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VOL. III, NO. 48 1887 FEBRUARY 22, '88.

PUBLISHED EXCLUSIVELY IN THE INTERESTS OF THE HONEY PRODUCER

JOURNAL

THE FIRST $ WEEKLY IN THE WORLD

ONE DOLLAR PER YEAR

THE GREATEST POSSIBLE GOOD TO THE GREATEST POSSIBLE NUMBER

PUBLISHED BY
THE D·A·JONES Co LTD
BEETON ONT.

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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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THE CANADIAN BEE JOURNAL

WEEKLY.

"THE GREATEST POSSIBLE GOOD TO THE GREATEST POSSIBLE NUMBER."

VOL. III. No. 48 **BEETON, ONT FEB. 22, 1888.** WHOLE No. 152

EDITORIAL

WE do not remember having acknowledged the receipt from Thos. G. Newman & Sons of a copy of the proceedings of the last North American Bee-Keepers' Association convention, in bound book form. For this we must apologise; the neglect was unintentional on our part.

* * *

In the *Record* for February we find the following recipe given as a good way of taking Cod Liver Oil:—

"To 8 ozs. of honey and the same quantity of Cod Liver Oil, add the juice of two lemons, mix well together. The mixture is most pleasant to take, and is useful in all chest affections. Honey will not mix with oil unless some vegetable acid be used."

* * *

Over the border our friends are making a great effort to have their rates of postage on seeds, plants, &c., reduced to a level with the rates on the same class of matter in Canada. The postage on seeds in the U.S. is 16c. per pound; in Canada 4c.; in England 6c. We, here in Canada, have something to be thankful for in this respect, even though our neighbors are away ahead of us in the matter of the two cent rate on letters.

Lower Freight Rates For Honey.

A FEW weeks since we wrote to the General Freight Agent of the Northern & North-western Railway, placing before him in the best way we knew how, the necessity of a lower classification of honey as compared with syrups and other goods of like nature, with the request that he bring it before the classification committee of the Railroad System of Canada at its next meeting which was to be held a few days later at Montreal. Mr. Quinn replied at once that he would be glad to do so.

Let us here explain the present rates as charged on honey and syrups: Freight is divided up into a number of classes, according to value, bulk, weight nature, etc. The rates on these classes we can best give by quoting those in force between Beeton and Toronto, as an example. The same rates are in force, or in like proportion, over all the roads in Canada according to distance.

TORONTO TO BEETON.

1st class	2nd	3rd	4th
26	23	20	16

The present classifications are as follows:

	CLASS.
Syrups in glass or jugs or tins, boxed..	2nd
" " barrels or casks	3rd
Honey in boxes, kegs or cans.....	1st
" " barrels or casks.....	2nd

It will thus be seen that the difference in freight on honey in barrels and casks and on syrups put up in the same way is three cents per hundred pounds between Beeton and Toronto; and the difference in the rate for these same goods in boxes, tins or jugs is also three cents per 100 pounds.

Our efforts were in the direction of having honey in barrels, kegs and cans, encased in wood, entered as third class freight instead of as first class, which would thus make a saving to the customer of six cents per hundred pounds, at the distance we have taken as our example. We regret, however, that our efforts have been unsuccessful, as will be seen by Mr. Quinn's letter which we subjoin. We anticipated that in default of their compliance with our request, they would, at least give us a second class rate on "boxes, kegs and cans packed" but we are sorry to say that the Committee did not see their way to any change at the present time, taking into consideration the value of honey as compared with syrups. Mr. Quinn suggests that a statement be prepared showing the values of honey and syrups respectively; and he promises to bring it before the committee at its next meeting.

Following is the letter received and referred to:

"In further reference to your favor of 27th ult., regarding the classification of honey as compared with syrups. I brought this matter under the notice of the Classification Committee last week in Montreal, but I could not prevail on them to make any reduction, or to class it any less than at present. It was claimed by several representatives that there was a wide margin in the value of honey as compared with syrups, and the value is one of the elements which enter into the classifying of properties. If you like to prepare a statement showing the value of syrups and honey, I will be glad to bring it up at the next meeting of the Classification Committee.

ROBT. QUINN,
G.F. & P.A., N. & N.W.R.

We are now at work gathering materials for such a statement as is referred to above, and we should be exceedingly glad to have the co-operation of all interested—and there is hardly a bee-keeper in the country but who is. If, when all is ready, we find that our statement is of such a nature as to bear favorably upon the Committee, we shall make a strong appeal for the reduction. Letters to the different freight agents throughout the Dominion would have much effect, and we hope that many such may be written.

Bee-keeping Two Hundred Years Ago.

FROM an old history of Oxfordshire (Eng) written in 1667, the *Record* found the following extracts referring to two men whose names were not given, but whom the people of those days seemed to regard as experts in bee-keeping—rather 'wonders" in their line:

"They take swarms *out* of any stock that is able and neglects to swarm, without injuring the stock.

"They can take honey out of the stock without any hazard to the bees, which they say the common practice leads to.

"They can secure any stock from the invasion of robbers.

"They can so order an old stock that the bees shall gather pure virgin honey.

"If a stock be in a low condition they can preserve and recruit it so as it shall do well.

"They can take away a queen when there is more than one in a hive, and place her in a stock where the queen is dead or otherwise wanting, and by that means keep the subjects together, which would else disperse.

"If a queen wants subjects they can draw out of several stocks supplies to what number they please, that shall settle under her government.

"And these operations they commonly practise, which, because profitable to them, they are unwilling should be made too common; which yet they are so ingenious as not to deny to communicate to fit persons upon reasonable terms."

The above is exceedingly interesting inasmuch as it shows that two hundred years ago increase by division was practised; extracting or taking honey without brimstoning the bees was done; that bees were robbers then as well as now, and that robbing could be prevented; that section honey was produced; that stimulating for the upbuilding of colonies was practised; that queenless colonies were requeened by "introduction"; that weak colonies were strengthened by taking bees from several strong colonies, and adding to the weak colony just as now; and that bee-keepers in those days were just as loth to part with their bee-knowledge as are some in the present day and generation unless they are well paid for it.

From our British Correspondent.

SECTION CASES, QUEEN EXCLUDERS AND DIVIDERS.

SECTION cases with us are legion, we have every imaginable shape and size. The few I have selected for insertion in this article are those in common use with us at the present time.

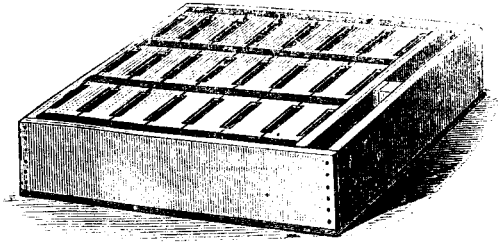

FIG. 1.

Fig 1 is the ordinary kind of case for holding 21 4¼x4¼x2 in. sections. Our brood chamber being 14½ in. long to take the "Standard" frame, seven sections in length will nicely cover the brood nest, and ten frames being the usual number used, the three rows of 4¼ in. sections, and the two thicknesses of wood that form the two sides of the case, just covers the 15 in., consequently there are far more made this size than all other sizes combined.

