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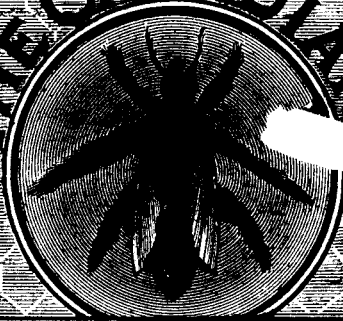
VOL. IV, NO. 34

1888

NOVEMBER 14

PUBLISHED EXCLUSIVELY IN THE INTERESTS OF THE HONEY PRODUCER

THE CANADIAN



JOURNAL

THE FIRST \$ WEEKLY IN THE WORLD

ONE DOLLAR PER YEAR

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We can supply Binders for the JOURNAL 55 cents each, post paid, with name printed on the back in Gold letters.

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Communications on any subject of interest to the Bee-keeping fraternity are always welcome, and are solicited.

Beginners will find our Query Department of much value. All questions will be answered by thorough practical men. Questions solicited.

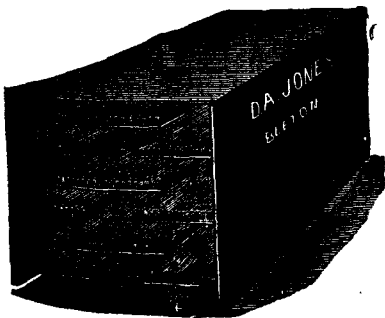
When sending in anything intended for the JOURNAL do not mix it up with a business communication. Use different sheets of paper. Both may, however be enclosed in the same envelope.

Reports from subscribers are always welcome. They assist greatly in making the JOURNAL interesting. If any particular system of management has contributed to your success, and you are willing that your neighbors should know it, tell them through the medium of the JOURNAL

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If you are in doubt as to whether your bee-cellar needs ventilation, or as to the kind or amount of ventilation needed, read

THE BEE-KEEPERS'

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It gives the views and experience of the leading bee-keepers.

The November number will discuss "Moisture in Bee-cellar." Correspondence upon this topic is solicited. All articles that we insert will be paid for. Please read the October number before writing upon "Moisture."

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Business Cards.....	1 50	2 50
Shipping Tags, 40c., 45c. and 50c. per 100.		

Our new book of labels contains nearly 100 specimens of elegant honey labels. Write for prices for any printing required.

THE CANADIAN BEE JOURNAL,

7

BEETON.

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Advertisements for this Department will be inserted at the uniform rate of **25 CENTS** each insertion--not to exceed five lines--and 5 cents each additional line each insertion. If you desire your advt. in this column, be particular to mention the fact, else they will be inserted in our regular advertising columns. This column is **specially** intended for those who have bees or other goods for exchange for something else, and for the purpose of advertising bees, honey, etc. for sale. Cash must accompany advt.

\$1.00 Will secure you by mail, post paid, 250 Noteheads and 250 Envelopes with your name, business and address printed on the corner of each. Send in your order now. **THE D. A. JONES CO.,** Beeton, Ont.

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Will be mailed from Oct. 1 1888 to Jan 1 1890 for 75 cts. The editor has had 30 years experience in rearing Queens and practical Bee-keeping, and now proposes to give the result of that long experience in a series of articles in the **APICULTURIST.** The first Article will appear in the Nov. 1888 issue. The details of a new method of rearing Queens in full colonies, without making the colony queenless, will be given to each subscriber. Send for sample copy. Address **AMERICAN APICULTURIST, Wenham, Mass.**

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J. M. CLARK & CO., 1409 15th St., Denver, Col.
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CHAS. DADANT & SON,
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"THE GREATEST POSSIBLE GOOD TO THE GREATEST POSSIBLE NUMBER."

VOL. IV. No. 34

BEETON, ONT., NOV. 14, 1888.

WHOLE No. 190

EDITORIAL.

THE serious illness of the wife of the assistant editor prevented the attendance of a representative at the late North American Convention. We however have been able to present a good report of the same, thanks to the courtesy of the *American Bee Journal*. We felt however, that some explanation was due our readers, for our own non-attendance.

* *

We have to extend our congratulations to Mr. H. F. Hunt, of Villa Mastai, Que., upon his joining the ranks of the benedicts. The following notice of marriage appears in the *Quebec Morning Chronicle* of Nov. 1:—

At St. Matthew's, on the 31st instant, by the Rev. Lennox Williams, Herbert F. Hunt, second son of the late Weston Hunt, Esq., to May, youngest daughter of the late Colonel Guy, of Beauport.

Mr. Hunt was vice-president of the North American Bee Keepers Association (now Inter-National) for the Province of Quebec, for 1886-87.

* *

In the last bulletin of the Ontario Bureau of Industries, dated Nov. 1st, Mr. Blue thus reports for the summer on bees and honey:—The season has been very discouraging for apiarists. The loss of colonies in the winter has hardly been made up by swarming, and the flow of honey in most cases was

barely sufficient for the actual need of the bees, as there was a scarcity of nectar, especially from clover, owing to the drouth. The wet, cold and cloudy weather also kept the bees confined to their hives many days during the fall. Much of the honey is of poor quality, being dark in color, as the greater part of the surplus was procured from buckwheat. While a few bee-keepers claim a surplus varying from five to forty pounds by far the greater number report an absolute deficit, and state that ten or twelve pounds of honey, or its equivalent, must be fed back to the bees during the winter to keep the colonies from starving. However, no disease is reported.

OBSERVATIONS.

I WAS quite pleased with R. Knechtel's article in your *JOURNAL* last week—p. 637-8. What would Mr. K. call the last half of 1888? Rather damp, eh? I think if you start to count from Oct. 15 it has been slightly on the wet side. Will there have been sufficient rain fall to do away with the implied caution which has been suggested in the last paragraph of his letter?

* *

Do you know it made a lot of the readers of the *JOURNAL* happy to read that gentlemanly letter from Mr. Havind, wherein he so fully and ably vindicates the character of Mr. Ivar S. Young. I couldn't believe that Mr. Y. would so treat those who had honored him in so many ways while he was on this side of the water. I

am quite ready to accept Mr. Havinds' explanation of Mr. Young's remarks. The truth is, I felt all along that a good translation would put the whole matter in its proper light. The idea of charging such men as Heddon, Hutchinson, Newman, Cook and Jones with combining to fraud!! Preposterous!!

Don't you feel bad that you did not join the O. B. K. A. this year and get one of those nice queens sent to every member of the Association. You really get your membership for nothing, at least that's how it looks to me. I can imagine that there will be a big increase in next year's membership.

I almost think it time that the Messrs. Dadant had that revision of Langstroth's ready. I am expecting one and I'd like to have it before the next annual meeting. It seems to me they have had lots of time now, to get it out. Perhaps Mr. McKnight has some fresh information for us concerning it.

I noticed in a late number of the JOURNAL that some move was on foot to get up a programme for the annual meeting of O.B.K.A. in January. Has nothing been done? It will soon be time to get special rates over the railways and complete arrangements.

When Mr. Blow comes to Canada, I will be glad to have him come and see me, and I hope Mr. Editor that you will see to it, that he times his visit so as to be with us during the O.B.K.A. convention. It would be a pleasant meeting for us, and he would thus meet many of Canada's apiarists that he will otherwise be unable to call on.

In your issue of Oct. 17—page 388, you have a good letter from Mr. Gemmell. For outside packing, I second pretty much all that he has said. He gets at the true principle of safe wintering, to my mind, when he puts his bees away early and leaves them late, making provision always for allowing them a cleansing flight when opportunity offers.

