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Vol
IV.

No
XII.

NATIONAL

BEE JOURNAL



A MONTHLY MAGAZINE
DEVOTED EXCLUSIVELY TO BEE CULTURE.

EDITOR & PROPRIETOR,
MRS. ELLEN S. TUPPER,
DES MOINES, IOWA.

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DECEMBER, 1873.

DES MOINES, IOWA:
HOMESTEAD AND WESTERN FARM JOURNAL PRINT,
313 AND 315 COURT AVENUE.

NATIONAL BEE JOURNAL.

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NATIONAL BEE JOURNAL

DEVOTED EXCLUSIVELY TO BEE CULTURE.

VOL. IV.

DECEMBER, 1873.

No. XX.



Correspondents are especially requested to write on one side of the sheet only. Many of our readers doubtless have valuable practical ideas on bee culture, who feel incompetent to write for the public press. Send them to us in your own way, and we will "fix them up" for publication.

HOSMER'S MANAGEMENT OF BEES.

I am asked many questions concerning my method of managing bees, and would like the privilege of answering some of them through the JOURNAL.

First. I am asked how it is possible that you can winter such small swarms of bees?

In the first place, those that ask such questions should know that I have never recommended anything less than a quart as being the right size to winter. And then, again, that it takes over 5,000 bees to make a quart. Many have the impression that Hosmer's swarms are so very small. To illustrate this point: I was once invited to visit a gentleman's apiary, who said that he was wintering five swarms on my plan of one-quart swarms, and for fear that it would not work well, he had kept two on the strong-swarm rule. They were in a warm room, and on examination I found that the bees went in between two combs, and did not average more than four inches square, and that the whole five swarms did not contain more than one pint of bees. The two strong swarms did not have a quart in both hives. I told the friend that if he could successfully

winter such swarms he could beat Hosmer all out.

One man tries to ask me a very hard question. He says: "Is it possible to separate the old from the younger bees?" I say, by gently shaking the frames containing them, the old will fall off, while the younger ones will stick to the combs.

One other wants to know why I hold back in the recommendation of sugar syrups to feed bees?

I do not. I recommend it as being the best feed for bees. I have used it for many years, and think as much of it as any one. It answers two purposes: 1. It is good and healthy food. Second, the feeding of it to the bees late in the season causes them to rear young bees that can live till spring.

Others ask: How is it that you can breed up your small swarms so rapidly in the spring?

In answering this question there are many things to be considered: I do not usually have such very small swarms, as many have supposed, and it takes untiring diligence. They must be seen to early and often. They must be kept warm and well fed, have plenty of pollen, without which they will not rear young. On this point many fail, thinking that a little pollen will do; but the more pollen the more bees, and the more bees the more honey. The greatest point of all is to have a queen that will lay her thousands of eggs daily. I believe, with friend Adair, that we can have wonderfully prolific queens by good management in breeding them. Let me give a little experience. I commenced several years ago to experiment,

and see how large a hive one queen could keep filled with bees. About the same time I commenced to sell queens. My prices were from one to five dollars each, but the greater part of my sales were of the one-dollar queens. This gave me the chance to keep the best, and by this, and carefully breeding from the very best, I am satisfied that the desire and capacity to lay eggs has been very much increased.

I have used hives for the last three years that held six thousand cubic inches, and not being satisfied I have had some made this season that held about sixteen thousand cubic inches, and have had them well filled with bees, and kept so by one queen. Now, I am aware that this matter has been experimented upon by very many of the best bee-keepers, and that their decision has been that two thousand cubic inches is the best size for hives; yet, as I have used hives containing *six*, for the last three years, and had them kept full of bees by one queen, I must conclude that there must be some good reason for such a wonderful difference in the result of our experiments. It is true that a good part may be attributable to locality.

Let me ask bee-keepers: Have you taken pains enough to breed up your bees? Have you not been afraid to raise such plants as produce only, or nearly so, all pollen? Many reject all plants that produce much pollen, simply because they do not want it in their box honey, not thinking it was what produced the honey gatherers.

J. W. HOSMER.

Janesville, Nov. 23, 1873.

NOTES FROM ILLINOIS.

MRS. E. S. TUPPER—Enclosed we hand you \$2, for which please send us the NATIONAL BEE JOURNAL one year as proposed.

We are very glad to see your name as editress and publisher, as we have long read and treasured words from your pen, and we feel that if you carry

out your ideas, stated in October number, relative to matter to be allowed in the JOURNAL, its success is certain.

This season has been a very good one with us, although the cold, backward spring was much against us, and sadly decimated the ranks of our little "yellow boys;" but by careful nursing and close care we have succeeded in building up our twenty-five stocks to sixty-eight, and have them now prepared for winter, each with twenty-five pounds of sugar syrup, with quilt over them, and the inside of the hive lined on two sides with a quilt on each. We are to put them in a dark dry cellar, and we confidently look to see them come out in the spring in good condition.

In addition to the increase of our stocks we have secured, with the Extractor, to exceed 2,000 pounds of honey. Considering we are but "novices," only having been engaged two years in practical bee-culture, we feel rather proud of our success. We say to our neighbors, they all can do as well if they but make it a study and subscribe for all the bee journals published as we do. We find the money invested in bee journals the most profitable investment we can make.

Wishing you success in your enterprise, believe us ever the friends of bee-culture. J. OATMAN & Co.

Kane County, Ill., Nov. 7, 1873.

EXTRACTS FROM A LETTER FROM AUSTRALIA.

I promised you that if I succeeded in keeping bees in this far off land, that I would write to you. I do not hope to benefit your readers any, but some of them may be anxious to know about our bees here. They were not found here, but have been introduced since about the year 1860. They have increased rapidly, one colony often multiplying ten-fold in a season, or, rather, in a year, for they labor all the months except part of November and December. The honey gathered in March and April is thin, and always

remains liquid; but the winter honey, or that gathered in December and January, is almost like dough at first, and soon crystalizes. I have seen combs filled with what seemed to be solid sugar. All the honey I have seen in this country is good, and it is abundant in all parts. The bees are of all kinds except good ones. This would be a paradise for patent hive venders. I made hives, as near as I could remember, of the Langstroth pattern, but have had too little time to give my bees the care I ought, and they swarmed and were hived in all sorts of utensils—from an old churn up to a salt barrel.

Honey finds slow sale in any home market, for, indeed, anybody can have honey that will get the bees. I think it will pay to ship it in barrels, and shall buy a quantity next month. I have seen no moth among my bees, but am told they are increasing apace in the southern part of the island.

Send me more "bee books" and papers.

E. ATWELL.

Australia.

FROM A SOUTHERN BEE-KEEPER.

Winter is upon us, the time for the apiarian to study and plan for the next season. In my case, the stormy days of winter are quite as pleasantly spent as the balmy days of June. When the wind blows keen and snow seeds are flying, I light a fire in my workshop and proceed to get ready for the coming honey harvest. Hives are repaired and painted, if need be, new ones made, frames put up, queen cages got ready, and everything prepared so as to be ready and handy just when needed.

Last summer I got quite a quantity of empty comb from my neighbors, put it loosely in boxes in a dry place, and smoked it with brimstone occasionally to kill the larvæ of the wax moth. During the winter this will all be overhauled, the straight pieces transferred to frames, and all scraps

rendered into wax. Bee-keepers who do not use movable frame hives are generally willing enough to sell their empty wax combs cheap, rather than to be at the trouble of melting them up into wax. Last July one of my neighbors gave me the combs of fifteen colonies that had died the previous winter. They were much infested with moth larvæ, and I had a busy time smoking them with sulphur, I assure you. The sulphur fumes would not kill the cocoons, and they would hatch and the moths would lay another supply of eggs that would hatch to worms in a marvelously short time. Finally, much of the comb was ruined for transferring, and I put that into hot water to reduce the bulk and kill the cocoons. At that time of year the bees are too troublesome to allow the wax to be rendered, unless one should take a rainy day for the work, the weather being too warm to shut up the house in order to keep them out. In transferring combs to frames, I have used thorns thrust through awl holes in the frames for keeping the comb in place, but I find that the bees labor considerably to remove the thorns, cutting away the wax around them, and gnawing the bark off the thorns in their efforts to remove them. Sometimes the thorns are coated with wax and allowed to remain, especially if they are directly in the septum, or division of the comb. I prefer, however, to dispense with the thorns and fasten the comb in with melted wax. My plan is to have a pan of wax on the stove in a place just hot enough to keep it melted. Then, after cutting the comb to fit into the frames, dip the edge of a piece into the wax, and hold it against the frame until the wax hardens, and then with a case-knife put a little melted wax where the pieces join each other and the frame. If too much wax is put on, the bees often cut away the cells around it in trying to get rid of the lumps; but pure wax, put on lightly, will be trimmed down by them, and

the trimmings used in comb-building. I have seen combs that were fastened into frames with a good deal of wax and resin, entirely cut out by the bees while trying to remove the unsightly lumps of resin from the combs.