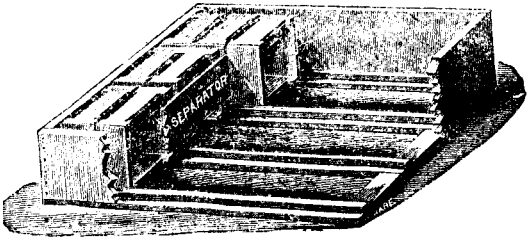

FIG. 2.

Fig. 2 shows you the inside of fig. 1. You will observe the runners upon which the sections rest. They are four in number and are a bee-space (five-sixteenths of an inch) thick. The separator or divider is also shown in position, but of dividers more anon. Look again at fig. 1 and you will see the sections are jammed together tight by a piece of board placed against them and a wooden wedge forced between this board and the case. Most section cases have a sheet of glass next the sections, inside the board, used for jamming them together. By withdrawing the wedge and the loose piece of board and allowing the glass to remain, the sections may be examined at any time without the bees coming out to annoy the operator or giving him the trouble of driving them back.

I guess you have two advantages over us in the matter of honey gathering. First you have a higher temperature, consequently fewer bees are compelled to remain at home, this gives you less bees in your brood chamber and section cases to handle during manipulation in the day time, and you have more bees out foraging. Second, you get longer spells of sunshine than we and when we get dull days our bees amuse themselves at home fastening everything together with propolis.

Fig. 3 shows you three sections in a frame, so that you can remove the sections in rows instead of handling each section singly. This is handy if you wish to "jump" the unfilled outside rows into the middle to get them finished. The "bee-space" is loose in this case and the sections are held in by two metal screws instead of a wooden wedge. This case is capable of being inverted, hence the loose bee space.

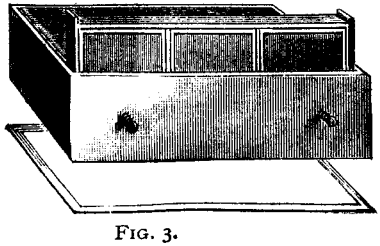

FIG. 3.

Fig. 4 is a super of 21 sections in three divis-

ions, this was designed by the Rev. Geo. Raynor, one of our veterans in the craft. There is a little window in the end of each division and each set of seven are held in position by a wedge.

in our show cases is pretty well demonstrated.

Honey boards and queen excluder zinc are *not* used by us. The latter is gone out of fashion except by the fossillized. I have yet to see the

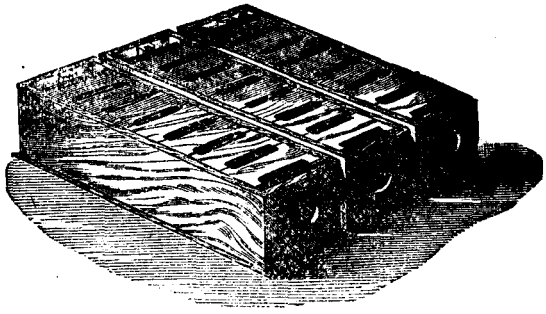

FIG. 4.

Fig. 5 also contains 21 sections, the outer case is divided in the middle, one half is raised in the cut, compression is given by screws; it is invertible, consequently the half bee-space is separate. We have also section cases with tin ⊥ rests. I am sorry I cannot give you a cut, but

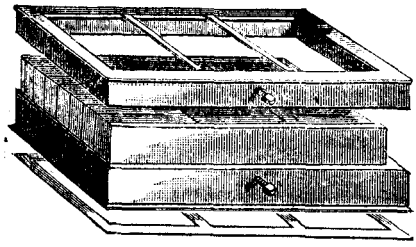

FIG. 5.

they are very similar to fig. 5 only the bee-space is like that shown at fig. 3. I may say in this connection, all these cases are made to take the 4¼x4¼x2 in. sections. We have no registered "Standard" size section, but there are thousands of this size used where there are not even units of other sizes, so that practically this is our standard one pound section by an "unwritten law."

Your exhibit and commissioners at S. Kensington raised a slight "flurry" in favor of narrow sections worked without dividers, but narrow sections are not yet "come to stay" and the fallacy of trying to produce sections in *quantity* without dividers that will admit of being glazed

excluder zinc that will keep out a queen if her mind is bent on going through, unless the said zinc was perforated so small as to be a very great hindrance to the workers. How do we keep the queens out of the supers? By using worker size foundation in supers, and only running young queens. Throw away your "shut-out" and try it!

DIVIDERS.

Previous to the season 1886 the dividers used were like what is shown at fig. 2. One day I had an inspiration; it came like a flash. I communicated it to bee-keepers and it was adopted. I afterwards found that the same idea had occurred to a "cousin Jonathan" whose name I do not remember, I saw it in *Gleanings*, but not till mine was made public. It is the old story of the same idea occurring to two minds, far removed by space. The accompanying fig. 6 gives you a cut of it. Few things have met with a more ready approval at the hands of bee-keepers. Mr. Blow manufactured and issued them; in four

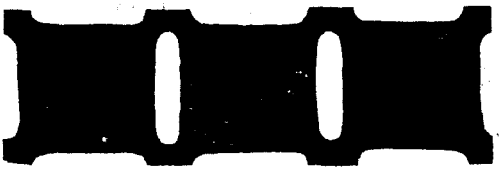

FIG. 6.

months he tells me he cut upwards of three tons of the very thinnest sheet zinc into these dividers alone, besides some thousands of very thin wood. Just my luck! If I had only patented the idea and charged a royality!

"There is a time in the tide of affairs of every man which if" et:., etc.

That if!

But to return to sober seriousness, I wish another pen had to write this chapter. Of course

we all think much of our own creations. I submit the idea to your consideration; anything that tends to give greater facilities to the bees must be an advantage, and that is all I claim for "slotted dividers." They won't make our honey better than yours, nor yet prevent swarming.

I saw a small boy of sixteen summers in Mr. Blow's factory pushing the sheets of zinc into a machine and just as fast as you could comfortably count "one" the divider was stamped.

But I am spinning out this yarn to an undue length. Supper is ready somebody says.

AMATEUR EXPERT.

From the Canadian Live Stock Journal.

FEBRUARY WORK.