OBSERVER.

A STAUNCH McFADDENIST.

AND HIS OPINION OF BROTHER CLARKE'S HIBERNATION THEORY.

AS promised, we publish a Texan letter sent to Mr. Watson, of Alliston, who is the medium through whom Mr. Daniel McFadden communicates with the world in general, omitting the signature at Mr. Watson's request:

I am the more interested in Mr. McFadden's plan, in his letter and in the man because I know that what he says is true. I also learned it from the Indians—not that those I knew adopted it as a method of bee-keeping, but when they would cut a bee-tree at about the beginning of snow-fall they would often secure the bees in this way until spring. W. F. Clarke, of our Province, seems to think yourself and Friend McFadden either fools or members of a "ring of impostors." I am glad I have not Mr. C. for a neighbor. My family have kept bees for years, and have had them for months in a state of suspended animation—not dead—and have often examined them while in that state and always found them revive on thawing out. Death means substantially dissolution, disintegration—a disbursement of protoplasm I should say, to be gathered up again in some other form, according to the unvarying processes of evolution. Hence if a bee is hard frozen his constitutional elements will undergo disintegration on thawing. But when animation is suspended by such a perfect balancing of atmospheric pressure as renders life's functions dormant, life will thus remain, in my opinion, so long as the conditions remain unchanged. Mr. Clarke may justly pride himself on his ignorance of the conditions governing the hibernation of bees. I suppose that Indian would be thought idiotic who would suppose that a bear came out in the spring poorer than when he "holed up." To the uninitiated this may seem absurd, but it is nevertheless true, the only appreciable difference being in the complete inanition of the intestines. Indeed, I am strongly impressed to believe that, could a human being be subjected to complete anesthesia, and that condition of suspended animation be maintained indefinitely, life would be prolonged as in a profound sleep, almost, if not quite, indefinitely. It may seem rash venturing on such ground, but then we do positively know that these are anesthetic conditions which seem to hold life suspended indefinitely, and maybe, some day, we shall be wiser in our day.

When ready to put your bees away be careful to get them thoroughly chilled. Do not shut them in so long as you can see a leg or an antenna moving; they will feel cold as clay to the fingers but they will be limber, not rigid by any means. Now, if kept in this condition, and your winter should continue through a period of ten years, your bees will come out all right in the first thaw of the eleventh. There is your next care—getting them out just at the proper time, but by following out friend McFadden's plan carefully you will succeed, never fear.

We have been here three years. Bees store every month in the year, yet I consider it a sorry bee-country. If one gets an average of 40 lbs. per colony year by year, he is in luck. They have all the year to make it and abundant leisure to eat it. May suggest an idea anon. Please accept kind regards, and believe me truly by friend.

W. A. J. B.

PRACTICAL BEE-KEEPING.

BY D. A. JONES.

Let this be studied and not simply read,
But all its teachings got into the head,
Nor in the head alone, but in the heart,
Enthusiasm there must do its part.

—Clarke's Bird's-Eye View of Bee-Keeping.

PAPER I.

POSSESSED of a desire to keep bees for pleasure or profit, the first question which arises in the mind is: "Where shall I put them when I get them?" In selecting a spot for a bee-yard the two main essentials are good drainage, so that after a rain-fall and in wet seasons the water will be quickly carried off, and the contiguity of honey-yielding plants such as clover, basswood, willow, soft maple, elm, etc. A dry spot on low ground near a running stream, sheltered by hills from cold winds is the ideal location. A honey-laden bee returning from the fields can fly in a downward direction without exertion, and this is one argument in favor of having the apiary on low ground. But do not imagine that because you have no such place as just described that you cannot keep bees. While it is nice to have a pleasant place for them, the main object to be looked for must be an abundance of pasturage. In Canada the principal honey sources are the clovers, basswood and thistle and with lots of these in the vicinage and the bees given reasonable attention, good results may be confidently looked for. Place the bees convenient to the house so that they can be overlooked at any hour of the day. Village bee-keepers of necessity have no choice as to where to place their hives, and farmers—all of whom should keep a few hives—usually put them in the orchard, if they have one, and I don't know but that it is as good a place as any.

LEARNING THE BUSINESS.

Studying books on bee-keeping is very necessary and a fair knowledge of the requisite manipulations can thus be obtained. But learning by actual practice is much better and the beginner

will find it time well spent to go as a student for one year or more in the bee-yard of some thoroughly practical man. Here he will find the right way of doing everything, will meet with many complications not mentioned in books, learn how they are overcome, and obtain a general insight into the manner of conducting an apiary for profit which will be invaluable to him afterwards. Every apiarist with a large number of colonies needs help at periods if not throughout the season and is always willing to give practical teaching for assistance rendered. The student cannot reasonably expect remuneration for his first year's work. By undergoing such a course of study the beginner will find whether or no he has an aptitude for the business and can judge of his future success or failure. Visits to neighboring apiaries are oftentimes the source of much information.

APICULTURE IN THE SCHOOLS.

It has long been a matter of wonder to me that the reading books used in our schools did not have lessons bearing on such practical subjects as come under daily observation of rural children. Prof. Mills, of the Ontario Agricultural College, has advocated that agriculture be taught in this manner with the aid of suitable illustrations, and a series of text books on this subject is now being prepared. I trust he will embody the elementary principles of apiculture in the work, for if we instil the minds of the young with a correct idea of the workings of the hive we shall not only create a greater interest in our pursuit, but future generations will be prone to believe such stories as are afloat to-day regarding the adulteration of honey. Many Canadian pedagogues are bee-

keepers, and what more interesting object lesson can be imagined than a class watching their teacher after school hours, handling the frames of a hive, and how many useful lessons can be drawn from the life of the honey bee.

MAY EVERYBODY KEEP BEES.

As to this question I do not know that I can do better than give the opinion of Mr. Allen Pringle, a gentleman well known to apiculturists in Canada, especially as they are so nearly in accord with my own. Speaking of bee-keeping for farmers he says: "There are many—very many—people in the rural districts of Canada amongst the farmers and others who could keep a few colonies of bees to their own advantage and that of their neighbors. They would thus be benefiting themselves by producing honey for their own use, and benefit their neighbors by securing fertilization to their fields of clover and orchards of fruit."

On the general question of "Who may keep bees," he remarks: "As to who ought to engage in bee-keeping and who may engage in it, these are questions which each individual has the natural right to decide for himself, so long as he keeps within both the moral and the civil law. When the latter excludes him from corporations he has no right to violate it, and when the former excludes him in honor from pre-occupied ground he has no moral right to violate that either. With these two exceptions anyone, I should say, has the right to put his money into the 'bee business,' try it, and come out a richer or a wiser man, as the case may be."

PRIORITY OF LOCATION.

How many bees may be kept in a certain area, and if a bee-keeper already established has a "claim" to the district, are unsettled questions with some. This relates more directly to "specialists"—men who keep a large number of colonies—and will not concern the average bee-keeper. Common sense will tell you whether your locality is overcrowded with bees, and, if so, but two courses are open—to seek another opening or not enter the business. Experts have estimated that from a hundred to a hun-

dred and fifty colonies are all that can be kept profitably per square mile. But much depends upon the season, and in a year such as this (1888), twenty-five colonies to that area would be more than sufficient. To me it seems that this question of priority of location bothers some more than it need. There are those who make comparison of beemen and store-keepers, etc., but such comparison is not applicable. The success of the store-keeper depends upon many things—the quality of his wares, his prices and mode of doing business, his capital, address, manner, etc., and having a majority of these he may step into a field already fully occupied and still do well. The apiarist's success depends mainly on his system of manipulating and the honey-gathering qualities of his bees. With these points in view no practical man will seek entrance to a section of country already comfortably occupied.