My neighbors were kind enough to give me several colonies of bees in October, that were condemned to death by brimstone. I went and drove the bees into a forcing box, cut out the combs, brushed off the remaining bees into my forcing box, put what little honey there was left into a dish for my friends, and for my part of the work received the bees, the thanks of my friends, an easy conscience, and *satisfaction*. The bees were brought home, put into hives with empty comb, given enough sugar syrup for their winter's use, and put away in the cellar in due time.

My apiarian friends go into winter quarters this year with fear and trembling. They have not forgotten the extensive losses of last winter; and, if the present should prove equally destructive, many will give up bee-keeping altogether. However, if I can get bees next spring, I will try again, even if mine should all perish this winter.

GEX.

Kentucky, Nov., 1873.

PROFITABLE BEES.

We started in our home apiary last spring with five colonies of bees, which we increased to twenty, and procured 600 pounds of surplus honey in small glass drawers and globes.

By 15 colonies of bees, at \$15 each.....\$225 00
By 600 pounds of honey at 30c..... 180 00

 \$405 00

Averaging \$81 per colony.

The swarms are all in good condition for winter.

We use the Keystone and Langstroth Movable Comb Hive, and practise artificial swarming, and keep none but Italian bees. White clover and silver-hulled buckwheat was our main dependence for honey.

S. HOAGLAND.

Pennsylvania, Nov. 10th.

AN APPEAL TO BEE-KEEPERS.

Are you tired of railroad men? Friends, bee-keepers! I, for one, am much fatigued with their roughness in regard to my goods. One hundred dollars would not cover the loss that I have experienced by their rough handling. In spite of all kinds of warnings on the address, they handle the queens, the hives, and the boxes of comb honey as if they were recommended not to allow the contents of a single box to pass through their hands without being smashed.

I have had so many queens killed by the smashing of combs, that I prefer to have them starving on their way, rather than to give them comb somewhat heavy with honey, my risk being smaller.

This spring I sent three stocks of bees to a bee-keeper in Iowa. All kinds of warnings were written upon the address, and, besides, the receiving agent promised to see to their careful handling. Well, my three stocks were put in the cars bottom side up. Fortunately they had only thirty miles to travel, and no change of cars. One-half the bees, only, were killed, but the queens were safe.

I have tried three times to send honey by railroad, the third time only fifteen miles; and every time all the combs were smashed down, yet I had taken the care to show a part of the glasses of the boxes.

"But," say the railroad men, "we do not warrant living animals; we do not warrant anything contained in glass." Yet they charge higher rates on living animals and glass.

"But it is impossible to go with such a speed and to handle your goods with the care that you require." Why? Your speed is not greater than that of roads on the old continent. In France, every other year, there is an exhibition of bee-culture. Honey is sent in jars and in combs from every part of the country, even from Italy, and over all railroads; yet not three per cent.

of the comb is broken. This year at the exhibition of Vienna they had honey in comb, coming from the remotest parts of Europe. These comb had traveled all the railroads of France, Germany, Italy and Austria, and they arrived in good order.

Yet the railroad rates on the continent are lower than in this country. The railroad companies of France, Italy and Germany do not own the railroads in full property, for the roads return to the government after a lapse of ninety-nine years. Besides, the companies are liable to damages and interest if they do not have sufficient cars to transport goods as soon as prepared, etc. Besides, the railroad companies of Europe do not receive such bounties as those of this country.

We have not yet arrived at the time when the honey crop encumbers the railroads. Ours is the necessity of carefulness.

Some people will think that as I was raised in the old country I am partial to the railroads of the continent. To show that such is not the case, I will cite a well-known American citizen who, after his return from Europe, wrote in his journal, the *American Agriculturist*, for January, 1868, the following article:

"BAGGAGE-SMASHERS.—TO R. R. MANAGERS.

"A species of downright robbery is now practised upon travelers on very many of the public conveyances in this country. We accept as a fact, from our own observation, that many men employed to *handle baggage*, take a special delight in seeing how hard they can pitch a trunk about. We have seen them use extra exertions to give a large trunk a hard thump, and to see how far they could throw a lighter one,—as if trying to earn the name of *baggage-smashers*, instead of that of careful *baggage-men*. Let any of our railroad managers stand where they will not themselves be seen, and note the handling of the luggage at a station. They will usually see the trunks thrown out, or in, without the least care to save them,—the corner of one pitched with force into the side of another,—in short, no care is used to spare them in any way; but everything done to injure them that can be done. Probably forty thousand travelers' trunks are daily handled upon our railroads, in the aggregate, and the unnecessary hard usage they receive amounts to 25 cents each, or \$1,000 a day! Judging from our own past exper-

ience, if setting out upon a journey, we would willingly give 25 cents a day in advance to have our trunks handled with the same care that is exercised on the European railroads. Here 100 days' traveling and stopping will thoroughly use up a \$25 trunk, no matter how strongly made. After a six months' tour in Europe, including 12,000 miles by railroad, with our baggage taken off and carried to sixty different hotels, and returned to the cars, the trunks came back in a condition suitable for another trip of equal length. On but few of the railroads was any charge made for carrying baggage. A traveling companion, who also brought his trunk in perfect condition to New York, had it jammed, broken, and the contents injured badly in going barely 150 miles from the city. Will not our railroad managers do a great favor to the public by looking into this matter—giving a word of caution to the careless, or mischievous, and dismissing the incorrigible *baggage-smashers*?"

This request of Orange Judd was not heard by the railroad managers. He could have added that the travelers themselves are not as safe on the American railroads as on the railroads of Europe. Before coming to this country I was accustomed to the heavy stone railroad bridges that will outlive the pyramids. When I saw the wooden railroad bridges of this country, that shake under the weight of the trains, I was astonished to see the government take so little care of the life of the citizens. In Europe the government, before granting the railroad charter, have a plan made beforehand, and the railroad companies are forced to comply with it. Therefore, accidents are very rare, and we Americans are held by European people as very courageous to dare travel on American railroads, where accidents are so common.

CH. DADANT.

Hamilton, Ill., Nov. 15, 1873.

TO CORRESPONDENTS.

Communications for the JOURNAL must be sent in by the 15th of each month to appear in the succeeding month. Thus, matter for the January number must be in our hands by the 15th of December to appear in the January number.

THREE thousand and six hundred workers will fill a quart measure.

PENNSYLVANIA BEE-KEEPERS' CONVENTION.

In pursuance to previous notice a meeting of this association was held on Wednesday, Oct. 1, on second day of State Fair, in the office of the State Agricultural Society, Erie, Pa. After receiving a number of new members, the following officers were elected for the ensuing year:

President—Seth Hoagland, Mercer, Pa.

Vice Presidents—John Smull, Harrisburg, and S. A. Lee, Evensburg, Pa.

Secretary—W. J. Davis, Youngsville, Pa.

Treasurer—James Russell, Polk, Pa.

After which a number of topics respecting the nature and the habits of the honey bee were proposed and discussed, in which P. Morris, Philadelphia, G. Ray, Hoagland, Davis, Dunn, Smull, Russell, and others participated. The meeting was one of unusual interest, and continued until a late hour.

It is the intention of the association to hold a meeting in some part of the State during the latter part of the winter or early part of spring.

WE HOPE that renewals for the JOURNAL will be sent in before the close of the year. We are revising our list of subscribers, and it is much easier to continue names than to put them on again after being dropped. This number we send out as an earnest of what we intend to do. We hope to show a marked improvement in following numbers. We have plans for illustrating and enlarging, which only a large list of subscribers can enable us to carry out. Like the queen bee when alone, we are helpless without workers, and the more of them we gather about us, the greater will be the ingathering of stores for our JOURNAL.

EIGHT good days will enable a strong colony to make up for eight bad weeks.

WE WOULD ask those who are working for premiums, or cash commissions, to send on all names as soon as they obtain them: registering letters, or sending postal orders, *at our expense*. Due credit will be given for the amount. Any one sending names who is not able to secure the whole amount necessary to obtain a desired premium, can, when he pleases, remit the remainder in money, when the premium will be sent. Thus, any one desiring to secure a colony of Italian bees, and obtaining only ten subscribers, will be credited one-half the price, and can send the balance at his convenience; or, three subscribers will secure three dollars toward a premium of a tested queen, and the remaining two dollars be sent in money.

Now is a good time to obtain names, as new subscribers receive three months free, beside the premium of a manual on bee-keeping, and honey-plant seeds.