MR. Allen Pringle writes as follows in the above journal, and though late in the month, yet, as the same article applies pretty well to March, we give it in full:

The bees are now in winter quarters, or ought to be, and hence require but little attention and no more manipulation than is absolutely necessary. They should be disturbed as little as possible during the winter. The reasons are obvious enough, yet some bee-keepers are apparently unable to comprehend their force. I know one especially, with over a hundred colonies, who keeps going into his bee-cellar nearly every day in winter just to "see how they are getting along"; and this man loses about enough bees every winter and spring to pay for his confinement—that is, to pay him for shutting himself up so that he couldn't possibly get at the bees. Bees, to winter well, ought to be very quiet up to about the first week of March, when they usually begin to brood. During this period of quiescence they require but little food, and under proper conditions take but little. The proper conditions are, plenty of wholesome food in the hive (capped honey), a repository with temperature about 45° Fah.; darkness; suitable ventilation both of hive and repository, and freedom from disturbance. When disturbed, they consume more food—perhaps gorge themselves—and bee diarrhœa is often the result. It is necessary, however, to look in amongst the bees occasionally in winter to ascertain their condition, but this can be done without exciting them. Should the entrance be clogged with dead bees, they may be gently cleared by means of a stift quill and a wire slightly crooked at one end. With those badly diseased, which may be detected by the soiled, spotted appearance of the hive around the entrance, little can be done in the way of remedial effort, till a day arrives sufficiently warm and fine to give them a flight in the open air.

This can be done by removing them to their summer stands, from which they can be returned to the cellar after their cleansing flight. Meanwhile, before the opportunity to fly them arrives something may be done towards their relief. Should they be in the old-fashioned box hives, proceed as follows: Bore an inch or inch and a-quarter hole through the front of the hive, within two or three inches of the top. Should you strike between the strata of comb, or clear of them, all well; it not, bore another hole near by. Now turn the hive upside down and spread a cotton cloth over the open top. Over this spread four or five warm, woollen quilts, or sufficient to make a covering about four inches in thickness. Should the summer entrance consist of a hole or holes near the bottom of hive, these should be stopped up. The quilts should be large enough to hang well over every side of the hive. If the temperature of the repository is below 40° degrees Fah., it ought, if possible, to be raised to 45° or 50°. This all must be done gently and quietly so as to disturb the bees as little as possible. When a suitable day arrives, set them out on their summer stands right side up, and return them in the evening after their flight.

Colonies in the movable frame hives, diseased, may be treated in the same way, with the exception of inverting and making a new entrance. The summer, propolized quilt, if present, should be removed, and cotton and woollen as above directed, substituted, sufficient to make the colony warm and comfortable. Some apiarists resort to allopathic medication for the cure of bee diarrhœa, but as I have no faith in such modes of treatment I shall not point out the specifics used.

While there is not much necessary apiarian work in winter directly with the bees, there is generally work in plenty among the "fixings"—work which ought to be done in the leisure time, so that when the hurry comes all will be ready. Whether the bee-keeper uses the box hive or the best modern hive, he had better get his hives and all other necessary appendages ready during the winter, and when the active season comes around he will be fairly astonished at the amount of work he can turn off without fret or friction, when everything needful is at hand.

Convention Notices.

The first regular meeting of the Norfolk Bee-keepers' Association will be held at Dean's Hotel, Simcoe, on Saturday, March 3rd, at 2 o'clock, p.m. All interested in bee-keeping are invited to attend.

Simcoe, Ont. C. W. CULVER, Sec.

For the Canadian Bee Journal.

The "First Book" of the O. B. K. A. Library.

THROUGH the courtesy of our Secretary, Mr. Wm. Couse, I have enjoyed the privilege of reading a little book, inside of which I found a slip of paper, with the following memorandum on it: "Amateur Expert has great pleasure in forwarding this, the first response to his appeal in the columns of the *British Bee Journal*, for the O.B.K.A. Library." In his address at the recent annual meeting, Ex-Pres. Pettit said, "The foundation of an Association Library has been laid, the first book of which was a present from our good friend, T. W. Cowan, Esq., F. G. S., F. R. M. S., etc." Two queries arise in view of the quotations just made: Are "Amateur Expert" and T. W. Cowan, Esq., one and the same person, or have we a start of two books instead of one, towards the library?

If this is the first and only bee-book as yet in the library, the start is a truly modest one, as the volume only contains 48 pages. But it is proverbial that "from small beginnings great results do spring," and let us hope this may come true in the present instance. This little work is entitled: "A Bee-keepers' Experience in the East, among the queen-raisers in the North of Italy and Carniola." The author is Thomas B. Blow, Esq., F. L. S., of Welwyn, Herts., a noted English bee-keeper, and supply dealer. This is the kind of book our friend D. A. Jones might have written after his Oriental tour, but he didn't do it, the more's the pity.

As I am to forward the book to Mr. McKnight for his perusal, I presume the intention is that it shall "go the rounds" among those members of the Association who may desire to read it. So I will give some brief account of its contents, and a little taste of its quality. Mr. Blow started on his journey, Dec. 11th, 1881. He touched at Algiers, but did not stay long enough to investigate the bees of North Africa. The next port was Malta. Here he found that the bees were black, which raised a suspicion that the bees of South Italy and Sicily were black,—a suspicion confirmed by Mr. Benton in the *British Bee Journal*. The bees of the Eastern shores of the Adriatic are black, and Mr. Blow is of the opinion that the yellow Ligurians of North Italy, were originally from the extreme East, and were imported long ages ago by the Romans, and have become a distinct local variety.

Cyprus was visited, and some time spent with Mr. and Mrs. Benton at Larnaca. Then follows an account of a journey inland for the purchase of bees, during which a variety of incidents and adventures befel the traveller. Between fifty and sixty stocks were bought, about twenty per cent of which were lost on the voyage to England. In Cyprus, bees are kept in long narrow cylinders of baked clay, which are piled one on top of the other to the number of 60 or 100, the entrances not being a foot apart. Mr. Blow scores a point in favor of bee-houses, in view of this; or rather, takes the opportunity of rebutting one of their supposed disadvantages. He says: "I bought between fifty and sixty stocks, and *in no case was a stock queenless*. The great disadvantage of a bee-house is supposed to arise from the queen mistaking the entrance. If the eastern queens can find their entrances thus readily in a pile of 50 to 100 hives, they must either have better discernment (a point in their favor,) than English queens, or this objection to bee-houses is unfounded."

Mr. Blow is of opinion that the Cyprians and Syrians are almost identical. The queens are very prolific, and the brood is raised in compact, solid masses, no patches of comb being left empty. He considers the bees better workers, more active and strong than the common English strains, though just a trifle smaller. He admits their irritability, and considers the Syrian the worse of the two, but says that an experienced bee-keeper can handle them readily enough, without gloves. Most readers will be surprised at the following sentence: "When these bees are angry, they seem to be cautious in stinging, but attempt to bite in preference." I don't think I have ever seen any true Cyprians or Syrians, if the statement just quoted is correct. Those I have met with were very incautious about stinging, and I never knew one that preferred to *bite* rather than *sting* me.