In Canada, with our vast tracts of country unoccupied by bee-keepers, we are, in our lives, never likely to be troubled on the score of overcrowding.

BEES CLOSE TO HIGHWAY.

This is a question which is frequently asked, and there are some who are under the impression that it is necessary to keep bees a distance from the road in order to prevent them becoming troublesome to passers by. This depends entirely on the surroundings. Bees may be placed within five feet of the public highway without interfering with travel or troubling anybody, or they may be one or even two hundred feet away and yet be troublesome. If there was no fence in front of the hives and the bees could fly to and fro very low, a horse tied at the fence or passing along the road might be stung by them. A fence or trees planted so that it would be necessary for them to rise up from the hives and pass over the obstruction; or in towns or villages, if they were placed in a yard where they would have to pass over the house-tops, they would never interfere with anything on the street, but it is only where they fly straight out from the hives and keep low that any danger is to be apprehended. I have had from one to five hundred colonies in one apiary right in the centre of a village, and have run within

a few feet of the street on the south and east, and though millions of bees were passing and re-passing for weeks, months and years, yet I have never known a horse to be stung. The fence, trees or other obstruction to their flight causes them to rise up high in the air and to pass over persons on the thoroughfare. It is not necessary that the fence should be absolutely tight, because they are not inclined to fly through small cracks or crevices but always rise up until they have an unobstructed view and although the cracks are sometimes over a foot in width we always find them passing over the top. Where a fence is not high enough a few four-foot lath six inches apart and a strong strip along the top would cause them to pass over. Although keeping our apiary so close to the road for the last fifteen years, we have arranged and located our bees about fifteen rods further back in a more secluded place, but should have no hesitation at any time in placing them within a few feet of any public highway and feel confident that they would give no trouble to any person when the surroundings were as they should be.

STYLE OF HIVE.

I will not here say much of any particular style or make of hive, but one thing I would strongly impress and that is: *Never allow but one pattern and size of hive in your apiary.* The appurtenances of one style hive will not fit another, and a variety in hives is a constant source of trouble and expense. Nearly all the hives made by regular supply dealers possess genuine merit and differ merely in dimensions; the particular claims of each to superiority in ease of manipulation are fully set forth in the manufacturers circulars. A special chapter must be written descriptive of hives in general.

THE FRONT OF THE HIVE.

The ground in front of the entrance to the hive should be kept clean, and nearly every bee keeper has a preference for some particular material to accomplish this object. Sawdust and ashes are thickly strewn around by some and recommended. What is really best is an undecided question and does not make so much difference. Grass is probably the worst thing and if you have grass it must be kept closely cut,

so that the queen may not be lost. Salt sprinkled on the grass will effectually destroy it. One of my bee-yards is a solid bed of sand, and I find that, while it has draw-backs in the height of summer if dry and windy, yet in spring the bees in this yard are always ahead of others in breeding and building up. I account for this by the heat being retained by the sand and reflected on the hives. The trouble from drifting and excessive heat in summer is readily remedied by the liberal use of a force pump and sprayer. These can be obtained so cheaply that no one should be without one. The apiarist will find them convenient for separating swarms, quelling robber bees, etc., to say nothing of spraying the garden and flower beds, washing windows and buggies, and a hundred other things around the house.

WIND-BREAKS.

Hives should be protected from the chilling effects of cold winds, and where woods or rising grounds are not adjacent, a hedge of evergreens may be planted or a high board fence erected. All my apiaries are surrounded by board fences eight feet high, which make an effective wind-break.

PROCURING BEES.

The novice should not commence with a large number of colonies, two is as many as I would advise. Any neighboring bee-man will dispose of this number, and an advantage in purchasing from some one close by is that when a difficulty is met with he can possibly give you "pointers" when most needed. But do not pay a fancy figure; the price for good colonies varies according to the time of year from \$4 to \$8. At the latter figure the colony should be strong and have a good laying queen.

I would suggest that the bees be purchased in the moveable frame hives of to-day, avoiding the trouble of transferring from the antiquated box hive or gum. If I remember rightly I have at times recommended that beginners buy box hives in order to gain a knowledge of transferring, but I do not see that it is so absolutely necessary. Possibly the novice may make a success of the job; on the other hand there is a greater possibility of his making a mess of it and thereby becoming

disgusted with apiarian pursuits. It must be understood that writers of the present day, do not endeavor to teach box-hive bee-keepers anything. The sole object is to get them to change over as soon as possible to a more modern contrivance.

Buy from a responsible man in whose word you can place implicit confidence and whose integrity is above suspicion, you can then be sure that the colonies are free from all disease.

Some start with an empty hive for which they purchase a pound of bees and a queen but this plan I do not recommend. The only time when this is profitable is when through queenlessness or other cause a colony has become depopulated, or when all the inmates of a hive are dead and the bee-keeper has on hand a hive filled with good combs.

Don't imagine you can start on the plan some people who write to me seem to have in their minds. One man wrote: "Send me your price list, I want to get a queen to start an apiary." Another man wrote to Mr. L. C. Root of Mohawk, N. Y. for "a pair of bees, a queen and a drone as I want to start bee-keeping." And many others equally laughable. Of the

KIND OF BEES TO BUY.

I will treat when speaking more particularly of bees.

TIME TO PURCHASE.

It is generally accepted that it is advisable to purchase your colonies in spring, though at that time the price is somewhat higher. Buying in the fall there is the risk of wintering to run and this is more than I would ask of the amateur until he had one summer's experience in the apiary as his chances of success would be enhanced. First swarms can be had at low rates in the swarming season but until the beginner has been at least one year with his bees I would not advise buying these.

COST OF OUTFIT.

Expense cannot be urged as a valid objection to commencing bee-keeping. I will give an estimate of what is needed for a small beginner—two colonies. Four hives complete with frames will be necessary for swarms, a smoker, two bee guards, and introducing cages, a

dozen queen registers, nails for putting up the hives if purchased, "in the flat," and about five pounds of comb foundation.

You will require the above whether you are working for comb or extracted honey. If you wish to work for both you should have an extractor; a honey knife; comb-basket; about two pounds section foundation, about 250 sections, two second stories and four supers.

If you wish to work only for extracted honey, the sections and section foundation and supers can be dispensed with; if for comb honey only, you could perhaps do without the extractor, knife and comb basket, but I think it always advisable to have them. Afterwards you will require tins, labels, shipping crates, etc., in which to put up and prepare your honey for market.

If you desire to begin with, five or ten colonies, you have only to increase the supply of hives, stands, foundation, nails, bee-guards, sections, section-frames, division-boards, section rests, or section cases in the proper proportions.

I have endeavored to embrace in this list only such articles as are indispensable—such goods as can be used to the best advantage—and by the proper use of which you are tolerably sure of a profitable return for your investment.

The following are estimates of prices:

FOR 2 COLONIES, WORKED FOR EXTRACTED HONEY.

1 Hive, made up, as sample say...	\$1 00
3 " in flat, 80c.....	2 40
5 lbs. brood foundation, at say 50c	2 50
1 Smoker,.....	75
2 Bee-guards @ 7.....	14
2 combined introducing cages and robber-guards @ 15c.....	30
1 Dozen queen registers.....	6
1 Honey knife.....	85
1 Honey extractor.....	7 50
1 Comb basket.....	1 00

Total.....\$16 44

FOR 2 COLONIES, WORKED FOR COMB HONEY.