SPECIAL occasions or occurrences sometimes come opportunely, to induce us to re-discuss practical subjects; because, when topics have been thoroughly investigated by us, and definitely settled in our own minds, we are apt to forget that others may still need and desire information respecting them.—*Berlepsch*.

OUR JOURNAL will be in the hands of every subscriber by the middle of each month. We prefer to publish it then, rather than the first of the month, but will spare no effort to have it sent promptly.

“He may be regarded as a master in bee-culture who knows how to winter his stocks in a healthy condition, with the least loss of bees, the smallest consumption of stores, and with the combs unsoiled.”—*Ex.*

THE average *weight* of workers (from our counts) is 4850 to a pound, avordupois. 1600 drones weigh about the same.

Editorial Department



Mrs. ELLEN S. TUPPER, Editor.

CORRESPONDING EDITORS:

L. C. WAITE, St. Louis, Missouri.

A. J. POPE, Indianapolis, Indiana.

Mrs THOMAS ATKINSON, Leesburg, Florida.

DEC.

DES MOINES, IOWA.

1873.

HOW TO BEGIN TO KEEP BEES.

Within the last year, we have received letters from every State in the Union, asking for information and advice on various points connected with bee-keeping. Some of the writers have always had bees—kept them from year to year, with little or no profit, and given them no thought or care.

Having become aware that bee-keeping is an important interest at present, they are desirous of knowing how to care for their bees in a better way.

A number of these letters from Southern women who have always had honey, but hardly knew where it came from, much less gave a thought to the wasteful manner in which bees were destroyed to obtain it.

Now, in the changed condition of things at the South, with old ways of support gone, in looking about for something that will bring money, the people will learn with pleasure that bee-keeping may be made profitable.

Several have found, after one or two seasons' trial, that they derived more profit from twenty or thirty stands of bees, wisely managed, than from four hundred acres of land badly cared for.

One of these women gives us a pleasant account of her success with improved hives, and of the curiosity these excited in her home in Mississippi. She tells, too, how readily her nice honey, in glass boxes, sold at a high price, where ordinary honey found a slow sale at six cents per pound.

With a majority of these newly

awakened to an interest in this subject the question is: "How shall I make a beginning? I have no bees and no experience with them. What are the first steps to be taken in successful bee-keeping?" This class of inquirers we hope to aid by a few brief hints. If you can command the means, and Italian bees, in good, movable comb hives, are to be bought near you, undoubtedly the best way to commence is to purchase in the spring a number of such colonies. In no way can a little money be better invested to bring a quick return. Provide yourself with some practical book on the subject, and follow its directions implicitly, making no experiments until you have some experience. You can, with little trouble, double your number of colonies the first season, thus doubling your capital; and if the season be a good one, you will secure enough surplus honey to pay you a heavy interest. In addition to this, you will, by handling and observing the bees, gain the necessary confidence and experience to enable you to go farther with safety the ensuing season. The most common trouble with those who commence in this way is that they attempt too much. Their efforts at handling bees and opening hives are made with fear and trembling. They are successful, and their interest increases. Swarming time comes, and they make new colonies so easily that they are not satisfied with moderate results. They are anxious to increase faster, and so divide again. All is well for a time, but hot, dry weather or an early

frost cuts short the honey harvest, and they find in the fall, that division has not been for them a multiplication of stocks. Such beginners usually know more but venture less the next season.

Many who are anxious to keep bees have little capital to invest in the business, and are not where bees can be bought in good hives. Such must be content to make a small beginning. If you cannot purchase ten stands, buy five, or even one good one. If you cannot get it in a hive that suits you, take it in a box hive, or old log, and get it home before the honey season commences in the spring. There are few parts of the country where, within a reasonable distance, you cannot purchase bees in common hives for five dollars a colony, or even less.

Procure good, movable comb hives, and when the season of fruit blossoming comes, transfer your bees with their combs to them. By swarming time they may be divided, and your number at least doubled. Wherever bees are kept you can usually engage swarms to be saved for you at a reasonable price. Then, with the advice of some bee-keeper in whose judgment you have confidence, decide what form of hives you will use, and procure them. Have these, of whatever form they may be, all alike and well made, for you will find that nothing in the business pays better than well-made hives. Leave these with the person of whom you engage swarms before June, stipulating that he puts into them only first swarms. They may be removed soon after they are hived, with safety, if you give them plenty of air by means of a wire cloth tacked over top and entrance to hives.

When you have them safely in your yard, you will feel that a beginning is made in an easy way. We commenced in this business by the purchase of four colonies in box-hives, two of which were so poor that they died before flowers came.

We had no knowledge of the subject except that derived from a standard

work on bees, that accidentally came in our way. Our two hives became six the first season, which we know now to have been an unusually good one. Before the next spring we had read of artificial swarming, and practiced it so successfully that we had in the fall 14 good colonies in rough box-hives, and had taken through the season 260 pounds of nice honey in glass boxes. The third season we increased our number to 30 colonies, and obtained from them over 700 pounds of honey.

By this time we were fully convinced of the advantages of movable comb-hives, and the fourth season we transferred most of our bees to good, substantial ones with frames. We also purchased our first Italian queens, and commenced changing our stock to Italians. We never saw a colony transferred before attempting the operation, never saw a queen until we found one for the purpose of changing her, all our information being derived from standard works on bee-keeping.

From this small beginning a flourishing business has grown. What one woman has done any other woman can attempt, and *any man* can do!

It is often asked if it is not best for beginners to be contented with common hives, until they have experience, before investing in movable comb-hives. We have no hesitation in saying that we learned more in two weeks by the use of hives that we could open and examine than we could have learned in a lifetime with hives which were like a sealed book, at whose contents we could only guess. Therefore, while our advice to beginners is "to commence as best they can," we do not counsel them to rest contented until their bees are all Italians, in good, movable comb hives.

WE differ from the opinions expressed by "Novice," in the last issue of his *Gleanings* on the benefits derived from Bee-keepers' Conventions. Having attended every one we feel qualified to express our conviction that

they have done more than anything else to promote good will and good feeling among bee-keepers, and, also, to advance scientific and practical bee-keeping. We only regret that the expense prevents many from attending. They do not take the place, by any means, of township, county and sectional organizations, but they bring all together—to cement the good work begun in the others. We have formed most agreeable acquaintances, have seen prejudices disarmed, and, more than all, have learned much by our attendance at these conventions. If wrong theories have been advanced, they have been thoroughly ostracised, and who is to divine what are wrong theories? We advise "Novice" to attend these conventions before he criticises, and give us reports which will be more perfect of the "sayings and doings" of the meetings than some we have received. We have never seen him present but once, if we remember correctly.

We do not put conventions in place of publications upon bee-culture, but there is room for all means of instruction, and instead of denouncing any we would gladly aid in making each and every one of more benefit to all who would put themselves within reach of their influence.

Especially do we value these National meetings as calling bee keepers together from all sections of country. We can learn new ways of management by comparing notes, and many have gone from these Conventions with an interest and hope that they could have obtained in no other way. Instead of finding fault with them, we desire to help make them more productive of good.

THOSE who wish October, November and December numbers should subscribe soon, as the editions of these months are nearly exhausted. The subject of wintering bees is discussed fully in these numbers, with other matters of interest.

IT HAS always appeared to us singular, to say the least, that in no one of our bee journals is found mention of another—each one ignoring utterly the existence of another. We believe this to be wrong. There is room enough for all. In our country there is no monopoly in anything. Every magazine or paper must stand upon its own merits. We can afford to be generous in this matter, but in making mention of others we only do justice.

The *American Bee Journal* was established before the war, in 1861, but discontinued during the struggle. It was established by Samuel Wagner, of Washington, of honored memory among bee-keepers, and by him continued with great interest until the close of his life, two years ago. It did more than any other medium to create and foster an interest in bee-keeping during the life of its founder. It is now removed from Washington, its birth-place, to Chicago, where it is edited by Rev. W. T. Clarke, who resides in Guelph, Canada. \$2 a year.

The *Bee-Keepers' Journal*, first established in Nevada, Ohio, by H. A. King. It was united with the *National Agriculturist*, and its office removed to New York, in 1868, and has had great success and made many friends in all parts of the country. The same energetic publisher established the *Bee-Keepers' Magazine* one year ago. The *Journal* being in newspaper form, it seemed desirable to have the bee matter in magazine size, as best for preservation. It is an attractive journal, and well worthy the patronage of all bee-keepers. We have been connected with both these periodicals, as one of the editors, ever since their establishment, until our purchase of this journal, and sever our connection with many hearty wishes for their future prosperity.