Mr. Blow thinks a great many inferior queens have been imported, and that those bee-keepers have secured the best results who have carefully bred from the choicest specimens, instead of constantly importing queens. He traces the prevalence of dysentery and even foul brood to careless importation. He cites the case of one "unsuspecting British bee-keeper," whose apiary was utterly ruined by the introduction of foul brood in this way. He found that many dealers in queens on the continent were only agents who bought indiscriminately from country folk and knew nothing whatever about bees themselves. The moral is to import sparingly and only from competent and trustworthy breeders. Though Mr. Blow visited a large number of apiaries, he says:—"I can count on the fingers of my right hand all those who know anything about their business, and there are "less than five" who take

pride in the production of first-class queens, and who use real scientific means to secure the best results. One of them is Jean Pometta, and the account of his methods is very full and interesting. This queen breeder has a system very similar to Mr. Ailey's, and some of his processes are illustrated by cuts borrowed from that gentleman's well known book on the subject. Though the tour was made in 1881, the narrative of it was only given to the public last year. Visits to the apiaries of M. Mona, Dr. Dubini, M. Sartori, Lucia Paglia, and Josephine Chinni, are detailed very pleasantly. The last named is the village school mistress, and is guilty of the unpardonable crime in the eyes of some, of not being a specialist. Nevertheless, Mr. Blow certifies to her ability and success.

The details concerning Carniola are very interesting, especially those referring to the apiaries of Messrs. George Dolenec and Michael Ambrosic. The latter has a bee-house holding 500 stocks. Mr. Blow holds the Carniolan bees in high esteem, and confirms the accounts given by various parties of their quietness. He has received stocks by rail that he thought dead because they were so quiet; but no, they were only resting quietly on their combs. They can be handled without smoke, and do not run in heaps at the bottom of the bars, or fall off the combs like the majority of races of bees do. They are good honey gatherers. He does not consider that they have a tendency to excessive swarming, but when they swarm they are apt to fly far and settle high. Hence he considers the natural swarms "nuisances." He predicts a great future for the Carniolans.

Not the least interesting part of the book is an appendix by W. Hollier entitled "A visit to Mr. Blow's bee-garden." The first part of this addendum gives a description of the factory, which seems to be a very complete little establishment. The apiary, of which a cut is given, is located in a kind of park, where the trees are much higher than I should care to have them around my apiary, particularly if I kept, as Mr. Blow does, Carniolans. Besides these there are Italians, Cyprians and blacks. As thus compared side by side, their owner pronounces the Carniolans "best for all purposes." The hives are painted alternately dark green and chocolate. On being asked why he did not paint them white, Mr. Blow said he had them white once, but a lady neighbor complained that they looked like a cemetery. A queenless hive was being robbed. This Mr. B. stopped by shutting up the entrance and sprinkling the alighting-board with paraffine intending to open the hive toward evening, so the robbers might go home, and next day uniting the queenless colony with another.

W. F. CLARKE,

St. Thomas, Feb. 8th, 1888.

From the Ladies' Magazine.

APICULTURE.

DOES it not seem strange to the observant reader of bee-lore, how month after month our bee journals are kept up; new articles in every issue, differing in many respects from each other, though all on the same subject, the honey bee, an insect that so few people really know anything about, unless having taken advantage of our bee journals, or having performed manual labor among these "Gatherers of the Sweets of Nature;" this I think must show pretty conclusively that the study of bee-keeping is no small one.

Look for example at the number of books written on this subject, any of which can be read by a novice in the art of bee-keeping, with pleasure and profit to himself, for a little knowledge outside of business, farming, horse and cattle raising, and fruit growing is surely a pleasure and benefit to anyone of an enquiring turn of mind; one hour's perusal from some of our leading books (or our weekly and monthly journals) on apiculture, would open the eyes of a good many to the wonderful and peculiar characteristics of the bee, let me here instance a few: In an ordinary modern hive or colony of bees there should be, during the summer months, from 15,000 to 40,000 bees; this may surprise a good many to commence with, it is however a truthful statement: A good queen has been known to lay from 1,000 to 3,000 eggs in *one day* and these in twenty-one days are hatched out, hence the truth of some hives having been known to cast off three or four swarms in one summer, thus accounting for the wonderful increase in numbers that seems ever to be going on: Bees have been known to bring in from fields of white and alsike clover ten pounds of honey, and from the basswood or linden tree, fifteen pounds in *one day*, this, if the reader will consider well, is an astonishing proof of the great industrial habits of our "little friends" for the amount one bee can carry from the field of clover to the store house is very small indeed, as the bee in a great measure derives its nourishment from the honey it gathers before storing it away in the cell, besides the quantity mixed with the pollen deposited carefully in the comb cells, for the forming of "bee bread" as it is called, for the food of the young brood. Bees take from sixteen to twenty pounds of honey to form one pound of wax, hence a great waste of this most necessary article of trade in those bee-keepers who go in for comb honey in preference to extracted, however every man to his own taste and that which suits his pocket best, a very important thing now a days is this same pocket in regard to its

fullness; wax, as I have before stated, is made from honey and works out through the pores or scales of the bee's body, somewhat in the manner as perspiration on the human body, and with this wax, a powerful pair of jaws, the tongue and feet, all helping each other, the wonderful construction of the comb takes place. Bees have been known to fly five or six miles for "pastures new" crossing rivers and lakes in their search after honey secreting plants or flowers, but if the search may have proved long the return home is very rapid, owing to their wonderful powers of location and their peculiarly gifted instincts of *direct flight* to their own hive though it may be amongst a hundred or more of others; I have seen a good sized hole made in a piece of comb just before dark and the next morning have seen the same comb nicely built out again, proving pretty satisfactorily if anyone doubted it that the bee is no sluggard: very few bee-keepers I believe have ever been stung by a queen bee, as instinct seems to tell her to suffer much before retaliating, which would mean her death, as the *queen* and *worker* bees die from the effects of stinging, while the *drone* has poor chance of proving his angry feelings as he has no sting at all.

Trusting I have, in my feeble way, brought before some of the numerous readers of this thriving little magazine a few of the peculiar characteristics and instincts of the honey bee, and that it may prove of some interest to them, I will conclude with the good old French saying that permits of the thought of our perhaps meeting again in these friendly pages. *Au revoir.*

A. VEASEY.

From the American Bee Journal.

LIGHT IN CELLARS,

THINKING that some of the readers, in the near future, may have a few colonies of bees to winter, and for which they do not wish to spend much money to make a cellar or cave, not even to render their ordinary cellar dark and unpleasant to use for the ordinary family purposes, I have decided to state a few points perhaps overlooked by bee-keepers, in regard to light in the cellar as a means to the paramount purpose of healthfully wintering bees.

In this article it is not the intent to exhaust the evidence, neither to establish the theory thus far among scientific bee-keepers not mentioned as a possible factor to successful wintering. I shall simply state that I have been in the habit of wintering part of my bees in cellars at various times and in various places, according to circumstances. However radical I may have been, only in one instance has the ordinary stereotyped rule been disregarded by me so far as darkness was concerned. I have in all cases absolutely excluded light from my cellars except in one case, when I wintered successfully a few colonies in Allegan, Mich., in a very light cellar, where vegetables were kept for the daily use of a large family, composed mostly of children, who went when they pleased into the cellar for apples, etc.

The point that I wish to bring out conspicuously is, that light is essential to the welfare of all warm-blooded animals, to which rule bees are in no wise an exception; neither are plants. It will of course be at once assumed that in order that bees may be quiet, human ingenuity must exclude from them all light as the first and prime essential.