1 Hive, with two supers, made up	\$1 00
3 Hives, 2 supers, in flat, @ 75...	2 25
4 Reversible queen excluding honey boards, made up, @ 35	1 40
5 Reversers, made up, @ 15c.....	75
2 Lb. section foundation, cut to size.....	1 20

250 sections, to suit.....	1	38
1 Smoker,		75
2 Bee-guards, @ 7c		14
1 Dozen queen registers.....		6
2 Combined introducing cages and robber guards, @ 15c.....		30
Total.....		\$9 23

It will be seen by the above estimates that it costs considerably more in proportion to commence working for "extracted" honey than for "comb," but the cost does not increase proportionately. Once you have the extractor, it answers just as well for one hundred colonies as for two.

WHAT TO WORK FOR — EXTRACTED OR COMB HONEY.

I think if I tell you which I prefer I shall say extracted. True, the cost is a little more, at the outset, but I am of the opinion that you will the sooner get into the way of raising extracted, and, as a consequence, you will be all the better pleased with the business and more inclined to pursue it. All things considered it does not require as much knowledge of the business to work successfully for the first-mentioned. To know just when to put the sections on and how to manipulate them for the best results will take some time, and a year's experience at raising extracted honey will help wonderfully. The objection may be raised that it takes more of the time of the apiarist. But I think this can be overruled easily by simply giving the bees lots of room, as will be explained later on.

For the CANADIAN BEE JOURNAL.

Eastern Township Bee-Keepers.

ACCORDING to public notice, the members of the Eastern Township Bee-keepers Association met on the 16th of October last, and notwithstanding the bad condition of the roads there was a fair attendance, and a very pleasant and profitable time had. The reports, as was expected, were very poor without exception, but all appeared to be as interested as ever. Time prevents a longer report, so will conclude by saying that the old officers were re-appointed:—E. E. Spencer, M.P., President; J. Watt, Vice-President; R.

P. Small; Executive Committee, C. H. Jones, W. S. Allan and Stephen Bresee.

Members and others who were not present can send me the membership fee of \$1, which which will entitle them to the CANADIAN BEE JOURNAL for the ensuing year, dating from the first day of January, 1889.

R. P. SMALL,

Dunham, P. Q.

Read by Mr. Grimshaw before the B.B.K.A.

THE STING AND ITS POISON.

SOME three years ago I had the pleasure of reading you a paper on the "Identity of the Bee's Sting with the Ovipositor of other Insects," and at this time, without desiring to refer at too great length to the opinions I then expressed, I may recall to your minds that I considered the sting of the worker-bee a modified or aborted ovipositor, utilised by the insect as an offensive weapon (the only one at its command), exactly in the same way that other insects have been known to use *their* ovipositors, depositing in the wound a quantity of corrosive poisonous fluid, similar in its toxic properties to that pumped under the skin by the bee.

When we expect the perfect use of the different parts of any animal, we presuppose that we have a perfect one to deal with; and as we know the worker-bee to be an imperfect example (inasmuch as its reproductive organs are aborted and undeveloped), it is an unfair assumption that the anatomical structure of the sting, being so identical, mechanically, with the ovipositing organs of other insects, its use of this organ as a sting is, on the face of it, faulty and imperfect, especially when we observe the astounding fact that such a base use of it ends in death, tearing from its fixing and base, in a rude repulsive way, part of the abdomen and its contents? This always seems to us a cruel and somewhat unnatural arrangement. Depend upon it that when we find an untimely death resulting from the exercise of such a natural impulse as self-defense, there is outrage on, or interference with, Nature's laws; and an inquiry into such an abnormal state of things may assist us in finding the true uses of the parts under consideration. If the ostrich by using its two claws, the deer its antlers, the bull its horns, lost their lives as a necessary sequel of a defensive effort by a coarse rending away of these very weapons, we might, I think, very properly come to the conclusion that they were intended originally for some other use; in the case of the reindeer, for instance, the horns are modified in form to plow up the

snow in a food search, or to clear a way for the herd through the bush, as in the case of many other deer.

I know you may quote against my assumption the fatal effect on the drone of a somewhat similar rending of its structure, but the analogy scarcely holds good, for with him we are dealing with an admitted perfect insect perishing after having successfully played its part in the world, illustrated many times in both vegetable and animal kingdoms, whereas with the worker we are dealing with an imperfect one—imperfect because of its inability to take part in reproducing its kind, however well it may indirectly aid others in so doing, just as the worker is a necessary help in reproduction, by nectar and pollen-gathering, brood-rearing, cell-building, and so on, yet after all she is only an adjunct.

We find the queen humble-bee performing all these labors herself, until she has a family of workers round her as deputies, still they are only reliefs, lady-helps.

We must, I think, consider the sting of the queen, with its curved form and barbs, differing so much from those on the worker's sting, as a true ovipositor, the perfect instrument in the perfect bee, exactly corresponding (as it does) to the saw-like ovipositor of other hymenoptera; we must put in opposition to the imperfect instrument, either faultily used by the worker for another purpose than that originally intended, or in process of adaption or modification. We find the ovipositor of the queen curved towards the under part of the abdomen, the barbs fewer in number, and not so sharp and formidable as those on the worker's sting; the ovipositor, or sting, may thus be withdrawn when used in queen-fights. Here, then, is another bit of evidence against considering the instrument as a sting: The queen not using it when attacked by workers or any enemies such as ourselves when we handle or even injure her,

One cannot think, then, of the queen and worker being provided with such a complex and beautiful piece of mechanism, attached to which are the highly sensitive palpi; the toothed sheath, the marvellous rods and slides, the barbs and poison apertures, the poison bag with its valves and admirable pumping arrangement, the oil-glands providing a lubricant which prevents the poison from clogging the darts, and (mark this) thus enabling them to be brought into use again and again at the need of the insect, the delicate poison-glands secreting the wonderful preparation from the blood and storing it in such an intricate reservoir,—I say we cannot think of all this work remaining dormant and useless in the queen, excepting on the occasion of a few fights

spread over a few years, or in the case of the worker existing only as a standing menace of death if brought into play, especially when we remember that for every one bee using its sting as a sting in its wild or natural state, very many thousands die without ever so using it. It is not, I hope, blasphemy to say the Creator does not waste His work in any such way.

We must look around for as regular a use of this whole apparatus, as we find when we regard the tongue or the pollen-clearing and collecting contrivances. We cannot attend the queen in her movements on the cell-base during egg-laying, but we may clumsily try to imitate her. In this effort I take a piece of foundation; and make a scratch with a needle. I next apply strong sulphuric acid, the same diluted, and poison from a bee's sting to different parts of it, and I find the joint action of the wax and acid produce a stickiness of the surface, to which my little bits of thread (resembling bee's eggs) adhere, and remain fixed by their ends quite as firmly as if placed there by the queen herself, though the implement of the queen is much in advance of mine, inasmuch as she can apply the corrosive fluid at the time of making the scratch by slightly bending the abdomen forward, or with her ovipositor she can use the side barbs as the saw-fly uses its saws, depositing in the groove her poison just as the saw-fly does. This discovery filled me with delight, for I could by analogy now see the use for what had hitherto seemed almost useless organs in the mother-bee. I could also dispense with the generally received notion that the egg is provided with adhesive secretion on its extrusion (but by what glands secreted we are not told). The necessity for the extremely sensitive palpi of the sting, so as to enable the bee to feel about on the ridges formed by the lozenges of the cell-base for a suitable spot on which the egg may be placed, thus becomes evident. Let the queen use her sting and poison in a contest with an opponent if you like but we can no more call that its true office than we can say the true use of the hind legs of a horse is as a means of attack and defence. Well, as the horse uses his heels, the worker-bee uses its sting, its old ovipositor, for which it has no use, other than those it can adopt to it. My idea that the sting is used by the queen as a groove-former, and the poison spread on was an adhesive compound, to which the egg is attached on being laid, is somewhat borne out by the experiment of Mr. C. N. Abbott. This well-known, practically scientific bee-keeper found that when he gave wooden-based foundation, the queen refused to lay in cells.