Gleanings of Bee Culture was started a year ago as a quarterly by A. J. Root, of Medina, O., so well-known to bee-keepers as "Novice." It has met with such success that we see it is

changed to a monthly. It is an exponent of the views and practice of its editor, who, though criticising severely the sayings and doings of all other bee-keepers, does not differ from most of them so widely as he would have us suppose; and he throws at us all many hints we would do well to heed. Terms, 75 cents per year.

There are several other publications upon bee-culture in a smaller and less regular form, which will, we hope, be sent us for notice and comment, which we are not able to give now.

Annals of Bee-Culture has been published annually for several years by D. L. Adair, of Hawesville, Ky. It has contained valuable papers from noted apiarians, in a neat form, and the volume is full of scientific and readable matter. We are glad to know that hereafter it is to be published quarterly.

Our own journal, the NATIONAL BEE JOURNAL, was first founded by N. C. Mitchell, of Indianapolis. It has been in the hands of several others, and has made many friends. We hope it will lose nothing in our care. We thank the hosts of friends who have sent us words of cheer the past month, and promise to do our best not only to advance the interests of this journal, but to promote good-will and harmony among those who are seeking, each in his own way, to advance apiarian knowledge with a view to more successful bee-keeping among the people.

OUR desire is that bee-keepers would become readers and correspondents of the JOURNAL, regarding it as a medium of imparting as well receiving information. We need their criticisms, their suggestions, and the results of their experience. However small the item they send, it adds to the sum. One bee, alone, is a little thing, but when many unite in concord, they insure, by their co-operative industry, the prosperity of the colony.

NATURAL HISTORY OF THE HONEY BEE.

We know that books upon bee-keeping abound and are in the hands of most who will read this journal, and yet we believe we shall do good by presenting a plain sketch of the main facts in the natural history of the honey bee. We present nothing new, but we find by the constant letters that we receive that "line upon line, precept upon precept," must be our motto.

There is no rural pursuit in which theory and practice must be so closely combined, in order to insure success, as in bee-keeping; and because so many undertake the business while in gross ignorance of the laws of instinct which govern the curious little insect, we find few making it as profitable as it should be made. Those who construct hives and those who use them, in too many instances, proceed as if they had power to change the nature of the bee, or compel it to work as they would have it, instead of remembering that its habits cannot be changed, but that in all its ways it follows immutable laws, and that to succeed in its management these laws must be borne in mind, and everything made to conform thereunto.

There are three kinds of inmates in every hive. First, and foremost, is the queen, who should be called "the mother bee," for she deposits all the eggs and is the parent of all the rest. She is the only perfect female in the colony, and upon her life and health everything depends. The worker bees are undeveloped females. Their office is to care for the queen, cherish the brood, cleanse the hive and secrete the wax, while they are young, and after they are older to gather and store the sweets which nature provides in nearly all blossoms, and which we call honey. The drones are the males of the colony, their sole office being to fertilize the young queens as they are reared in their season. They ap-

pear about swarming time, eat much honey, but gather none, and disappear after the honey harvest is over, having served their brief purpose. Nature seems to have provided that a multiplicity of them should be reared, but this is in most hives purely accidental, as we shall show, and to manage an apiary with but few of these consumers, not producers, in it, is one of the economies of modern bee-keeping.

The mother bee lives from three to five years, unless destroyed by accident. The life of a worker in the busy season is short, on an average not more than six weeks. A colony of bees rightly managed may exist for many years, but its members are coming on and going off the stage in rapid succession, and on the eggs which the queen deposits depends the constant perpetuity of the whole. The drone's life is also short, but its length varies much with season and circumstances.

The facts connected with the queen bee are wonderful and unlike any other animated thing. She is reared from the same egg which would, under ordinary circumstances, produce a worker bee. Thus, when a hive is deprived of a queen, or when in summer it is about to swarm, the bees take an egg, and by a change in the shape of the cell and in the quality and quantity of the food given to it, change its whole nature, and it becomes a perfect female, or queen bee. If the larvæ had been treated as usual the insect would have emerged from its cell with baskets on its thighs, with different wings, with undeveloped ovaries, and with a propensity to sting, and an instinct for gathering honey. As a queen it has ovaries fully developed, no baskets on its thighs, a sting, but no will to use it, and no disposition to work. As a worker it would have required 21 days to develop it from the egg to the live bee, while it would have lived, on an average, only six weeks. As a queen it emerges fully

developed from its cell in from 12 to 17 days, and, under favorable circumstances, may be expected to live from three to four years. These wonderful changes the little insect has power to make at will when a new queen is necessary to the safety of an old colony, or the formation of an old one.

The fertilization of the young queen takes place when she is from three to ten days old, and after her union with the drone the impregnation is operative for life—a wonderful provision for the safety of the young, on whose welfare so much depends. Before fertilization the queen can deposit eggs which produce drones, and if by accident she is maimed and cannot leave the hive to become fertile, she is still capable of producing drones. Such queens are called “drone-laying queens.” It was formerly supposed that the fertilization of a young queen must take place outside the hive, that she met the drone always in the air; but recent discoveries have shown that she may be fertilized in confinement, and in the light of this fact changes are taking place in the rearing of queens, tending to greatly improve the stock, instead of leaving it to chance.

Bees gather only honey, the secretion of nectar in blossoms, pollen from various sources, and propolis, or “bee glue.” This latter is used to fasten combs, to stop cracks in hives, or to strongly cement various parts, while pollen is used to make the “bee bread” on which the immature bees are fed. Wax is an animal secretion, as purely as lard or tallow, appearing under certain conditions on the abdomen of young bees, and taken from them to be used in forming the cells of comb in which honey is stored and young bees reared.

[To be Continued.]

ARTHUR'S HOME MAGAZINE, published by T. S. Arthur & Son, Philadelphia, is one of the best of all the monthlies.

AND Notes and Queries

Your article in the last *Bee-Keepers' Magazine* on wintering bees, is so sensible, practical and plain as to cover the whole ground (at least for me) as far as it goes. And I think it was just what was needed by many bee-keepers. But there are one or two points I am still in doubt about, and if you can spare time I would like a little benefit from your experience about them. In the July number of the *Magazine*, page 218, N. Higbee gives his experience in wintering, from which he draws the conclusion that his bees suffered from want of water while raising brood, ate their brood to supply the place of water, and so became diseased. Now, in my little experience, I have observed that they use a good deal of water when breeding, and that young bees, too young to gather stores, in a nucleus for queen-raising, do eat eggs and brood, probably for want of water; and I fear his conclusion may be correct. I wish to know your opinion and how you think such a cause of loss may be avoided? Again: Many of my stocks have very little pollen stored, and I wish to know whether there is any danger in that, and if there is, how it can be averted? We have wintered bees in a cellar for three winters past with the best of success, and have 28 stands to put in the cellar this winter, and are very anxious to bring them through all right. An answer will much oblige

Yours, etc.,

P. C. TRUMAN.

Harlan, Iowa, Nov. 15, 1873.

After bees commence rearing brood in spring, they do need and use much water. We do not think it any advantage to have brood raised in any quantity in the cellar, and the want of water may prevent it. We have always found more or less brood in hives when taken from the cellar. This must have been reared without water, unless the moisture accumulated on the sides and was used for the purpose. We cannot think the want of water ever caused the destruction of brood in a good colony. In nucleus hives if care is not taken to supply them, the bees might suffer, and no doubt often do for want of both food and water. We think they suffer often for want of pollen.

Your bees will not need much pollen until spring, then they must be fed rye-meal as early as possible. We

have fed bees destitute of pollen a cake made of rye meal. They took it all up, but did no better than others in the same condition not fed with the meal.

I am a beginner in bee-keeping, but am anxious to be successful. I need the money I hope to make, and I want to show, also, to some doubting friends that bees may be made to pay. I have 10 colonies now that are seemingly in good order. They are black bees. Will it pay me to invest in Italians and try to rear queens for sale? or, had I best stick to the honey business? It would seem to me as if there were more money made by the sale of queens. I sold from six colonies this season 540 pounds of box honey. That was not up to the average made by Grim or Hosmer, yet it paid me for all the time I gave my bees. I would like to branch out a little another season if I thought it would pay me.

South Homer, Kansas.

The Italians will pay you *all the time*, whether you intend to rear queens, or depend on honey for the prospects. We think but few will ever succeed in making queen-rearing pay well. It takes a long time to be ready to sell queens, and unless you are some distance from other bees, or take pains to fertilize in confinement, you cannot warrant purity. There are many trials, too, attending the rearing of queens for sale that you cannot appreciate unless you share in them. If you can obtain as large an average every year from hives as you have this, we think you will do no better by selling queens.