"Habit," the lamented Artemus Ward said "is a bad habit." While in a certain sense his statement is correct, I shall not presume that the many gifted bee-keepers and writers who have, and now do advocate wintering bees in dark cellars and caves, do so simply out of respect to the time-honored custom, without giving all the accessories which they so explicitly explain due thought and consideration. No; but on the contrary, their articles seem exhaustive, and so far as a recapitulation of the accidents and purposes which have come under their consideration goes, the evidence and conditions given leave little room for reasonable difference of opinion.

The fact still stands out boldly, that perhaps the one most important factor entering into the proper statement of the wintering problem has been hitherto omitted, viz:—Light. Light in the cellar; light in the hive; and light in the swaying trees.

Having so far outlined what I wish to be understood, allow me to give a pen-and-ink sketch of the few of my bees now in the cellar, to illustrate what has been written:

My cellar is 6½ feet high and thirty feet square, and under my house where we live. This cellar has three ordinary three-pane double windows, one on the east side, one on the south, and one on the west side. These windows render the entire cellar comparatively light. The walls are of stone, plastered with hydraulic cement mortar. Around the cellar on all sides a row of two-inch drain tile are laid a few inches below the level of the cellar, and leading out below the house, to drain the cellar (which is nicely accomplished.)

The cellar bottom is covered about two inches deep with dry sand. This sand is used in preference to cement, as I regard it as being more healthful to the family and the bees. Every spring this coat of sand is removed, and a new coat returned in its place. Of course the cellar is sweet. It is also cool in summer, and warm in winter, as the entire bottom plays its part in radiating and absorbing the heat.

On the east side of the cellar, facing the east window, and about ten feet from it, are three rows of hives, six hives in each row, piled one above the other, three high. Eighteen colonies of bees stand facing the east window squarely. Each hive has an entrance twenty-three inches long facing the window. The bees are at liberty to take in all the light there is, and the light is ample to read by.

They have all the daylight and brilliant light in the morning when the sun shines obliquely through the window into the cellar. The bees

are at liberty to fly also, but few, however, take such liberty; when they do they head to the hive as if in the open air, and after a short fly they dart to the window, where, of course, they die.

It will be said that the cellar is cold or the bees would not keep so still. The temperature has averaged up to date (Jan. 17), 45° or more; only once has it touched 40°, and then only for a few hours; while most of the time it has shown 50°.

It is not a matter of convenience that these bees are placed as they are. They have been so placed, because I believed daylight essential to the welfare of the bees. Next May, when the clover blooms, I shall know how well my belief was founded. Should it prove well founded, a valuable experiment will have been made public; as it will then be reasonable to keep a few bees in an ordinary cellar. It is very pleasant to be able to see how the bees are doing, without the aid of a lamp.

To the bee-keeper having a fertile imagination a long list of desirable features can be made possible in the "light" of the light cellar, as well as in the light of these experiments.

In this article no effort has been made to show that perhaps five months in a dungeon may be as detrimental to bees as to human beings; neither that the absence of light for so long a period may or may not be as detrimental to bees in a cellar as a much greater degree of cold in the sunlight. Neither has it been the part of this article to prove that spring dwindling, diarrhœa, etc., would not have taken place had the bees affected with it been wintered in a light cellar instead of a dark one.

One point remains not yet clearly stated, viz.: that it is not light that causes bees in a cellar to be uneasy. If, then, that is not the cause, of what value is it to surround them in impenetrable darkness? We have all seen bees slowly withdraw from activity to repose, as one by one the plants ceased to yield honey and pollen; and when no incentive to industry longer existed, how unbroken became their repose. Is there any evidence that darkness played any important part in such quiet? Were the bees more at rest in the night than in the sunlight?

The fact that bees do winter just as well under apparently much less favorable conditions in the open air, is, to say the least, a point in favor of the vitalizing influence of fresh air and sunshine!

T. F. BINGHAM.

Abronia, Mich.

From The Independant.

How Naturalists Classify Honey Bees.

THE number of distinct living animal forms is very great. Of fishes, reptiles, birds and mammals, there are supposed to be not less than 20,000 different species now living, and many thousands that once lived have long since become extinct. The animals above named are all comparatively large and well known, but when we come to study the smaller and more obscure members of the great animal kingdom, we find that the numbers are prodigious and beyond computation. Of one single order of insects, the Coleoptera, there are estimated to be in the museums of the world, not less than 100,000 species, and the total number of different species of insects is thought to be not less than half a million. Hence, it will readily be perceived that no idea of the place of any animal in this vast collection, could be obtained, except through the use of some system of classification. Through some such system, let us examine the place of the honey-bee in the animated creation.

The father of zoology, Aristotle, 300 years B.C., divided all animals into two great groups—the anima, or colorless blooded, and the enima, or red blooded. The groups correspond to our invertebrates and vertebrates. The former group includes all animals which possess no back-bone, as insects, worms, mollusks, (shell-fish), and that vast array of minute and often nearly structureless forms of life, popularly denominated "animalcules" but known to naturalists under the name of Protozoa in the first forms of life, the lowest members of the animal kingdom. The vertebrates possess a back-bone, and include all fish, reptiles, birds and mammals. The invertebrates are far more numerous than the vertebrates. *Bees are invertebrates.*

The French naturalist Cuvier, who lived in the time of the first Napoleon, divided the invertebrates into three great divisions or branches, called sub-kingdoms, viz., Mollusca, Articulata, and Radiata. To these later naturalists have added a fourth division, the Protozoa. The Mollusca include all forms of animals popularly called "shell-fish," as clams, oysters, mussels, conchs, snails, pectins, razor shells, and also the not apparently (to the untrained eye) related forms of cuttle-fish, squids, calamaries, etc. This group, though now very large, was in former ages of the world, much greater than at present. The Radiata comprises a vast multitude of animals, mostly marine, whose bodies are more or less built on a radiate plan, as is well illustrated in the familiar star-fish. Here, also, belong the curious sea-urchins, or sea eggs, the crinoids, the *stone lilies* of ocean's depths, the corals, the jelly-fish, and many other strange and interesting forms. The Protozoa, as above mentioned, include all the "animalcules." Many of these are so minute that they can only be seen through the aid of a powerful microscope. And it is wonderful to relate that while some of these are quite highly organised, there are others which so much resemble plants that by certain scientists they are viewed as connecting links between the plant and the animal kingdoms. Professor Orton tells us that some of these forms at one period of their lives we would affirm to be plants, but at a later period as certainly call animals.

The articulata include all animals whose bodies are made up of rings or segments jointed together in a linear series, and whose legs are jointed at the place of union with the body, as is seen in lobsters, crabs, spiders, and in all kinds of insects. Cuvier included here worms also, but these later naturalists have seen proper to place in a sub-kingdom by themselves. *Bees are articulates.* The Articulates are readily divided into two great sections, viz., the Crustaceans and the Insecteans. The former are those articulates which have a hard shell or crust on the outside of the body, seen well in the lobster, crab, cray-fish, shrimp, and in the wood-louse.