If we now experiment with bee-poison,

we find we can use it as a capital varnish and mixing medium, a varnish at once antiseptic and complete so that the cell may not after all be polished and varnished with the orthodox mixture of propolis any more than we ourselves need polish timber, fetching and carrying the materials, when we have a varnish ready made. The worker's sting, then, may be a tool used for macerating wax by the aid of the secretions upon it, a moistening gum-like secretion being all the while pumped out through the openings in the rear of the barbs by each muscular movement of the darts, the palpi of the sting being used as a brush or spreader of the acid secretion—our bees, perhaps, diligently working when we have been crediting them with the idleness of wax-secretion.

Dr. A. Von Planta (*B. B. Journal*, p. 410) throws some light on the value of bee-poison as a preventive of fermentation when mixed with honey; on this subject I have nothing to add to my remarks made in a recent paper on the medicinal properties of honey. It is generally understood that the active principle of the bees' sting is formic acid, and that a hypodermic injection of this acid is poisonous to the bee and other animals; this is not the case, the result of this act is only a local irritation and inflammation. Now formic acid corresponds to methylic alcohol, just as acetic acid corresponds to ethylic alcohol (wood spirit or spirits of wine); these are the two simplest acids, and are most nearly related. Acetic acid (dil) is prescribed as a subcutaneous injection for cancer, so there cannot, after all, be much danger from formic alone; indeed I have experimented on myself with it and find little harm in it. This acid alone produces upon wax, on the skin, or in the blood—(1) effects quite different from those made by bee-poison; (2) it is very volatile, giving off an odor much resembling that from acetic acid, not leaving a crystallized or gummy residue as does bee-poison; (3) its color is different; (4) it is not poisonous; (5) it does not mix with, soften or varnish wax, as is the case with bee-poison. Now, although the bee requires formic acid it does not gather either it or the oxalic acid from which it may be derived, it is a secretion of its body from (in all probability) some other more complex acid which it may gather (I refer to uric acid, from the very mention of which some hypersensitive natures seem to recoil). From this acid oxidising agents may give the bee compounds containing oxalic (or, oxalic may be secreted from nectar, honey, or other carbon compounds acted upon nitrogenous substances). For the matter of that, the decomposition of the liquids said to be much sought after by bees will

give them their formic acid: I prefer, however, to lean to the pleasanter formula:—the oxidation of hydro-carbons into the simplest of the fatty acids, say, for instance, a hydro-carbon CH_4 is oxidised into $\text{C H}_4 \text{ O}$, again into $\text{C H}_2 \text{ O}$, and, finally, into $\text{C H}_2 \text{ O}_2$, the formula of formic acid (at least this is a process of the laboratory), how much more simple or intricate in the alembic of the bee we may never know—the conversion of floral perfume into what we find it—we know this, however, it is secreted copiously and used plentifully in various ways, least of all as a venom or poison. I have come to the conclusion that the truly toxic (or poisonous) principle of the bee-sting is an animal alkaloid, a virulent poison secreted in its body from the volatile and essential oils found in nectar,* that this alkaloid is collected by glands and stored in the poison-sac mixed with a gummy, non-saccharine substance, and heavily diluted with formic acid. What is this gummy substance, this residue left by a dried-up drop of poison? Taking the temperature of the bees' body at something near our own (90° being required in the hive for wax-secretion) I find Canada balsam and formic acid soon give us a suitable gum; fir-wood oil, turpentine, and preparations of turpentine do this also, but in my experiments with formic acid and sugars I fail altogether. Now, if the bees gather turpentine (a resinous substance exuding from the pine tribe, which we call propolis), oxidation of a small quantity of this taken into its system converts it into various acids, or, having undergone a slight change, it may be stored in the poison-bag for use in wax-softening; thus giving our bee its furniture-polish, varnish-pot, and gum-pot, in one. We are often told about bees mixing propolis and wax together, doing this, that, and the other, but we are not told whether the tools are at the tail or the head of the insect; neither have we been informed where the flux or mixing medicine is found. I think we know now. Triturating wax with formic acid produces no perceptible result so far as softening it is concerned, but, on the other hand, treating wax with an alkaline gives a soft, plastic mass, which, in turn, by the addition of a little acid, becomes a similar froth-like substance, such as we find in the bees' first process of preparing wax-scales for cell-building.

While agreeing with Mr. Cheshire that the offices of Nos. 2 and 4 glands are of a digestive

*It has recently been proven that alkaloids are the products of organic decomposition, that they can be artificially induced by the decomposition of vegetable matter, that alkaloids of the most toxic kinds exist even in the human economy during life, existing in the kidneys, viscera, muscles and brain matter, in the sweat, blood and saliva, an interesting study may then be made of diseased conditions of the body ending fatally from a bee's sting.—"Life Lore," p. 60.

nature, secreting bread-food from honey, I am inclined to the belief that the system No. 1 (or No. 3) gives an alkaline salivary secretion, converting cane into grape sugar, and dissolving gluten, oil, etc., while starch granules may be converted into dextrine by dilute acids secreted the glands of the other system—ferments and yeast.

I may, however, remark, transform cane sugar into dextrose (glucose or grape sugar), and into levulose or fruit sugar; such a ferment is *Mycoderma aceti*. Pollen, the nitrogenous flesh-former of bees, requires a different digestive secretion than that necessary to convert nectar into grape sugar, but until it be changed it cannot, of course, be assimilated by the bee. If we ourselves have two distinct digestive secretions—the alkaline of the mouth and the gastric of the stomach—we are not going beyond the bounds of reason in ascribing a similar arrangement to the bee's salivary secreting organs, nor in attributing to the sting, the barbs, the palpi, and the poison other and truer uses than those usually attributed to them in the grand scheme of economy, the great and glorious Harmony of of Nature.

SUNDRY SELECTIONS.

HE SENT TWO NAMES. HOW MANY CAN YOU SEND?

R. PETERSON.—I think a great deal of the CANADIAN BEE JOURNAL, and by showing it to other bee-keepers have secured two subscribers. Compared with other years this season's honey crop is very light. From 80 colonies spring count we only secured 2800 lbs. extracted—a very small amount for this locality. I have been with Mr. W. B. Mills for eight years and this is the poorest of the eight. Still I don't feel the least discouraged about the business.

Arden, Ont., Oct. 24, 1888.

WINNERS AT LONDON.