In putting our bees into the cellar, I noticed that some of the frames reached nearly, if not entirely, to the bottom of the hive. Is there danger of dead bees and refuse matter filling up, and smothering the bees? I don't see how any change could very well be made. The frames are not all so low—only a part of them.

CHAS. H. WHITMORE.

Cass Co., Iowa, Nov. 25, 1873.

We do not like to have the frames come so near the bottom board. It is very objectionable, but would not advise you to disturb them now unless the bottom board is loose. In that case the hive can be raised a little from it. We would take such hives out of

the cellar as early in spring as possible.

How do you prefer to have hives face? or do you deem it of importance how they face. I would like to know. Last year my hives faced North, and I have not thought it wise to have them so.

c. w.

Piscataqua Co., Maine.

We prefer to have the hives face east, when we can choose regarding it, for this reason: The morning sun in summer strikes them not unpleasantly, and in in spring the bees seem to enjoy it. Any one can see a difference between hives that have the rays of the morning sun upon them and those that are facing north. The former appear to begin work two hours sooner. In hot afternoons it also better to have no sun strike the entrance.

Why is not the locust as valuable for bee pasturage as the linden. We do not see it spoken of as useful, and yet it is an abundant bloomer and bees frequent it all the time it is in bloom.

OHIO.

In Southern Ohio the yellow locust is a very valuable honey-producing plant, and some seasons the bees store large amounts from it. In New Jersey and Maryland, also, it is very valuable, but in the West it is of little value. Not one year in ten does it afford honey, probably on account of the inclement weather when it is in bloom. It is hardly worth while, of late, to plant the locust on our prairies, as they are often destroyed by the borer. The linden, so far as we know, is of a healthy growth, and nine years out of ten is sure to yield honey most abundantly.

I have a colony of bees that has about ten pounds of honey and a goodly number of bees. Will it winter over, in a very warm cellar, and shall I feed it now or in the spring? *

Cole Co., Mo.

We judge that your colony is such an one as Mr. Hosmer prefers to winter, though "goodly number of bees" is very indefinite. If your cellar is too warm they will consume more honey than if it is a little cooler. Ten pounds of honey will last until Feb-

ruary. By that time you can feed them, and in such a manner as to encourage brood-rearing, and have the colony strong enough to engender warmth sufficient when they are set out in spring.

Questions for all bee-culturists and close observers of that wonderful insect. the honey bee:

What is the greatest length of brood from top to bottom, and from side to side, ever known by you, and how many sheets of brood in the hive? I have measured some and found the longest from top to bottom, eleven inches, and from side to side the same; two sheets of this size and two sheets ten inches, and two sheets eight inches, and some on two others, the outside sheets.

Are not the sides of the worker comb just exactly the same length as the antennæ of the honey bee when doubled, and the sides of the drone or store cells the length of the antennæ when opened?

A. J. P.

Cannot we learn from the working of the honey bee this lesson. "Do unto others as we would they should do unto us." They fulfill the highest law of their nature, and this is the highest law to man.

A. J. P.

I have a small colony of bees made from the bees and three sheets of brood, and a queen cell from another hive put in a clean hive about the 20th of August. In the course of time the queen hatched out and commenced laying, but when hatched they were all drones. This was in October, and as I did not want drones at that time of the year I killed her; and also having a small colony with a good Italian, I sat the colony with the queen on the frames of the hive, with no queen, with a sheet of paper between, and covered them all with one cover for a few days, when I removed the paper, and on observing again in a few days found them all together and no dead bees around. This was on the first of November. In this case the bees were all old ones.

A. J. P.

We have several times united bees in that way with good success. This year, in November, we took their nuclei, with perhaps a pint of bees each, only one of them having a fertile queen, and placed one over the other, with paper between. Two days after we removed the paper, and the bees quietly settled together. The next fine day we removed all the frames to one large hive and it is now doing well. We do not find it necessary, however, to take this trouble always, for bees, after being queenless a

few days, will gladly and peaceably winter with any other bees having a fertile queen.

Can anything be done to keep ants from bees? In spring they are extremely troublesome about our hives—indeed, they are perfect pests. I have tried many remedies

Kirkville, Tenn.

We never could see that the ants did any harm, except the annoyance they cause to the person opening hives. They seem to creep into and cluster about the hives for warmth only. We used to take great pains to keep them away and succeeded best by placing ashes or crude copperas around the bottom boards; now, we take no trouble on their account.

I have twenty stands of bees in my cellar, half of which I fear need feeding. How shall I do it?

CARL HOPPER.

Minnesota.

If you are careful you can feed them with syrup made of sugar, but we advise you to try candy made of sugar. Dissolve sugar in water, then boil until it is candy; cool in thin sheets, and put them in between the combs among the bees. We have wintered colonies from December until March, with one dollar's worth of this candy. If there is a good candy manufactory near you, it is quite as cheap to buy plain sugar candy.

Having an experience which I think corroborates your theory on the death question, I take the liberty to write to you. I put four swarms under a straw shed, built a room with rails under the large shed, and covered with straw and corn fodder four or five feet thick. I left them there till January. The cold was so extreme that I was fearful all was not well with them. I found on examining that one swarm was dead, and the others were very foul and smelled badly. I removed them to the cellar and found the ice two inches at the front of the hives. I tried for two days to clean the ice from the hives, but could not. I then sprinkled salt over the ice, which loosened it. I took a part of the frames away, cleaned them as well as I could, dried them and put them back. I took cloths and tied them to a thin stick, and wiped the hives as well as possible, and scraped the filth from the hives and frames as much as I could. With a knife I worked as gentle as possible, and when they waked I shut them up—not the

bees, but the hives. After I got them cleaned to suit me, I let them alone. I took them in the middle of October, and set them out the 16th of April. With them, I have now eight swarms, and they are down cellar. The swarm that died was a Hosmer swarm. They left sixteen pounds of honey. I have been reading everything I could get in relation to bees, for a number of years. Have had but little experience. I have followed your plans mostly. I use the American hive, eleven frames. My hives are made two-story. I have never used the upper story. I would like to know your opinion in the matter. I think more of the increase of bees than of the surplus honey, as bees are very scarce.

O. W. P.

Kandiyouki Co., Minn.

If it is your object to secure an increase of stocks, we would not advise the use of upper story. Keep the eleven frames always full of brood during summer, taking away from it judiciously to form new swarms. Ample directions for doing this will be given in spring numbers of the JOURNAL.

I sent \$5 00 to ——— for an Italian queen last spring, but have not received it. After waiting all summer he sent my money back, with regrets that was impossible to fill my order, owing to the inclement weather and the difficulties attending queen rearing this summer. Now, I wanted a queen, not the money, and if he could not have filled my order, I think he should have let me know sooner. Is it true that this has been an unfavorable summer for queen-rearing.

S. WATERS.

Minnesota.

The past has been the most unfavorable season we have known in ten years' experience in queen-rearing. Others have had the same trouble. Some of the most successful queen-rearers last year have not been able to rear any this season. We have returned already over four hundred dollars to those who have ordered queens of us, and have more to return as fast as possible. We took the orders in good faith, and had the season been as good as some, could have filled many more than we received. We hope that all who order queens will feel that it is for the interest of those sending them to do it promptly, if possible, and to have patience with all seeming delinquencies. No doubt it would have been much pleasanter

for Mr. — to have sent you a queen than to have returned the money, and he could not tell until late that it was impossible to do it.

Is there money to be made in the bee business by one who makes it a business, giving his whole time to it; or is it paying only where bees are kept in connection with something else? How many stocks ought one to keep to secure a good income?

SILAS BEECH.

Kansas.

We receive many letters of inquiry similar to this. They are too vague to deserve an answer, but we will try. "How many stocks," etc., would depend on the season, on the care taken of them, and on what would be called by our friend "a good income." There is money to be made in the bee business, whether it is followed as the only occupation, or in addition to other things—if it is properly managed.

We know numbers of women who are, from a few colonies, obtaining one hundred per cent. on what are called poor swarms, while giving to them only their few spare hours. Some of them who have persistently followed bee-keeping in a large way report good profits. As, for instance, Adam Grim, of Wisconsin, who reports that he has netted \$22,000 in five years. He is a man, too, who has many other irons in the fire, being an active business man.

We do not give here the names of those who have failed. We know there are many, and we will gladly give the record of their experience, if sent to us, for we desire to know on "what rock they split." Most failures that have come under our observation have been caused by attempting and expecting too much at first, and then being discouraged, instead of benefiting by the experience. We want reports of failures and their causes, as well as of successes.

I use the American hive. Do you know of anything better?

Is there any hive that uses glass honey boxes? Will glass jars do as well as wood?

What hive do you use? I wish to make some hives and boxes this winter, and would like a hive that will be the cheapest made and would like to use glass instead of wood, for honey boxes providing bees will work as well in them?

