the privilege. As a matter of fact, though, one can usually get small wages if they can find a man who needs help.

There are three ways of gaining knowledge, all of which are necessary to a practical understanding of the business in question—study, observation and practice. I advise every beginner to get one or more standard works on bee culture and study them: as to which is the best, I do not propose to give any publishers a free advertisement, but if any one asks me privately I will give them my opinion. By observation, I mean keeping one's eye open and making careful note of what they see. Practice alone can make the theoretical knowledge, gained by reading, a benefit to us.

Then comes the question, How many colonies should one have to begin with? I started with one, and during the first year of my bee-keeping I had but the one, as there was no increase. I now think I am more competent to properly care for one hundred colonies through a season

than I was at the first of the year to care for one. I would say then, it depends on how much you know about the business and how much time and money you have to put into it. A very good and safe way is to start with a very few colonies, give them the best care you can, and make them pay for all expense incident to increasing the plant. Thus you are out only time over the first expense of starting; and the loss of time is compensated by the education one gets.

The question is often asked, "How much honey will a colony of bees make in one season?" One might as well ask, "How many apples will one apple tree bear?" There are many conditions to be taken into account. In a general way we can say that an average of fifty pounds of surplus honey per colony each year for a term of years is considered good returns; some do better than that, but they are those who occupy favored localities. My bees have done well, but I cannot give exact figures. As far as individual colonies are concerned, I have had yields all the way from nothing up to 225 pounds of finished comb honey in a single season. In good seasons I usually make my apiaries yield about 100 pounds of surplus per colony, spring count, for the whole apiary. It is well to remember that a small number of colonies can be made to produce relatively much larger yields than a larger number, therefore, don't be figuring and be deceived into the conclusion that you can make a great fortune out of an extensive bee business because some one has reported making twenty or even forty dollars from a single colony in one season. I do not wish to discourage any one, what I want is to dispel the false and delusive lights that have played about this subject. The

worst kind of discouragement is that that comes to one, who, with a great amount of enthusiasm invests too heavily on the start, and meeting with severe losses finds himself with a lot of useless hives and fixtures on hand. I have known a number of such who gave up in disgust. I advise going slow at first making sure of every inch of ground gained. Industry and grit will win in this business as in any other.

CANDIED COMB HONEY.

How to Save Both Comb and Honey.

By M. M. Baldrige.

Since receiving Mr. R. H. Smith's reply to the question, which appears in this issue, regarding Candied or Granulated honey in extracting combs, the following article on the subject by M. M. Baldrige in *Gleanings in Bee Culture*, came under our notice.

"Now, my plan of treating such combs is to uncap the sealed cells and extract the liquid honey, if any, and then fill the empty cells full, or partly full of water. I then set one or more of the prepared frames of honey in an empty hive, and under or over a strong colony of bees. Sometimes I remove one or two combs from the brood chamber, and replace with the frames of candied honey prepared as stated, with water. Any of these plans will do. The bees will then liquefy the candied honey and remove it from the combs, and with no loss of honey whatever, nor damage to the combs.

A good way to fill the cells with water is to lay each comb flat side down in a clean wash boiler, and pour the water over all the cells with a dipper or a tea-kettle, from the

height of a foot or so. Then turn the comb over and fill the other side with water. Now rest the comb in the boiler right side up for a few minutes, and let the water drip. The comb is now ready to give to the bees. The plan given is both simple and practical, and no one need lose a drop of honey, nor worry hereafter over combs of candied honey.

One spring I treated more than 100 frames of basswood honey, candied nearly solid, as stated, and with no loss whatever. In fact, for several years past I have had each spring a number of combs I have been compelled to treat as stated with water. It is, of course, some trouble to do so; but I find that it pays, for I can then "kill two birds with one stone." It not only saves without loss both comb and honey, but at the same time it gives my bees water to nurse the brood.

I find sometimes that more than one treatment is necessary to enable the bees to liquefy all the candied honey. This depends, of course, on how many empty cells there may be to hold the water. In that event I repeat the treatment once or twice, but the second treatment is generally sufficient."

Questions and Answers

[Questions to be answered in these columns should be sent to us not later than the 15th of each month in order to insure their answer appearing in the following issue. We wish to make this department as useful to our readers as possible and a reliable source of information. For the present at least, the replies will be procured from various sources.]