Display Comb Honey 1, J. W. Whealy, Kintore, \$5. Display extracted 1, J. W. Whealy Kintore, \$5. Display of comb honey by a lady, 1, Mrs. R. H. Smith, Ealing, \$5; 2, Mrs. John Rudd, London, \$3. Display of extracted honey by a lady, 1, Mrs. John Rudd, London, \$5. Comb Honey, 20 lbs., 1, J. W. Whealy, Kintore, \$3; 2, Mrs. R. H. Smith, Ealing, \$2; 3, Mrs. John Rudd, London, \$1. Extracted Honey, 20 lbs., 1, J. H. Welsh, Stratford, \$3; 2, J. W. Whealy, Kintore, \$2; 3, Mrs. R. H. Smith, Ealing, \$1. Granulated Honey, 1, Mrs. John Rudd, London, \$3. Crate Comb Honey, 20 lbs., 1, J. W. Whealy, Kintore, \$3; 2, Mrs. John Rudd, London, \$2. Colony of Bees, 1, Mrs. John Rudd, London, \$3. Display of Queens, 1, Mrs. John Rudd, London, \$3. 2, J. W. Whealy, Kintore, \$2. Best marked Queen Bee bred in

Canada, 1, Mrs. John Rudd, London, \$3; 2, Mrs. R. H. Smith, Ealing, \$2; 3, J. W. Whealy, Kintore, \$1. Greatest variety of Queen, 1, Mrs. John Rudd, London, Diploma. Beeswax, 1, W. Ellis, St. Davids, \$3. Comb Foundation, 1, W. Ellis, St. Davids, \$3; 2, E. L. Goid & Co., Brantford, \$2. Comb Foundation for brood chambers, 1, E. L. Goid & Co., Brantford, \$3; 2, W. Ellis, St. Davids, \$2.

BUSINESS DEPARTMENT.

COOK'S MANUAL—NEW EDITION.

We have now in stock ready to go by return mail the latest edition of Prof. Cook's Manual. The price this time is \$1.50, postpaid, but the increase in price is most fully compensated for in the increased quantity of matter and the better quality of the work.

ROOT'S A.B.C.—NEW EDITION.

We have on order to arrive by express another lot of the "A B C of Bee Culture" by Friend Root. This, too, has just been re-issued—the 37th thousand—and much new and interesting matter has been added. We sell more "A B C" than any other; it seems to be so arranged that it is really an A B C for the beginner. The name, too, helps the sale—novices expect to find in it just what they, as beginners, most need.

DISCOUNTS FOR WINTER ORDERS.

See our advertisement as to discounts on winter orders. We give good big ones, and we would like to see them taken advantage of.

HONEY WANTED.

We will pay 12 cents per pound for good extracted honey, delivered in Beeton, in exchange for supplies at catalogue prices, and we will take all that offers, allowing 30 cents each for the tins when they are the "Jones sixty-pound."

In return for the names of ten bee-keepers sent us on a postal, we will send the "Bee-Keepers Dictionary" value 25 cents.

Read the grand array of premiums offered on page 615 of this issue.

No matter what kind of printing you want, it can be done at this office. Visiting cards, bill heads, envelopes, pamphlets, note-heads, any thing. Write for figures.

A PAGE

—OF—

USEFUL INFORMATION.

HOUSEKEEPERS' WEIGHTS AND MEASURES.

Sugar.

- 2 heaping teaspoonfuls equal 1 heaping table-spoonful.
- 1 heaping tablespoonful of granulated A coffee or best brown equals 1 oz.
- 1 heaping tablespoonful of powdered equal 1 oz.
- 2 heaping teacupfuls of A coffee equal 1 lb.
- 2 level teacupfuls of granulated equal 1 lb.
- 2 level coffee-cupfuls of powdered equal 1 lb.
- 2½ level teacupfuls of best brown equal 1 lb.
- 2½ level teacupfuls of powdered equal 1 lb.
- 1½ level coffee-cupfuls of granulated equal 1 lb.
- 1 pint of A coffee equals 12 oz.
- 1 heaping pint of granulated equals 14 oz.
- 1 quart of powdered equals 1 lb. and 7 oz.
- 1 quart of granulated equals 1 lb. and 9 oz.
- 1 quart of any kind equals 4 teacupfuls.
- 1 teacupful equals 8 fluid oz. or 2 gills.
- 1 teacupful or 16 tablespoonfuls equals ½ a pint or 2 gills.
- A common sized tumbler holds ½ a pint.

Flour.

- 2 heaping teaspoonfuls equal 1 heaping table-spoonful.
- 2 heaping tablespoonfuls equal 1 oz.
- 5 heaping tablespoonfuls equal 1 teacupful.
- 5 teacups of sifted flour equal 1 lb.
- 3½ level teacupfuls of corn meal equal 1 quart.
- 1 quart of sifted flour equals 1 lb.

Butter

- 1 tablespoonful of soft butter, well filled, equals 1 oz.
- Size of a medium egg equals 2 oz.
- 4 heaping tablespoonfuls of soft butter equals 1 teacupful.
- 2 teacupfuls of packed soft butter equal 1 lb.
- 1 pint of well packed soft butter equals 1 lb.
- 8 large or 10 medium sized eggs equal 1 lb.

INTEREST TABLE.

Extended interest tables cannot be given in a book of this compass. The following is very convenient to find the interest on a given sum for any number of days.

At 5% multiply the principal by the number of days and divide by 72.

At 6% divide by 60. At 7% divide by 52.

At 8% " " 45. " 9% " " 40.

" 10% " " 36. " 12% " " 30.

PARTICULAR MEASURES OF LENGTH.

A League, 3 Miles.

- 12 lines 1 inch.
- 3 inches 1 palm.
- 4 inches 1 hand.
- 18 inches 1 cubit.
- 6 feet 1 fathom.

BIRTHDAYS OF PUBLIC MEN.

- Anglin, Hon. T. W., Aug. 31, 1822.
- Blake, Hon. E., Oct. 13, 1833.
- Bowell, Hon. M., Dec. 27, 1823.
- Campbell, Sir Alex., 1822.
- Carling, Hon. John, Jan. 23, 1828.
- Cartwright, Sir R., Dec. 4, 1835.
- Chaplean, Hon. J. A., Nov. 9, 1840.
- Clarke, Hon. Charles, Nov. 28, 1826.
- Costigan, Hon. John, Feb. 1, 1835.
- Dufferin, Earl of, June 21, 1886.
- Foster, Hon. George E., Sept. 3, 1847.
- Fraser, Hon. C. F., Oct. 12, 1838.
- Galt, Sir A. T., Sept. 6, 1817.
- Hardy, Hon. A. S., Dec. 14, 1837.
- Langevin, Sir H. L., Aug. 25, 1826.
- Lansdowne, Marquis of, Jan. 14, 1845.
- Laurier, Hon. Wilfred, Nov. 20, 1841.
- Macdonald, Rt. Hon. Sir John A., Jan. 11, 1815
- Mackenzie, Hon. Alex., Jan. 28, 1822.
- Meredith, W. R., March 31, 1840.
- Mowat, Hon. O., July 22, 1820.
- Pardee, Hon. T. B., Dec. 11, 1830.
- Ross, Hon. G. W., Sept. 18, 1841.
- Thompson, Hon. J. S. D., Nov. 1844.
- Tilley, Sir S. L., May 8, 1818.
- Tupper, Sir Charles, July 2, 1821.

CANNING FRUIT.

Fruit.	Time for boiling, Minutes.	Quantity of Sugar per qt., oz.
Small peas.....	30	8
Crap apples.....	25	8
Large pears.....	20	6
Tomatoes.....	20	None.
Peaches, whole..	15	4
Rhubarb.....	10	10
Plums.....	10	8
Grapes.....	10	8
Sour apples.....	10	5
Blackberries....	9	6
Strawberries....	8	8
Gooseberries....	8	8
Peaches halves..	8	4
Ripe currants...	6	8
Raspberries.....	6	4
Cherries.....	5	5
Blueberries.....	5	4

COST OF SMALL QUANTITIES OF HAY.