Any information that you can give on the subject will be very gratefully received. I take the *Bee Journal*, published by H. A. King, and read your articles with much interest. I like your article on wintering bees very much. I winter mine in a dry cellar, and so far they have come out well.

H. S. WEBBER.

Maine, Nov., 1873.

The frame of the American Hive is just right, to our mind. You can make the hive as plain as you please. It is quite as good without the observation glass. We do not find it easy or profitable to coax bees into glass jars or boxes made almost entirely of glass. It can be done by fastening comb in them liberally. The boxes made by Mr. Quinby have glass on all the four sides. We think the paper boxes made for the Climax Hive the best we have seen. The honey in them is very saleable, and we find the bees go into them very readily. If one must have honey in the comb, there can be no better form to get it than these boxes. But the profits of bee-keeping will be greater when honey is taken by the Extractor, and people are induced to try it and like it. The *Chicago Honey Circular* very truly says:

"The honey thus extracted possesses a most delicious flavor, and can be eaten without fear of sickness. It is eating the comb that makes one sick; the bees never eat it, and physicians say there would be as much propriety in drinking ale from a bottle and then eating the bottle, as to eat the honey and comb also."

THOSE who are canvassing for the *JOURNAL* will please send on names and money just as fast as possible, without waiting until they have the whole number. We are revising our lists, and hope to hear from every present subscriber before we mail the January number. While we are taking many new names, we are specially grateful for renewals of old friends.

SHOULD any be so unfortunate as to have bees destitute of adequate food for winter when this reaches them, we should advise using plain candy. Mr. Wilken, of Cadiz, Ohio, has just paid us a visit, and among valuable items given us, he mentioned that he had frequently saved colonies, even in midwinter, under circumstances like the following: An old Quaker had two colonies in December that had stores insufficient to last them a month, and had left them to their fate, as he couldn't "fuss to feed them." As Mr. W. was not pressed for time, he proposed to save both, for one of them as payment in the spring, which proposition was readily accepted. We think a dollar's worth was purchased, the hives were inverted, and the sticks pushed between the combs, the two colonies being placed in the cellar, of course. Our friend saw no more of them until the following summer, when he found both had swarmed, and all were doing well. The owner gladly paid him for candy and trouble, and went his way rejoicing. Mr. W. was unable to add that, so far as he had observed, candy stores were a preventive of the bee disease, although his experiments have been only with such as had partly enough honey to winter.—*Novice's Gleanings.*

WE desire to make the JOURNAL worth to every subscriber the two dollars we ask for it. We believe we shall do it. We shall continue to improve with each number. Our premiums are to be considered as given in payment for the services rendered in obtaining subscribers. If any one prefers cash payment, we are quite as willing to give it. We wish no one to work for us without pay, but we do want our JOURNAL presented to the notice of every friend to progressive bee culture in America, and we are glad to pay liberally for such services.

We will continue to send the October and November numbers while

they last, but the stock is nearly gone. Those wishing them must send soon. We shall be obliged to print a much larger edition of December number.

ALL old subscribers who will send us a new name with three dollars, during the next month will receive the JOURNAL for themselves and the new subscriber, and two works on bee-keeping. Those who send in three new names, with six dollars, will receive their own JOURNAL for 1874 free, and three copies of bee books. The new subscribers will receive the JOURNAL from October. These liberal offers will, we hope, induce all old subscribers to work for us. Send names and money to Ellen S. Tupper, Des Moines, Iowa.

OUR FRIENDS and agents will remember that the October, November and December numbers will be sent free to all subscribers for 1874 who send soon—fifteen numbers for one year's subscription. These three numbers, to those who wish specimen copies, will be sent for 15 cents. For 50 cents, three months' numbers and a book on bee culture. Specimen copy mailed free to all who apply. Address,
ELLEN S. TUPPER,
Des Moines, Iowa.

AS A supply for the winter, a strong stock should, on the first of November, contain at least one pound of honey for every thousand bees; and a weak stock should then have a pound and a half for every thousand bees.—*Hoffman.*

IN a favorable year an acre of buckwheat in blossom can furnish 25 lbs. of honey daily; and a strong stock of bees, not having over a half mile to fly, can carry from six to eight pounds a day.

A LARGE natural swarm of bees carries with it four or five pounds of honey when leaving

NORTH AMERICAN BEE SOCIETY.

FIRST DAY—MORNING SESSION.

The third annual session was held in Library Hall, in the city of Louisville, commencing Dec. 3, 1873.

Vice President Dr. T. B. Hamlin, of Edgefield Junction, Tenn., took the chair and called the meeting to order.

Owing to the inclement weather, (raining quite hard,) and sickness of several members, etc., an informal meeting was held in the forenoon and adjourned to meet in the same hall at 2 P. M.

AFTERNOON SESSION.

At 2 P. M. the Society again met. Vice President T. B. Hamlin took the chair, and called the Society to order. The Secretary not being present, and not having sent the books of the Society, D. L. Adair, of Hawesville, Kentucky, was appointed Secretary *pro tem.*, and read a letter from the President, W. W. Clark, informing the meeting that owing to the death of his wife's father, he could not be with us, but he expressed his continued love for the cause and his sorrow at not being able to be with us.

Twenty-one men came up and paid their dollar as members.

Mrs. E. S. Tupper moved that we have a free social conference, instead of going into regular business. Adopted.

D. L. Adair read a letter from Anna, wife of J. A. Chevalley, of Bellenzonia, Switzerland, explaining that owing to the sickness of her husband, he was not able to comply and send the queens ordered of him, and that he would use efforts to send them next season.

A. J. Pope, of Indianapolis, asked the question: What is the largest size, and the shape, observed by beekeepers, of brood laid by a prolific queen? He had observed the brood 11 inches in height by 12 inches wide, in the center comb of 8 sheets of brood,

and dwindled down to 6 inches in diameter in the outside sheets.

D. L. Adair then said that he had observed their work in breeding, closely and frequently, and their uniform mode in a strong colony was to commence by laying three eggs on one side of the comb, and on the opposite side seven eggs, and then back again to the first side, and about doubling the number on the opposite side, until they come to the outside of the frame, which, in his opinion, should be thirteen inches wide, inside measurement, in all cases, and that bee-keepers do not give the queen one-half the space that she could fill with eggs.

A. J. Murray, of Memphis, Tenn., asked: What is the cause of foul brood? Is it an insect, disease, or fungus?

Mrs. E. S. Tupper, of Des Moines, Iowa, said she knew of no foul brood in her section of the country.

A. J. Murray said that microscopic examination discovered in some cases an insect as the cause.

D. L. Adair said that German beekeepers pronounced it a fungus, and perhaps that it was caused by a parasite.

M. C. Hester, Charleston, Indiana, stated that he had lost a number of queens early in the spring by their coming out of and abandoning the hive. In some cases they had brood bee bread, or pollen, and honey, and although in some cases he put the queen back into the orifice of the hive, she would not go in, and in some instances found three or four queens bundled together in clumps of bees. There was no dampness in the cellar where he wintered his bees, and the comb was clean and sweet.

Mrs. E. S. Tupper said she had heard of many such cases, and thought it was a disease, affecting the queen, this season, and she would have a clean hive, with brood, bee bread and honey in the hive, and in some larger apiaries where they had lost queens

they supposed some one had stolen them.

A. Benedict, of Morrow, O., thought it was want of pollen.

A. T. Wright, Kokomo, Ind., prevents the loss of the queen by using a screen that will allow the worker to go through, but not allow the queen. He found queens laying eggs about in the hive, but not in the cells.

J. Williams, of Tennessee, had seven, eight, or perhaps ten queens, to come out from the colonies, and he found them on the ground imprisoned by "hugging" bees. He caught one running off from the hive, and gave her to a colony that had been deserted by their queen, and confined her so she could not get out, by closing the entrance with a screen through which only workers could pass, and she was accepted and kept the bees from swarming out until he supplied them with a vigorous queen.

A. T. Wright did not think the queens were diseased, from the fact that they continued to lay eggs up to the time of desertion.

Mrs. Tupper said the disease might be sudden, as hens are known to lay eggs very near to the time of death.

Adair had no experience with cases like those under discussion, but concluded that it must be from disease; all of the peculiarities attending indicating it, particularly the queen deserting the hive; for it is the instinct not only of bees, but of all wild animals to desert their homes to die, and often in cases of bee cholera the hive is found full of stores and even brood, with the bees all gone.

Mr. Hester clipped the wings of his queens to keep the workers from going off, but the queens crawled out.

I. Z. Smith wintered thirty swarms. He set them out a few at a time from the first of March to April. All of them came out in good order. He attributed his success to his house arrangement. Many of his neighbors lost their bees, as he thought, from

cold preventing access to the honey, which was too far off. He said bee cholera was a new disease, and we must find cures and preventives.