QUESTION—I have a quantity of dark honey left over in my extracting

combs since last fall, it is now partly candied. What can I do with it, will it be all right for feeding the bees?

ANSWER—I have had very little experience in feeding candied honey, but I would have no hesitation in using it in that way. If, however, it is candied solid the bees are apt to waste a great deal of the dry grains, but this may be partially overcome by dipping the combs in warm water before hanging them in the hives. Unless I valued the combs very much I think I would melt combs and honey together, skim off the wax and feed the honey after mixing it with water.

R. H. SMITH.

St. Thomas, April 9th.

QUESTION—Sometime ago I bought a number of queen excluders that had been on bees that had foul brood, will it in any way affect them for future use? What precautions should I adopt or should they be discarded altogether?

W. E. Y., Tilsonburg.

ANSWER—Queen excluders that have been used on foul broody colonies are perfectly safe to use on any hive of bees without any disinfecting.

The larvæ to become diseased must be fed in a corrupt cell or with diseased honey and as queen excluders have nothing on them for the bees to feed to the brood they cannot disease any colony of bees.

WM. McEVoy.

Paris Exposition 1900.

A congress of Bee-keepers will be held in Paris from September 10 to 12 next.

The Month's Work

A. E. Hoshal, Beamsville, Ont.

The work for the month of May is, enlarging the entrances to the hives, expanding the hives from time to time according as the growing strength of the different colonies require, and removing the winter packing.

Ever since the bees had their first flight in March the entrances of their hives have been set at about $\frac{3}{8}$ of an inch. With the opening of the willows or first bloom about the first of this month the bees will begin to work fairly fast, and it will be found, that the $\frac{3}{8}$ inch entrance to their hives is too small. It should now be enlarged sufficiently, but no more, so as to allow them free access in and out of their hives while working. Usually one inch is abundance, if not too much, for even the strongest colonies, but whenever this is found to interfere with their free ingress or egress it should be enlarged.

Removing the winter packing too soon and while the colonies are weak so as to chill the brood or even check the brooding, or leaving it on too long so as to cause overcrowding and swarming, are equally bad mistakes. If possible it should be left on until the last of May or first of June, but never at the expense of causing the bees to swarm.

As soon as the bees begin to crowd their winter quarters, and their combs are becoming filled with brood and honey, which with good colonies is usually sometime during apple-bloom and with weaker ones later on, their hives should be expanded, that is, those colonies which have been wintered on less than a full set of

brood combs, should have the dummies or fillers in their hives removed, and frames of empty comb or foundation placed in the brood chamber in their stead beside (not between) the combs already there; but when any of the colonies which have been wintered on a full set of brood combs, or those having been expanded to this during the spring become crowded, they should be given an extracting surplus case of empty comb, and for this purpose a half story extracting case is much better than a full story one. Whenever the bees have this case about two thirds or more filled with honey, they should be given a second, and this continued for as many more as are required. It is seldom however, that more than one such case is required even by the strongest colonies during May, and there are more colonies as a rule, which do not require even this one than what do. The point to be observed in all this is to give each colony extra frames of empty comb or foundation or extracting cases just as fast as they can occupy them, but no faster, and if their hives are so constructed, that they can be thus expanded and still retain their winter packing, it should not be removed before the last of May, but if this cannot be done, it will have to be removed when the hive is first expanded. Occasionally colonies become so strong and crowded before the end of May, that unless their winter packing be removed, and they are ventilated and shaded the same as in summer, (see next "Month's work") they will swarm. Whenever this is the case there should be no hesitancy about removing it. The object sought to be accomplished in our work during this month, and thus far outlined, is through natural means to encourage our colonies to their utmost capacity in brooding and while doing this to

discourage them from swarming. No doubt some will be bragging next month in our bee journals about their early swarms in May; we read such accounts almost every year. This does not necessarily mean, that their colonies are any stronger than those of many other bee-keepers, who understand their business better, and whose bees consequently have not swarmed; they are simply advertising their failure to prevent them swarming and proclaiming their ignorance.