The cray-fish is a small fresh-water lobster found in most of our streams and rivers, while the wood-louse is the familiar sow-bug found under rotting wood, old boards and similar places. The insecteans differ from the crustaceans in generally having but a slight external skeleton, as in the house-fly, spiders, moths, butterflies, etc. They also differ in other particulars. *The honey-bee is an insectean.* This group is again sub-divided into three sections—the myriapoda, the spiders, and the true insects. The myriapoda comprise all those insecteans, which have a great number of legs, as centipedes, galley-worms and others. Spiders have a body constricted in the middle, they have four pairs of legs, and no wings, while the true insects have bodies consisting of three divisions, head, thorax, and abdomen. They have three pairs of wings, all borne on the thorax. They breathe through the tubes or trochæ, which, opening externally under the wings, ramify to every portion of the body. *Bees are true insects.*

The class of insects being very large it is convenient, and indeed necessary, to subdivide them into a number of orders, or tribes, the principal of which are the *Coleoptera*, or "beetles," distinguished by the hard exterior of the insect. This is the largest order. The *Lepidoptera* comprises the butterflies and moths. The *Diptera*, insects having but one pair of wings, as the house-fly, horse-fly, gnats, etc. *Neuroptera* have wings delicately "nerved," as is seen in the wings of the dragon-flies, may-flies, etc. The *Orthoptera* are distinguished by the possession of straight wings, when at rest, folded like a ladies' fan. Grasshoppers and crickets belong here. The *Hymenoptera* are the insects with delicate membranous wings. This is a very large order, and includes the honey-bees, bumble-bees, carpenter bees, mason bees, wasps, ants, hornets, yellow-jackets, saw-flies, etc. The members of this order all exhibit a high degree of intelligence in the way in which they care for their young, and in storing up provisions for future use. They probably stand at the head of insects. *Honey-bees are hymenopters.*

In natural history, orders are sub-divided into families. The family of the honey-bee is commonly known by the name *Apidæ*, and includes all the hymenopterous insects which feed their young upon pollen, or pollen and honey. All the insects of this family have broad heads, elbowed antennæ, thirteen jointed in males, but twelve jointed in females. The jaws are strong and the tongue generally long. They also have a "tibial spur" on the four anterior legs. The first joint of the posterior foot is flattened to form the "pollen basket." The larvæ are all helpless maggots which must be carefully fed and nursed by the mature bees.

Besides the true honey-bee, there belong to the family *Apidæ* the *bumble* bee so well known to every country boy. These build their nests in hollows in the ground, along fence rows, or under old stumps, using, I think, the abandoned nests of field mice. Of these bees only the queen survives the winter. The carpenter bees, so common in the spring of the year about frame buildings and fences, belong here. They look much like the bumble, and are often quite destructive to buildings from their extensive borings. There are also bees called mason bees, which construct cells of mud, sometimes in the ground, and in some species in hollow plants and similar places. Some years ago I saw a large number of these bees working into the mud chimney of a cabin. They were so numerous that I thought a swarm of honey-bees were present, but on closer inspection I saw bees closely resembling the honey-bee boring into the clay by first softening it by means of spittle which they abundantly secreted. There is also a bee called the tailor bee, which constructs very curious cells from pieces of leaves which it cuts from various plants, oftentimes of the rose and Virginian creeper. Sometimes the flower leaves of the rose are employed for this purpose. There are several species of bees that lay their eggs in the nests of other bees; with us, preferably of the bumble-bee. The young bees are then reared by the foster-parents, as the young of some species of birds are. There are also several species of bees which are destitute of stings, known in tropical countries, which are honey and wax gatherers; but they have never yet been domesticated and found of value to man.

Families are subdivided into *Genera*. This is a term which has long puzzled naturalists to define; but, for our purpose, we may say it is a branch of a family which always reproduces its kind. It is only animals of the same genera which, by sexual union, can produce fertile offspring. Every genus reproduces true to itself. The genus name of the honey-bee is *Apis*, and this group includes all bees which gather honey and store it in combs, and all of which are domesticated to some extent, or seem capable of domestication. Genera are subdivided into *species*, and species again into *varieties*. The species of our common honey-bee is *mellifica* and its full name, as known to naturalists, is *Apis mellifica*. The number of species of honey-bees is not well established, but the following have all been described—viz:—*Apis mellifica*, *Apis dorsata*, *Apis Indica*, *Apis zonata*, *Apis florea*, *Apis Adansoni*, *Apis nigrocincta*, *Apis unicolor*.

It is an interesting fact that these all are natives of the Eastern Hemisphere. No true honey bee seems to have been a native of America on the advent of Europeans. The exact period of their introduction is now unknown; but it is well authenticated that all the "wild bees" are escaped from domestication, and their spread over the continent has been noted by many observers. By the Indians they were known as "the white men's flies." Besides the common honey-bee (*Apis mellifica*), the only other species of much present interest, is the *Apis dorsata* of India, Sumatra, Borneo, etc. They are larger than the common bee, and build their combs in the tops of high trees. These combs have been seen *four* feet wide by six long. These bees have been imported into Europe at a great expense, but so far have not been profitably domesticated. It is a curious fact that the drones of this species fly at night only.

Varieties in natural history are forms which are readily produced in many species of both animals and plants, by varying the food, climate, or care of the individuals operated upon; thus probably all the diverse forms of horses, cows, sheep, dogs, chickens, etc., etc., have been derived from one species of horse, cow, sheep, dog, chicken, etc. Many varieties have been produced through the operation of natural causes, as many of the varied forms of dogs, and of other animals.

There are two varieties of the common bee, now well known in all civilized countries, viz.: the German or Black Bee and the Italian or Ligurian Bee. The first named is the bee first introduced into America, and the only bee known here until 1860, when the Italians were first imported. The name is derived from Germany, where it has for centuries been domesticated and kept in great numbers. This bee is not black, but rather a grey brown. It was first spread over the world through the superior activity of the German colonists. Of the German bee there are quite a number of sub-varieties, prominent among which are the *Heath* bee of the north of Germany, a variety said to be much inclined to swarm. The *Carniolan* bees of Southwestern Australia are a very gentle race of Germans, which have been much extolled of late years for their valuable honey-gathering qualities. Other races, named from the region where found, and all having qualities of more or less value are the *Hungarian* longer and grayer than the German bee; the *Dalmatian* bees, quite black, slender and wasp-like in appearance; the *Herzegovinians*, and the *Caucasians*. All the different races of the German bee are valued for their heavy producing qualities, some, as the *Carniolans*, are very mild tempered, very industrious and produce an exceedingly white wax, which makes their honey very salable. The Italian (or *Ligurian*) bees have received a great deal of attention all over the civilized world since 1860. This is no new race, being known in the time of Virgil, and even to Aristotle.