A. T. Wright thought the queens of weak stands, only, deserted, and he used a wire screen over the front of the hive, through which only workers could pass, and strengthened the stock by adding brood and feeding.

M. C. Hester's theory is that the dry fall preceding had checked breeding, and that by spring the colony consisted only of old bees. The queens realized this state of things and were dissatisfied.

A. T. Wright had known them leave when there was plenty of brood and young bees, and all right seemingly.

I. Z. Smith encouraged them always by feeding at once when set out from winter quarters.

Aaron Benedict thought the queens sometimes left when there were not bees enough to cover all the eggs she deposited. He had known this to be the case in nucleus colonies.

D. L. Adair inquired if the wings of all these queens were cropped.

Mr. Hester replied: Not at first, but that he clipped them afterwards.

Mr. Adair inquired if queens with their wings cut could be considered in a healthy condition?

Mr. Hester had known them healthy enough to lay and keep colonies strong for two years after he had clipped them.

Mr. Adair suggested that men also lived and labored with one lung gone, but no one considered such a man healthy.

M. C. Hester inquired what was best food for bees, and would it not be advisable to take all the honey in the fall and then feed up with sugar.

Major Key had had but little experience. He had fed Cuba honey; the bees did not like it, but took sugar syrup greedily, and, he thought, preferred it.

I. Z. Smith asked why the honey

did not kill the bees years ago, when they fed on honey gathered from the same kind of flowers as now.

Mr. A. G. Murray, of Memphis, said that in Scotland, where he was born, they carried the "skaps" to the heather every season in wagons, and on their shoulders; when the heather ceased to bloom they returned with them to their homes, and took all the honey from them, feeding with sugar the rest of the year. When inquired of by Mrs. Tupper as to how they took the honey from the bees in old-fashioned hives, he replied that it was stored in nice receptacles above, and that they took the honey "down to the brood." He further said that he had wintered one colony on sugar, one on mixed food, and one on honey, with no apparent difference of results.

Mrs. Tupper thought sugar as good as honey for food, but had no experience in any kind of honey being injurious. She had wintered on sugar syrup alone, and also by giving the bees candy—thrusting the sticks into the cluster.

Mr. Murray said that in Arkansas corn cake was covered with syrup made of sugar, vinegar and water. This being put under a common log hive, would be all greedily taken by the bees.

M. C. Hester thought it economy, besides being safe, to take all honey from the bees and feed sugar. Three pounds of syrup may be made at a cost of 20 to 25 cents, while three pounds of honey would sell for at least double that sum.

Mr. Wright made his syrup by pouring two pounds of boiling water over three pounds of sugar.

On motion of Mr. Hester, the chair appointed Aaron Benedict, Abner J. Pope, and J. M. Winder a committee on business, and the meeting adjourned to 7 P. M.

EVENING SESSION.

Dr. Hamlin in the chair.

Mr. Hester inquired if any of the

members had practical knowledge of the value of Alsike.

Mr. Allen replied that he sowed some two years ago; came up well; had a good stand; bloomed first year; bees worked well on it; did not yield honey much after white clover; it bloomed a little the second time, about equal to white; it grows taller, blooms some time. It will pay to sow for pasturage alone. Sows a mixture now of timothy, Alsike and red clover. This makes a hay which stock like. The patch where he sowed the alsike first is still in it, but he thinks the white clover will eventually take the ground from it.

A gentleman from Giles County, Tenn., said his experience was limited. He prepared his ground two weeks in advance of sowing, which gave the weeds a start; but it came up and bloomed finely first season; mowed it, but had a scant crop; bees stored honey from it rapidly while it was in bloom, but does not know its quality.

Mr. Murray, of Memphis, said that it blooms well with him, but dries up like everything else there in August. He got fifty pounds from one colony in three weeks on the fall pasturage.

Mrs. Tupper being called upon said she esteemed it of great value as a honey plant. Reports were very different as to its qualities as a hay crop.

Mr. Hester said that in his section they had only May and June honey, and anything that would lengthen the season would be valuable.

Dr Hamlin had twenty-five acres; it came up well. Next season white clover came in, and the second year gave fine pasturage. The third year the white had the ascendancy; fifth year, plowed it up. He thought it better than any clover for hay or pasturage. It was on land of not first quality. Thinks it would do well, even South, on rich, moist land. It was far preferable to red clover in the South.

Mr. Murray said that it has a tap-root, which, reaching the sub-soil,

makes it valuable in South Carolina and Georgia.

Mrs. Tupper said that in Illinois and Iowa it is being largely sown in orchards, and is esteemed valuable, when turned under, as a fertilizer.

Inquiries were made as to the value of the Rocky Mountain Bee Plant.

Abner Pope said it was not as valuable as Alsike—it did afford some honey.

Mr. Gilmore had two pieces of Alsike—one on dry, and the other on moist land. On the latter it grew finely; stock left all other pasturage to eat it as long as there was a root even remaining; considered it preferable for hay to all others.

Murray said he bought a queen from Cole, of Tennessee. She was left accidentally in a cage over a colony three weeks. He found eggs in the comb under the cage, undoubtedly from that queen, as they hatched Italians.

Mrs. Tupper said that they dropped through the meshes of the cage and the bees preserved them.

Mr. Adair said that he had received eggs by mail from Root, of Ohio. Inserted the square piece of comb containing them in comb that had been out of the hive two years. A number of queen cells were started on the inserted comb, and two on the old comb, and all of them produced queens. The eggs in the old comb must have been transferred by the worker bees.

Mrs. Tupper left a queen in cage, and sent her daughter to release her, but she did not do it. Three weeks after, found patches of cells that had brood in them that hatched workers. It was evident that the eggs had been deposited somewhere by the queen and removed to the cell by the workers.

Mr. Benedict said he had left queens in cages on top of frames sometimes several weeks. The bees always fed them, and he very rarely had a queen die in the cage.

Mrs. Tupper replied in answer to a question, that Mr. Hosmer had sent her a cage for the protection of surplus queen cells. They hatched in the cage, and were fed for several days. Had not made satisfactory experiments as to how long they would be fed in them.

Mr. Hester had put several cages with queens and cells into the hives at different times, but could not get them fed.

Mrs. Tupper thinks these cages and nurseries only valuable for keeping queens temporarily. Queens kept long in them are abnormal and of doubtful value. They, like all other young things, need exercise to develop them fully.

With regard to introducing unfertile queens in the best manner, Mr. Benedict said when they were just hatched, there was no trouble, if old enough to rear around and squeal it was not so easy. He saturates the bees with scented water, and the queen also. Anise, peppermint or cinnamon will do.

Mr. Hester said that after five or six days bees will receive almost any queen.

Mr. Benedict saturates them with the scented water, and by the time they dry off they know nothing about a change of queens. He put in great numbers and lost but very few.

Mr. Hester asked if any one had tried killing the native queen, and as soon as the buzz of distress was heard, let the queen into the entrance.

Mrs. Tupper said beginners should be cautious, and cage for at least forty-eight hours. Those who have experience can introduce in various ways.

Mr. Allen had but little experience, but would like to know if cages could not be arranged so that queens could protect themselves. He had lost two in cages this season, the bees having stung them through the wire cloth.

Dr. Hamlin inquired what evidence Mr. Allen had that the queens were stung.

Mr. Allen had none except that they were dead when he went to release them.

Mr. Benedict said that queens should always be caged until the bees are in a mode to receive them. Sometimes they were in the right temper for a few moments; at other times they were in a bad humor for days. One with experience could always tell, but he advised beginners to be sure.

M. C. Hester inquired if a queen reared from larvæ, two or three days old, was as good as if started from the egg.

Mrs. Tupper said it took three days for the egg to hatch; it could not be fed before hatching. A microscopic investigation of the larvæ, taken when young from a royal cell, and also one taken from a worker, revealed no apparent difference.

Mr. Benedict said in all cases he preferred to have his royal cells started with larvæ partly grown.

Mr. Murray suggested that the structure of the bee was so unlike, it seemed to him there must be a difference.

Mrs. Tupper—When does this larvæ begin to differ?

Mr. Hester—Have you not seen royal jelly fed to larvæ just hatched?

Mr. Adair—The larvæ is distinct in its structure from the perfect insect, and remains so until its transformation to *pupa*. Up to this time there are no organs that would distinguish one sex from the other; the drone, the queen and the worker larvæ being all alike. During the metamorphosis an entirely new system of organs and structures are developed by the destruction of the larval tissues. The queen differs from the workers only in a higher development of organs adapted to her peculiar office, and reasonably we may conclude is the result of better nurture, and more abundant food, rather than the effect of a different food.