From the close of the apple bloom until the opening of the clover there is in many localities nothing for the bees to gather. If the weather has been such previous to this, that the bees have been unable to gather honey from the apple bloom, many colonies will enter this period of dearth short stores, and unless fed, they will be so handicapped in their brooding for want of honey as to seriously effect their value as honey gathers at the opening of the clover bloom when they should be at their best. There are not many seasons when this occurs, but when it does, feeding should be resorted to.

The practice of clipping queens is adhered to by many bee-keepers. It is not a necessity but simply a matter of convenience in hiving swarms. When it is practised, it should be done during the early fruit bloom before the colonies become populous, and when the queens are easily found. It is simply carefully catching them, and with a pair of small scissors removing a part of one wing so they cannot fly. When resorted to the queen of every colony should be clipped or else none at all. How to hive a swarm from a colony with its queen thus treated will be dealt with later on.

A metal and slatted queen excluder should be used on every hive between the brood chamber and the surplus cases, and should be put on when the

first surplus case either for extracted or comb honey is given to any colony. Cases for comb honey should not be put on in May, as the honey gathered by the bees during this month is not marketable. Whatever surplus honey the bees may chance to gather then should be stored in extracting combs as directed, it can then afterwards be utilized for feeding purposes and without loss.

A Sharp Letter.

Nothing relieves the mind sometimes like writing a man a letter. It is said that Secretary Stanton was once greatly vexed because an officer had refused to understand an order, or, at all events, had not obeyed.

"I believe I'll sit down," said Stanton, "and give that man a piece of my mind."

"Do so," said Mr. Lincoln, "write it now while you have it on your mind. Make it sharp; cut him all up."

Stanton did not need a second invitation. It was a bone-crusher that he read to the President.

"That's right," said Abe, "that's a good one."

"Whom can I get to send it by?" mused the secretary.

"Send it!" replied Lincoln, "send it! Why, don't send it at all. Tear it up. You have freed your mind on the subject, and that is all that is necessary. Tear it up. You never want to send such letters; I never do."

There was a world of wisdom in Lincoln's suggestion. Write your letter; freed your mind; out with it; and then put it in the drawer a week, and then read it over and burn it up and say no more about it.

How do you like the Journal? Is it not interesting? Then if you are in arrears, remit and put yourself on the paid-in-advance list.

❧ Reports ❧ From the Apiaries

I have just set out my bees 24 colonies, they have come out in prime condition not one colony perished and they all seem strong as when put away. There was very few dead bees in the hives and one would scarcely miss what honey they had eaten.

C. H. WILSON.

Simcoe Co., April 2nd.

My bees have wintered grand

Wm. McEvoy.

Wentworth Co., April 2nd.

I have not seen all our bees yet but in this yard and one south of the city they came out fairly well, loss about 4 per cent. queenlessness.

R. H. SMITH.

Elgin Co.

Bees have wintered well. I have wintered them on summer stands and they are all living and very strong.

GEO. E. JOHNSTON.

Muskoka, Ont., April 9.

I have 31 colonies out of 35, only lost four.

JOS. S. TROTTIER.

Soulanges Co., Que., April 16.

Bees came out O. K. this spring none dead out of 107.

JAMES DUNCAN.

Manitoba, April 9.

The bees have wintered fairly well.

W. COUSE.

Peel Co., April 19.

My bees were gathering pollen on the 13th, to-day they are bringing in honey.

AUGUST DEMERS.

Pontiac Co., Que., April 22nd.

Bees have come through the winter in very good shape. I have not heard from many of the bee-keepers yet, mine came out fully as good as I expected.

JAMES ARMSTRONG.

Haldimand Co., Apr. 23rd.

Concerning our winter losses those colonies wintered inside have come through well, but a small percentage of loss—almost nothing, but those outside to our surprise have suffered rather severely, about ten per cent. having succumbed. Yesterday, (April 23rd) was the second day they have worked and I don't know that I ever had them gather faster at that date, often during fruit bloom they have done no better.

A. E. HOSHAL.

Lincoln Co., April 24th.

Bees are all O. K. so far, no funerals in yard, clover came out good and thrifty, so will perhaps after all stand show for crop.

D. W. HEISE.

Ontario Co., April 23rd.

On April 3rd I put out of winter quarters at our east apiary, 58 and 6 dead. At the home yard on the 7th, we put out 111 stocks, and 2 dead—113 put into winter quarters. The north bees I have not seen since 14th Nov. last.