Price per Ton.	50 lbs. worth.	100 lbs. worth.	200 lbs. worth.	300 lbs. worth.
Four dols.....	10c.	20c.	40c.	60c.
Five dols.....	12	25	50	75
Six dols.....	15	30	60	90
Seven dols.....	17	35	70	1 05
Eight dols.....	20	40	80	1 20
Nine dols.....	22	45	90	1 35
Ten dols.....	25	50	1 00	1 50
Eleven dols....	27	55	1 10	1 65
Twelve dols....	30	60	1 20	1 80
Thirteen dols..	33	65	1 30	1 95
Fourteen dols..	35	70	1 40	2 10
Fifteen dols....	37	75	1 50	2 25

PARTICULAR WEIGHTS.

- A Stone.....14 lbs.
- A firkin of butter.....56 "
- A firkin of soft soap.....64 "
- A sack of potatoes.....168 "
- A sack of flour.....280 "

DIMENSIONS OF THE LAKES.

Name	Length	Width	Depth	Above sea
Ontario	180 M	40 M	500 ft	231 ft
Erie	270	80	200	565½
Huron	250	100	900	618
Michigan	400	50	unknown	618
Superior	480	109	900	941

PRICES CURRENT

BEE SWAX

Beeton, Nov. 14, 1888.
We pay 33c in trade for good pure Beeswax, delivered at Beeton, at this date, sediment, (if any), deducted. American customers must remember that there is a duty of 25 per cent. on Wax coming into Canada.

FOUNDATION

Brood Foundation, cut to any size per pound.....50c
 " " over 50 lbs. " "48c
 Section " in sheets per pound.....55c
 Section Foundation cut to fit 3½x4½ and 4½x4½, per lb.60c
 Brood Foundation, starters, being wide enough for Frames but only three to ten inches deep...48c

PREMIUM LIST.

The following premiums are now offered to readers of the CANADIAN BEE JOURNAL. We have made special arrangements for the purchase of these articles, and are in a position to make the offer we do. One dollar must be sent with every name that is sent in, though they do not need to be sent all at one time, nor from one post office. The subscribers may be either new or old. If working for any of these premiums, the person so doing must advise us of the fact when they send in the first names. All articles which have to be sent by freight or express, will be sent, charges to be paid by recipient :

- TWO NAMES WITH \$2—**
 One copy Heddon's Success in bee culture 50
 " " Hutchinson's Review, one year 50
- THREE NAMES WITH \$3—**
 One copy Miller's, Year among the Bees, 75
 " Automatic Fountain Pen..... 75
- FOUR NAMES WITH \$4—**
 One copy Cook's Manual..... \$ 1 25
 " " A.B.C.—Root..... 1 25
 " " W'kly Globe to 31st Dec. 1889. 1 00
 " " " Mail " " " " 1 00
 " " " Empire " " " " 1 00
 " " " Western Advertiser 1 00
 " " " Witness, Montreal..... 1 00
 " " Cleanings, one year..... 1 00
 " " American Bee Journal, one yr. 1 00
- One year's subscription to any \$1 weekly or monthly published in either Canada or the United States..... 1 00
- One Smoker, No. 2, plain..... 1 25
 " Honey Knife, ebony handle..... 1 15
 Two best Canadian Feeders, made up..... 1 05
 One Mitchell Frame Nailor..... 1 25

- SIX NAMES WITH \$6—**
 One Force Pump with Sprayer..... 2 00
 " pair Rubber Gloves, post paid..... 2 00
 " Comb Carrying Bucket..... 1 50
- EIGHT NAMES WITH \$8—**
 One set Anatomical Charts, with key.... 2 50
 " Queen Nursery (20 cages) 2 50
 " Uncapping Arrangement..... 2 25
- TEN NAMES WITH \$10—**
 One No. 1 Wax Extractor..... 4 00
 " Heddon H. (made up) complete, ptd. 3 95
- TWELVE NAMES WITH \$12—**
 1000 Sections—one piece—any size..... 4 50
 One Copying Press, Simplex..... 4 50
 Individual right, Heddon Hive..... 5 00
 One Ripening Can..... 4 50
 " Bee Tent—netting cover..... 4 00
- FIFTEEN NAMES WITH \$15—**
 Seven Combination Hives, fitted up for extracted honey, with second story.. 6 30
 One Extractor—any size frame—old style gearing..... 7 00
 One Lawn Mower, best make, 12 in..... 6 50
- EIGHTEEN NAMES WITH \$18—**
 One Farmers' Union or Family Scale, ½ oz. to 240 lbs..... 8 00
 One Extractor—best made—to take any size frame..... 8 00
- TWENTY NAMES WITH \$20—**
 10 Combination Hives, for comb honey. 9 00
 10 S. W. Jones Hives and Frames..... 8 30
- TWENTY-FIVE NAMES \$25—**
 One Union or Family Scale, 240 lbs. with tin scoop..... 10 45
- THIRTY NAMES WITH \$30—**
 3000 Sections—one piece—any size..... 13 00
- THIRTY-FIVE NAMES WITH \$35—**
 Two Colonies Bees with good queens... 16 00
- FORTY NAMES WITH \$40—**
 5000 Sections—one piece—any size..... 20 00
 One Portable Platform (19 x 14) Scale, 500 lbs. with wheels..... 18 00
- FIFTY NAMES WITH \$50—**
 Three Colonies Bees, good queens..... 24 00
- SIXTY NAMES WITH \$60—**
 One Farmers' Platform Scale, with wheels, 1,200 lbs., steel bearings..... 26 00
- SEVENTY-FIVE NAMES WITH \$75—**
 50 Combination Hives, for comb honey.. 31 50
- ONE HUNDRED NAMES WITH \$100—**
 50 Langstroth Hives..... 37 50
- ONE HUNDRED AND FIFTY NAMES WITH \$150—**
 One Combined Barnes' Foot Power Machine..... 60 00
- TWO HUNDRED NAMES WITH \$200—**
 10 Colonies Bees in Combination Hives, with good laying queens..... 80 00
- THE D. A. JONES CO., LD.**
 BEETON, ONT.

20 CENT ARTICLES.

Postage.	Per 10 lots.	Per 25 lots.
Bit, best make, $\frac{3}{8}$, 7/16, $\frac{1}{2}$, 9/16..	1 90	4 50
Brass traps.....	1 85	4 50
Brushes, flat, 2nd quality, $1\frac{1}{2}$ in. paste or varnish.....	1 80	4 25
Chisel, firmer, inch.....	1 90	
Ebony ruler, bevelled for book-keeper.....	1 90	4 50
File, 8 inch, flat, round or 3 corner.....	1 90	
Glue, 1 lb. light, broken.....	1 75	
3 Lead pencils, 1 doz. 201 good value, rubber tipped.....	1 80	
Paint brush, No. 3.....		
12 Papeterie, "Jubilee" containing 24 sheets, ivory notes, 24 square envelopes.....	1 80	
6 Pens, gross box "292 school"....	1 80	
1 Pocket memo book, indexed....	1 90	
Screw-driver, steel, 6 inch rd bit	1 90	
Square, iron, grad. to $\frac{1}{2}$ one side	1 90	
Thermometer.....		