The Italians are of a lighter color than the German bee, they are thought to be more industrious, defend their hives against robbers and moths better than their German relatives, are certainly less irritable, and they have a somewhat longer tongue, so that they can gather honey from flowers inaccessible to the common bee. These bees have three golden bands on the abdomen by which the purity of the race is tested. The Italian bee in America tends to become much lighter colored than in Italy. This race of bees probably originated and was preserved when found in modern times, in a small district in the north of Italy, facing on the Gulf of Genoa and surrounded by high mountains. The race was first observed and described in modern times, by Spinola, in 1805, who gave the name Ligurian which prevails in Europe. The next we heard of these bees is that in 1843, Von Baldenstine, an Austrian captain, had introduced a few colonies into Germany; this man observed the habits of these bees while he was on military duty in Italy, and thinking them superior to the bees in his native country, when peace was proclaimed, hastened to introduce them to the farms of Austria. This is an excellent illustration of the importance of having men in every walk of life educated in natural history and observers of Nature. In 1848 Von Baldenstein published accounts of the Ligurian bees, and these coming to the eye of Dzierzon, the great German authority on bees, the Italians soon became widely introduced into Germany. In 1859 they were taken to both England and to America, and in 1860 were imported directly from Italy to America, where they have in many places almost entirely superseded the German bee.

The phenomenal activity in apiculture of the past ten or twelve years, has brought to light numerous other varieties of the *Apis mellifica*, the following of which are now to be found in American and European apiaries, viz: The *Cyprian* bee, from Cyprus, in the Mediterranean Sea. This race is very active, very prolific, but very irritable. It is a valuable bee.

The *Syrian* bee, from Syria, very prolific and very irritable. The bees from Palestine are said to be a variety of the Syrian, and have been introduced into America under the name of *Holy Land* bees. A bee from Smyrna has also been introduced into America as a distinct race. They are said to be very amiable. The Egyptian bee is very yellow and very cross. It is not considered valuable by Western bee-men, though it has been the bee of Egypt for centuries. Many American bee-keepers are industriously at work breeding, crossing and testing the various races named, in the hope that they may produce a strain with the good qualities of all the races and all the bad qualities eliminated. This bee of the future has been designated *Apis Americana*.

PROF. GEO. G. GROFF, L.L.D.

Bucknell University, Dec. 6, '87.

SUNDRY SELECTIONS.

A COLD CELLAR.

I called upon a friend last week and we went down into the cellar to see his bees—twelve or fourteen hives. Several of them had a little water on the entrance board and one had a little mould on one frame of comb. The covers are removed and nothing but the summer quilts and two thicknesses of old carpet over them. The temperature is low; nothing had frozen in the cellar, but it seemed to be about the freezing point. Would not a stove be a great help to improve the safe condition of this cellar for bees? Will you have the kindness to answer and point out the defects in this case in the C. B. J.

Feb. 1st, 1888.

No doubt the cellar is too cold and the bees not strong enough in the hives to create sufficient heat to carry off all moisture. Then again your summer quilts on the hives may be so covered with propolis that it prevents the moisture from escaping. You had better lift off these propolised quilts and put a dry saw-dust or chaff cushion on the top of each hive. As to the stove in the cellar that would be a great mistake. Sometimes your cellar would be too hot, and sometimes too cold, the sudden change would disturb the bees, break the cluster and cause the bees to gorge themselves with honey and dysentery would surely follow. In a late number of the JOURNAL there was an excellent plan (in our opinion) suggested of putting a lamp on the cellar floor and setting over it several links of stovepipe, which you might use. By this means a uniform

temperature would be kept up, and the dry cushions would absorb the moisture and no doubt leave the bees in nice condition.

SLOTTED HONEY BOARDS.

A. S. C.—Please answer these few questions through the C.B.J.

Of what advantage are the slatted honey-boards for obtaining comb honey?

Do you use separators with your combination hive? If so, what width?

They prevent the building of brace combs between sections and frames and leave the sections much cleaner and the queen is less liable to occupy the sections, but we much prefer the queen excluding honey board which has become so very popular of late, and as we have got a special make of perforated metal having one row of holes and two smooth edges of metal to go in the saw cuts, we consider them a great improvement on any other. We use them both with and without separators. When 1½ and 1⅝ sections are used separators are not so essential. The width of separators depends on the height of the sections. We just leave a good bee space at top and bottom for the bees. If it is too wide the bees sometimes bulge the combs.

Is there a good bee journal printed in French?

We do not know of any French bee journal published in Canada. There are a number in France.

I was called away from home so that my bees were out through quite a heavy fall of snow and the hives and cloths were damp. When I returned and put them in I put in dry cloth cushions, with the exception of three colonies. The cellar is very dry and was at 55° when I placed them in (it has not been below 52° this winter). They kept up a constant humming for about three weeks; have been quiet since then but the strongest colonies have a good many dead bees. Is it best to take them away? Could I have done different and so prevented their dying?

You should keep the dead bees removed from the bottom-board as much as possible without disturbing the colony. By taking a rib of an old umbrella or parasol, or piece of wire with a crooked end you can remove the dead bees without disturbing the colony much. If the entrance is kept open full width and plenty of ventilation, we would advise you to leave the dead bees than disturb the colonies much. A little excitement perhaps helped to kill the bees, but no doubt they are mostly old bees, and perhaps the colony is breeding a little which seems to shorten the lives of the older bees. The labor of taking care of the brood prevents them from taking the rest that they ordinarily do.

Is your honey-board that takes the place of skeleton crates a success? If so, price of same.

We think the honey board a great success, as we believe all do who have tested them. See our catalogue for prices.

How soon will it do to send queens from Beeton here?

Compton, Que.

We cannot tell you how soon it will do to send queens to you, all depends on the weather. Will announce it through the JOURNAL.

S. W. IOWA BEE-KEEPERS.

The second annual meeting of the Southwestern Iowa Bee-Keepers' Association will be held at the Court House, Red Oak, Iowa, March 6th and 7th, 1888. Program—Spring dwindling and how prevented. What time to transfer and Italianise. Spring management of bees. What are the most essential points in locating an apiary? What size, width and form of section for comb honey? Extracted honey; what should be its price compared with comb honey? Sectional brood chambers of bee hives. Wide frames or section cases for comb honey. The use of comb fdn. in S. W. Iowa. Should the upper story of hives be double or single thickness for the production of comb honey? Will it pay to raise bee pasture for honey alone? Opening question box. All bee-keepers are invited to attend and take part in discussing above subjects, and come prepared with questions for question box. We are anticipating a profitable and pleasant meeting. Ladies especially invited.

Hillsdale, Iowa. E. W. PITZER, Sec.

PRICES CURRENT

BEESWAX

Beeton, Feb. 22, 1888

We pay 30c 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 "Jones' size" per pound....45c
" over 50 lbs. " " 45c
Section " in sheets per pound.....55c
Section Foundation cut to fit 3½x4¼ and 4¼x4¼, per lb. 60c
Brood Foundation, starters, being wide enough for Frames but only three to ten inches deep...45c

USEFUL GOODS.