J. B. HALL,

Oxford Co., Apr. 23rd.

All my bees have wintered well, the largest out yard and home yard losses were the same, viz. $5\frac{1}{2}$ per cent. the other out yards $2\frac{3}{4}$ per cent. The latter were packed on summer stands, while home yards cellared and put out on April 5 and 6th averaging strong. I am drawing to outdoor wintering.

F. J. MILLER.

Middlesex Co., April 20th.

Bees have wintered remarkably well around here. My own 120 colonies all came out alive except one.

SAMUEL WOOD,

Simcoe Co., April 25th.

Bumble-Bees for Australia.

The San Francisco Weekly Bulletin reported that in January, 1899, the New South Wales department of agriculture had a short time before received a consignment of bumblebees by steamer from New Zealand. They were liberated in the Botanic gardens and in the Linnean Society's grounds at Elizabeth.

Points in Bees.

Editor Root, in Gleanings in Bee-Culture, some time ago gives his idea of five points in the order of their importance, upon which Dr. Miller comments as follows:

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

Spring Management of Bees.

By Morley Pettit.

Much has been said and written on this subject and possibly some bees have been too much managed for their own good or their owner's profit. If bees are well wintered, a few simple rules, with a great deal of sense and experience, are the best stock-in-trade for spring management. Cellar-wintered bees are removed and placed on summer stands early in April. As the motion of carrying out and the change from absolute darkness to daylight thoroughly arouses them, it is necessary that the day chosen be sunny and warm enough for bees to fly (not below 50 degrees F. in the shade). The apiarist should have plenty of help, and keep the cellar as dark and cool as possible during the operation, to avoid greatly disturbing the bees before they can be carried out. Practically sting-proof gloves may be made of cotton which has been used as a hive-cloth long enough to be thoroughly coated with propolis on one side. It is a good plan, where the hives are set in rows in the apiary, to carry out one row, then darken the cellar while the covers and entrance blocks are adjusted; then take out another row, and so on. Set covers on loosely to allow the cushions to air and dry, and close the entrance to about three inches. Mark, "to be fed," any hives which seem rather light.

The most convenient method of feeding in spring is to make syrup of granulated sugar dissolved in water in the proportion of 4 lbs. sugar to 1 quart of water. Fill empty combs with this and hang them in a warm room to drip. They should be quite warm when taken to the hive. After the bees have ceased flying in the evening, go to each hive needing stores and turn back the cloth far

enough to remove one comb next to the wall, replacing it by one filled with syrup. The entrance should be closed while the top is open, and the change made as quickly as possible to conserve the heat of the hive. Sealed combs, with cappings crushed to induce the bees to distribute the honey, are preferable; but are not so easily obtained at this time of year. I need not state that the matter of spring stores is of the utmost importance. It is equally important to guard against robbing.

As it is so ably expressed in "Langstroth on the Honey Bee," under the adage, An ounce of prevention is worth a ton of cure: "Bees are so prone to rob each other in time of scarcity that unless great precautions are used the apiarist will often lose some of his most promising colonies As soon as they can leave their hives in the spring, they may begin to assail the weaker colonies. . . . If the marauders. attack a strong and healthy colony, they are usually glad to escape with their lives from its resolute defenders. The bee-keeper, therefore, who neglects to watch his needy colonies, and to assist such as are weak or queenless, must count upon suffering heavy losses from robber bees." Experience teaches that where fifty or more hives are kept, the apiarist, during the spring months, should go through the yard at least once every hour, when bees are flying and no honey coming in, to watch for indications of robbing. These are detected by an unusual activity about the entrance, and a shrill sound peculiar to robbers. The flight of young bees which occurs from many of the hives almost every warm afternoon may be mistaking for robbing; but there can be no doubt if the bees emerging from the entrance are loaded with sweets. When it is discovered that a hive is being robbed,

sprinkle quantities of flour on the bees at the entrance, and watch the other hives to find the robbers' home. Close their entrance for a time, taking care not to smother them. Put hay over the entrance of the hive robbed, and sprinkle freely with cold water. If this does not break up the robbing, remove the hive to the cellar in the evening, leaving an empty box in its place as a decoy to the robbers. Two or three days buzzing about this box will satisfy them, and the hive may safely be replaced on its stand, in the evening. The time of greatest danger from robbing is when the bees are first out, and from fruit bloom to the opening of white clover.