25 CENT ARTICLES.

6 Cards, 50, ladies' or gents' visiting. Piries' super ivory...	2 00	4 50
2 Duplicate order books, with black leaf.....	2 00	4 50
File, 10 inch, flat.....	2 25	
3 Lead pencils, 1 doz. Faber's H, H. B., B. or B. B.....	2 30	
Paint brush No 1.....		
Rule, 2 foot, boxwood.....	2 30	
Tape Lines, "Universal," 3 ft..	2 30	

30 CENT ARTICLES.

8 Bills payable and receivable....	2 85	6 90
Bits, best make, 10/16, $\frac{1}{2}$, $\frac{3}{4}$	2 85	6 90
250 Envelopes, Ladies', square.		
5 Foolscap, 2 quires, extra quality	2 80	
4 " legal, in pads of 100 sheets.....	2 75	6 100
Inkwell, square, glass, bevelled edges.....	2 75	

35 CENT ARTICLES.

Bit, best make, inch.....	3 40	8 20
Hammer, steel face, for light work.....	3 30	
Square, grad. to 1/16 both sides	3 30	

40 CENT ARTICLES.

Foolscap, 5 quires, good quality	3 75	
Hammer, No. 50, steel head, adze eye.....	3 60	
Pens, gross box, 'Bank of Eng.'	3 80	
" " Blackstone or J.	3 80	
Ruler, 2 foot, boxwood, brass bound.....	3 60	

50 CENT ARTICLES.

Binders, CANADIAN BEE JOURNAL	4 80	
Blank books.....		
Day book, 200 p. p. good paper, well bound.....	4 75	
Cash " " " " " "	4 25	

Postage.

	Per 10 lots.	Per 25 lots.
Ledger " " " "	4 25	
Minute " " " "	4 25	
Complete set, Cash, Day and Ledger, \$1.25.....		
200 page Day Book, canvas cover good paper, exceptionally low		
Carpenter's brace, pat. grip, 8 in	4 85	12 00
Envelopes, good, business size, 250 in box.....	4 00	
250 Envelopes, Ladies' square, very goods.....		
Hand saws, 18 and 20 in., best make.....	4 50	
Hammer, No. 51, steel head, adze eye.....	4 50	
Hammer, smaller, frame nail'g	4 50	

SUNDRIES.

Automatic Fountain Pen, the finest thing out; holds enough ink to last a week; always ready; can use any style of pen that suits you, and can change it as often as you wish—a marvel of cheapness—by mail, post paid, each..... 75



Barnes' Foot Power Machinery—We are agents for these in Canada, and can furnish the Combined Machine delivered in Toronto, freight and duty paid for..... 60 00

We will gladly forward descriptive Catalogue & price list on application.

Copying press, "The Simplex," the most rapid and the easiest handled. Folds like a book and weighs but 10 lbs. With lock, \$5, without.... \$4 50

Hammer, No. 47, steel head, adze eye a most substantial implement.... 60

Hand saw, 26 inch, finest quality.... 55

Hatchet, steel, with hammer and nail puller..... 65

Lawn Mowers—The new Philadelphia pattern, as made by the Gowdy Mfg. Co., Guelph, at prices as follows:—

10 inch cut.....	5 75
12 " ".....	6 25
14 " ".....	6 50
16 " ".....	7 25

We ship these direct from the factory at above figures.

Letter books, with index, bound in canvas, 500 pages..... 1 10

Letter books, with index, bound in canvass, 1000 pages..... 2 00

Plane, iron block..... 75

" wood smoothing..... 80

Post cards printed to order, 50 \$1, 100 Square, steel, grad. both sides, usual price, \$1.75..... 1 40

1 25

Soldering outfit, consisting of soldering iron, scraper, bar of powdered resin..... 75

D. A. JONES, Pres.

F. H. MACPHERSON, Sec.-Treas.

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As is our usual custom we now offer discounts for fall and winter orders. We desire it to be understood that we do this principally to avoid the crowding in the rush at springtime. We can always fill the orders to better advantage and take more pains when we are not crowded. This of itself is a good thing for the customer, and when to this is added the discount which we allow off catalogue prices, it will be well worth trying. Up to January 1st, 1889, our discounts will be as follows:

10 PER CENT.

Hives, Sections, Honey Extractors, Honey Boards, Section Frames, Section Cases, Frame Nailers, Wire for Frames & Rests, Smokers, Hive Clamps, Honey Knives, Wax Extractors, Bee Tents, Comb-carrying Buckets, Comb Baskets, Bee Guards, Ripening Cans, Uncapping arrangements, Bee Veils, Queen Nurseries, Labels, Anatomical Charts.

5 PER CENT.

Nails, Perforated Metal, Comb Foundation, Force Pumps, Feeders, Rubber Gloves, Introducing Cages, Tins, Shipping Crates, Honey Glasses, Sealers, Dextrine, Wire Cloth, Mosquito Bar.

All other goods in our Catalogue are subject to the prices found therein. For January the Discounts will be 8 per cent. and 4 per cent. respectively; for February 6 per cent. and 3 per cent.; March 5 per cent. and 2 per cent. No discount after April 1st. These prices of course are for cash with order. We have a big stock of almost everything on hand, and can ship at short notice. Catalogue free on application.

1-LB. GLASS JARS. SCREW TOP.



We are just advised of shipment from the factory of the first instalment of 50 gross of the above. They are put up in barrels and hogsheads, (the latter for our own local use), and to save breaking bulk when shipping, we append below a table, of the quantities of which the shipment consists, together with the prices per

barrel. In estimating the price, we have calculated the same as for full gross lots, an allowance of 20 cents being made for each barrel and packing (they cost us 35 cents).

No. of Barrels.	No. of Doz.	Prices.
1	8½	\$ 6 25
1	8½	6 45
4	9½	6 75
5	9½	6 95
4	9½	7 15
8	10	7 35
8	10½	7 55
2	10½	7 75
1	11½	8 45

ADVANCE IN NAILS.

Owing to a rise in the prices of nails, we are forced to advance our prices somewhat, as will be seen by the following list. All orders will be filled only at these prices.

PRICES OF WIRE NAILS.

Length of Nails.	No. in Pound	Size Wire	Price of 1 Pound	Price of 10 lbs.
¾ & ⅝ inch	7200	21	22	2 00
⅞ inch....	5000	20	17	1 60
1 inch ...	3880	10	17	1 60
1 inch....	2069	18	12	1 05
1½ inch...	1247	17	11	1 00
1½ inch...	761	16	10	90
2 inch....	350	14	9	80
2½ inch...	214	13	9	75
3 inch....	137	12	8	70

PRICES OF BOX OR HIVE NAILS.

	Per lb.	Per 10 lbs.	Per 100 lbs.
1½ inch.....	7	65	6 00
2 inch.....	6½	60	5 50
2½ inch.....	6	55	5 25
3 inch.....	6	55	5 25

THE D. A. JONES CO. LD.,
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Are unsurpassed for Quality and fine Workmanship. A specialty made of all sizes of the **Simplicity Hive**. The **Falcon Chaff Hive**, with movable upper story continues to receive the highest recommendations as regards its superior advantages for wintering and handling bees at all seasons. Also manufacturer of **FALCON BRAND FOUNDATION**. Dealer in a full line of **Bee-Keepers' Supplies**.

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250 ENVELOPES

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Money Boxes for Sections.



These are of manilla and made to hold the 4 1/2 x 4 1/2 sections. When the comb honey labels A or B are used (as in illustration) an attractive and highly saleable package results. Price without tape handles, each 1 cent; 100, \$1.00; 1000, \$9.00.

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SEND US \$2.50

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We are turning out sections at the rate of 10,000 per day right along, in addition to our regular hive and supply trade, and we are prepared to furnish them in any regular size and style in large quantities at very low rates.

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1000	\$ 4 00
3000	12 00
5000	20 00
10,000	37 50

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