The following is a partial list of small wares, tools and stationery, which we carry in stock. Additions are constantly being made. We buy in very large quantities, and are therefore able to quote rock bottom prices. There is always something in these lines you want and they can be enclosed with other goods or sent by mail. The amount of postage is marked opposite each article, except those excluded from the mail.

5 CENT ARTICLES.

Postage.		Per 10 lots.	Per 25 lots.
3	Awls, brad, three assorted without handles	$ 75	$1 00
1	Blotting paper, 10 sheets note size	40	88
3	Bag for school books	45	1 05
2	Brush, round, for paint, paste or varnish	40	95
1	Chisel handle	45	1 10
8	Crayons, colored drawing	45	1 00
1	Eraser combined ink and pencil	45	
1	Letter openers, nickle plated, very handy	40	
1	Memo books, 32 pages, stiff cover	40	90
1	Note paper, 1 quire, extra quality, ruled or plain	40	80
2	Pad 100 sheets scribbling paper	45	
1	Pass books 3 "Railroad" 16 p. paper cover	45	1 00
1	Pass books, 2 Steamboat 32 p p.	45	1 00
1	Penholders 2, cherry, swell	40	
1	Ruler, hardwood, flat, graduated to ½, bevelled	45	1 05
1	Ruler, for school children, three for 5c		
2	Scribbling books, 200 pages	40	90
	Tacks, cut, 2 papers 1, 2 or 3 oz.	45	

8 CENT ARTICLES.

	Butter stamps 3 or 4 inches	$ 75	$1 75
	File, 3 corner, 3 or 4 inches	75	1 75
	Ink-well, glass, safety, cannot spill	65	
	Mucilage, good sized bottle	70	
	Oil cans, zinc	65	
1	Pencil, automatic indelible	75	1 75
1	Time books for week or month	75	

10 CENT GOODS.

	Bill fyles, harpshape	$ 90	2 10
2	Book of 50 blank receipts with stub	85	2 00
2	Book of 50 blank notes	85	2 00
2	Brush, flat, for paint, paste or varnish	80	1 90
3	Butter spades 9c. each	80	1 90
2	Boxwood pocket 1 foot rule	90	2 10
	Chisel, firmer ¼ inch	90	

Postage.		Per 10 lots.	Per 25 lots.
2	Clips for holding letters, etc	90	2 00
	Due bills, 100 in book with stub	85	1 80
2	Envelopes, 3 packages, white, good, business	95	
2	Files, 3 cornered, 5 inch	90	2 10
3	Lead pencils, 1 doz. plain cedar Fabers 581	90	
2	Lead pencils 3 red and blue	90	
2	Note heads, pads of 100 sheets	90	
	Paint brush, No. 7		
2	Pocket note book, 3x5 in., 125 pages, stiff cover with band grand value	90	
1	Rubber bands, five, large	80	
1	Ruler, brass edged, flat, hardwood, bevelled, graduated to ⅛ inch	95	2 25
4	School bag, medium size	90	2 10
	Tacks, cut, 3 packages, 4 oz		

13 CENT ARTICLES.

2	Belt punches, Nos. 2, 3, 4, and 5	1 25	$3 00
	File, 6 inches long, flat	1 25	2 90
	" 5 " " round	1 25	2 90
	Shoe knives, 4 inch blade	1 20	2 75

15 CENT ARTICLES.

	Chisel, firmer, ½ and ¾ in	1 45	
12	Dextrine, ¼ lb. pkge. for pasting		
	Hammer, iron, adze eye	1 45	
3	Lead pencils, 1 doz., good quality, Faber's 971		
5	Note paper, 5 quires, 3 lbs., extra value	1 40	3 35
	Paint brush, No. 5		
6	Rubber bands in gross boxes. For queen nursery	1 30	
4	Rule, 2 foot, a splendid line	1 40	3 40
	Screw driver, 5 inch, round bit, hardwood handle	1 40	
2	Statement heads in pads of 100	1 20	
	Tack hammers, magnetic	1 40	3 30

18 CENT ARTICLES.

	Bit, best make, 3/16, ¼, 5/16	1 65	4 00
	Glue, Le Page's liquid, with brush	1 65	
	Oilers, automatic	1 60	

20 CENT ARTICLES.

Postage.		Per 10 lots.	Per 25 lots.
	Bit, best make, ⅜, 7/16, ½, 9/16..	1 90	4 50
	Brass traps.....	1 80	4 50
	Brushes, flat, 2nd quality, 1½ 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	
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 ⅛ 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	

30 CENT ARTICLES.

3	Bills payable and receivable....	2 85	6 90
	Bits, best make, 10/16, ⅝, ⅞.....	2 85	6 90
5	Foolscap, 2 quires, extra quality	2 80	
4	" legal, in pads of 100 sheets.....	2 75	6 00
	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.

Postage.		Per 10 lots.	Per 25 lots
	Foolscap, 5 quires, good quality	3 75	
	Hammer, No. 50, steel head, adze eye.....	3 60	
6	Pens, gross box, 'Bank of Eng.'	3 80	
	" " Blackstone or J.	3 80	
	Ruler. 2 foot, boxwood, brass bound.....	3 60	

50 CENT ARTICLES.

5	Binders, CANADIAN BEE JOURNAL	4 80	
	Blank books—.....		
	Day book, 200 p. p. good paper, well bound.....	4 25	
	Cash " " "	4 25	
	Ledger " " "	4 25	
	Minute " " "	4 25	
	Complete set, Cash, Day and Ledger, $1.25.....		
	Carpenter's brace, pat. grip, 8 in	4 85	12 00
	Envelopes, good, business size, 250 in box.....	4 00	
	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.

	Each
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
Letter books, with index, bound in canvas, 500 pages.....	1 10
Letter books, with index, bound in canvass, 1000 prges.....	2 00
Plane, iron block.....	75
" wood smoothing.....	80
Post cards printed to order, 50 $1, 100	1 40
Square, steel, grad. both sides, usual price, $1.75. Ours.....	1 35

EXCHANGE AND MART.

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.

SECTIONS.—We have a large lot of V groove sections put up in 500 boxes in the following sizes, viz., 3½x4¼x1¼ 3½x4¼x1⅜, double slotted, which we will sell at $2 per package, and will take as pay either honey or cash. THE D. A. JONES CO., Beeton, Ont.

HONEY.—We can take all that offers in exchange for supplies, at prices found in another advertisement in this issue. THE D. A. JONES CO., Beeton, Ont.

$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.

READ THIS.

25 PAPERS GARDEN SEEDS AND THE BEE-KEEPERS' ADVANCE.

One year for only $1. These seeds are just such seeds as everyone having a garden wants and buys, paying 5c. to 10c. per package, the retail price of the seeds is $1.75. We give away our paper and sell you the seeds at about half price to introduce both to Canadians. Seeds will be sent post paid and we guarantee satisfaction. Address,

J. B. MASON & SONS,
Mechanic Falls, Maine.