As soon as the thermometer reaches 70 degrees F. in the shade, on a still day the brood chambers may safely be opened for adjusting brood and stores, and clipping queens. First, find the queen and gently lift her from the comb by the wings; then grasp two or three of her legs between the thumb and first finger of the left hand, holding her so while about half of one wing is clipped off with a small pair of pointed scissors. By experienced bee-keepers, spreading brood may be practiced with advantage; but for the beginner and average bee-keeper it is safest to leave the matter to the bees.—Farmers Advocate.

Honey and Horehound Cough Drops.

Put a handful of horehound into a saucepan, cover it with water and boil until the liquor is strong. Then strain and add honey to it, boil until the water has evaporated, test it like other sweets and when sufficiently boiled pour into shallow tins to cool. Then cut into pieces.

Literary Notes

McCall's magazine for May opens with a beautiful colored plate, illustrating an exceedingly handsome walking costume. Opposite page 422 we find another beautiful colored plate, illustrating a lady's foulard silk costume.

Each month's issue is fairly dazzling with illustrations of patterns of the very latest and most exquisite fashion designs, and the May number is certainly in line with the high standard of excellence set by preceding excellence.

Each subscriber receives a free pattern of her own selection.

The magazine is published at 5c. a copy or 50c. a year—by The McCall Co., 138 to 146 W 14th St., New York.

An Immense Press Room.

Just 17,600 square feet of floor space are set apart for printing presses in the building just erected for the Ladies' Home Journal, it is in the rear of the present publication office, eight stories in height, and within a short time will be occupied by the mechanical departments of the magazine. The constant rapid growth of the Journal's circulation necessitated greatly extended facilities, for printing and mailing, and the new structure meets these demands, providing at the same time for future expansion in all departments. Specially designed presses, and all the most approved mechanical devices applied to printing are being added to the Journal's already extensive equipment. It is the aim to make this plant the finest in America.

WANTED

A young man to assist in bee yard and do a little gardening during the coming season. Must be of good character. Reference required. Apply stating wages. W. J. ROBB, Box 1313, St. Thomas, Ontario.

A Poultry Paper Three Years for \$1

We will send the CANADIAN POULTRY REVIEW three years for \$1, or to three subscribers one year for \$1. Special departments for "Turkeys, Ducks and Geese," "Poultry Ailments," "Bantams," "Incubators and Brooders," "Practical Poultry, (under charge of A. G. GILBERT, Manager Poultry Department, Government Farm, Ottawa), etc. New illustrations, critical show reports, 40 to 48 pages monthly. Single copy 5c—Address, Toronto, Ontario.

50 YEARS'
EXPERIENCE

PATENTS

TRADE MARKS
DESIGNS
COPYRIGHTS & C.

Anyone sending a sketch and description may quickly ascertain our opinion free whether an invention is probably patentable. Communications strictly confidential. Handbook on Patents sent free. Oldest agency for securing patents. Patents taken through Munn & Co. receive special notice, without charge, in the

Scientific American.

A handsomely illustrated weekly. Largest circulation of any scientific journal. Terms, \$3 a year; four months, \$1. Sold by all newsdealers.
MUNN & Co. 361 Broadway, New York
Branch Office, 625 F St., Washington, D. C.

PATENTS PROMPTLY SECURED

Write for our interesting books "Inventor's Help" and "How you are swindled." Send us a rough sketch or model of your invention or improvement and we will tell you free our opinion as to whether it is probably patentable. We make a specialty of applications rejected in other hands. Highest references furnished.

MARION & MARION
PATENT SOLICITORS & EXPERTS

Civil and Mechanical Engineers, Graduates of the Polytechnic School of Engineering, Bachelors of Applied Sciences, Laval University, Members Patent Law Association, American Water Works Association, New England Water Works Ass'n, P. Q. Surveyors Association, Assoc. Member of Society of Civil Engineers.

OFFICES: NEW YORK LIFE BLD'G., MONTREAL OFFICE: ATLANTIC BUILDING, WASHINGTON, D. C.