Mr. Hester thinks that there must

be a difference, in spite of the microscope; thinks there is certainly a difference between drones and workers.

Mrs. Tupper—Yes; but then there is a difference in the egg itself.

Abner Pope had tasted and tested, and could detect no difference between the food fed to larvæ of workers and that fed to queens. He thought the quantity fed, with size and form of cell, made the difference.

Mrs. Tupper said she long ago discovered that the first queen hatched in a colony after the old queen was removed, was best and most prolific. She had seen the very best queens hatched in ten days, and the remaining cells, some of them not hatched until the fifteenth and sixteenth days, would not be as handsome or as vigorous. She had a queen once that hatched in eight days, which lived four years and then died of an accident. Other instances had convinced her that the mysterious change occurred later in the life of the larvæ than was usually supposed.

Mr. Benedict said a friend sent him one of Langstroth's \$20 queens to Kelley's Island. He let her go on empty combs, to get eggs from her as soon as possible. Next day he took out the eggs, cut the comb in strips, and put into nuclei; shut these up. The bees commenced putting in jelly before the eggs hatched. From these cells came the most insignificant little queens he ever saw. Some were dark, others not larger than workers. He sent the queen back, telling his friend that he had no use for such stock. But, to his surprise, the workers hatched from the queen were unusually fine, and some of the queens reared afterward were in all respects satisfactory. He had tried the same thing often, since, and invariably had little queens from eggs or larvæ changed to queen cells too young.

Mr. Hill, of Mount Healthy, said he would always prefer ten-day queens to those not hatched until the seventeenth day.

M. C. Hester—Got a queen from Mrs. Tupper. She produced a queen in sixteen days from the time he introduced the queen; he knew the hive had no eggs. He gave this as a proof that one queen was reared in sixteen days from the egg.

A. J. Murray met an intelligent German who said that he had in his apiary a prolific queen, producing workers, that was produced from an egg produced by a fertile worker. Said egg was laid in a stock that had been queenless for ten days.

Mr. Benedict said the eggs may be from queens that follow workers into the hive where there are no other workers; had sixteen or seventeen colonies that lacked queens, and after four or five days went to introduce queens and found a queen that must have strayed in.

Mr. Allen—How can we make the most money out of our bees? By selling the honey extracted or in the comb? He found sale for extracted at sixteen cents a pound by the quantity.

Mr. Benedict—By increasing the number of stands by dividing, leaving the queen in old hive, and removing the old hive to new place. One case, in eight days had forty pounds of honey; two days afterward drummed out again and put in queens, making six colonies; added two nuclei to two more, and now we have eight, all in good condition.

Mr. Murray said: Put up the extracted honey in attractive one-pound bottles, and they sell readily at good prices.

Mr. Winder puts them up in one-pound bottles, puts on a handsome label, and sells wholesale at \$4 per dozen.

Mr. Hester said that fifteen cents a pound for extracted honey was more profitable than thirty cents for honey in the comb.

Mrs. Tupper said that ten cents for extracted is better than twenty-five cents in the comb.

Mr. Hill—And saves the time and loss of honey in comb-building.

Mrs. Tupper—Take two hives empty, put a swarm in each, and when full put boxes on one for comb honey, and in the other use the Extractor.

Mr. Hill—You hold that the use of the Extractor injures the brood?

Mrs. Tupper—I do; but if hives are large enough, as they should be, you need not, and should not, extract from brood comb.

Mr. Hester—Besides saving comb, bees are not so likely to work in caps or boxes as in one chamber.

Mrs. Tupper—Mr. Hester omits an important point: that the Extractor gives room for the queen to lay eggs—a very important one. She instanced a case where hives were full of honey; took out some 400 pounds; the queens laid in the emptied cells, and the bees worked in the boxes. Had there been no honey extracted, they would have done nothing, and all died the following winter.

Mr. Hester said it seemed to him very strange that people should have the foolish idea that extracted honey was not good.

Mrs. Tupper—A more serious difficulty is to convince the people that extracted honey is not the old-fashioned strained honey, with dead bees mashed in it.

Adjourned until 9:30 to-morrow morning.

SECOND DAY—MORNING SESSION.

Mr. Hamlin in the chair.

Gen. Adair stated that it was proposed to hold a Centennial Exposition in Philadelphia, and moved that a committee of three be appointed to correspond with the managers, and see what arrangements could be made for having the bee interests represented. The resolution was adopted and subsequently the chair appointed Gen. Adair, of Kentucky; Mrs. E. S. Tupper, of Iowa, and J. Winder, of Ohio, and they were authorized to

appoint sub-committees in such States as they deemed proper.

In reply to a question, Gen. Adair stated that while there were some twelve or fifteen States which had organizations, none of them were auxiliary to the National Association.

The Society then proceeded to the election of officers.

Seth Hoagland, of Pennsylvania, and Dr. B. Hamlin, of Tennessee, were placed in nomination for President, and a ballot taken, resulting in the election of Mr. Hoagland by one majority.

Mrs. E. S. Tupper was nominated for Secretary, but positively refused to accept, when the Society elected: for Recording Secretary, Abner Pope, and for Corresponding Secretary, Gen. Adair, without opposition, as was also J. S. Hill, of Mt. Healthy, Ohio, as Treasurer.

The following Vice Presidents were then elected:

New York—J. E. Hetherington, Cherry Valley.

Pennsylvania—A. J. Hooker.

Kansas—L. J. Dallas, Baldwin City.

Michigan—A. J. Cook, Lansing.

Minnesota—J. W. Hosmer, Janesville.

Utah—W. D. Roberts, Provo City.

New Jersey—E. J. Peck, Linden.

Wisconsin—A. H. Hart, Appleton.

District of Columbia—Hugh Cameron, Washington.

Ontario—J. C. Thorn, Garafaxa.

Georgia—R. Peters, Atlanta.

Texas—J. W. Dunn, Corpus Christi.

Arkansas—G. B. Peters, Council Bend.

Maine—Mrs. A. C. Hatch, Houston.

Connecticut—W. H. Kirk, West Cheshire.

Louisiana—T. J. Bert, Mansfield.

Alabama—Miss Fanny L. Morris, Selby Springs.

Massachusetts—E. N. Dyer, Amherst.

West Virginia—A. Chapman, New Cumberland.

Nebraska—W. Young, Plattsmouth.

Tennessee—T. B. Hamlin, Edgefield Junction.

Florida—Mrs. C. Atkinson, Leesburg:

Ohio—Aaron Benedict, Bennington.

Kentucky—Major T. J. Key, Anchorage:

Indiana—A. T. Wright, Kokomo.

Illinois—J. L. Lucas, Peoria.

Iowa—Mrs. E. S. Tupper, Des Moines.

Colorado—J. M. Dorr, Colorado City.

The Committee on Business reported, and it was voted that the President appoint a Committee on Business, who should be empowered to settle with the Treasurer. Abner Pope, and D. L. Adair, the newly elected Secretary, and J. S. Hill, Treasurer, were appointed.

It was also resolved that a committee be appointed to select and invite persons to write essays to be read at the next meeting; also, alternates; also, two critics, to whom such papers may be sent, and their criticisms presented with the essays. Committee appointed for this and other business were A. J. Murray, E. S. Tupper and J. S. Hill.

It was unanimously voted that the next meeting be held at Pittsburg, Pa., on the second Wednesday in November.

The following resolutions were adopted:

Resolved, That the thanks of this society be tendered the city of Louisville for kindness and hospitality shown to the Association at this time.

Resolved, That the Treasurer pay to D. L. Adair, Corresponding Secretary, \$6, amount expended by him for envelopes and postage in distributing the proceedings of last year's transactions, out of the first funds in the treasury not otherwise appropriated.

Resolved, That the thanks of this society be tendered to *Louisville Courier-Journal, Commercial and Ledger*, for their correct report of our proceedings.

Resolved, That the thanks of this society be tendered to the trustees of the Public Library Hall, for their fine hall and their kind attention to us, and the Treasurer pay to the same \$32 for the two days' use of their hall, if the treasurer cannot get it for reduced rates.

WHEREAS, We have no funds in the treasury to meet current expenses:

Resolved, That each member present pay one dollar additional, which shall be credited to them as one year's payment in advance as members of this society.

Resolved, That our Corresponding Secretary be allowed \$10 for making out the transactions of this meeting out of any funds not appropriated otherwise; \$5 also appropriated for Dr. Hamlin, money spent for postage, &c., in arranging for this meeting.

Resolved, That as Mrs. E. S. Tupper is the only publisher who is here, the society request her to prepare a synopsis of the reports of this meeting and publish them in the December number of the NATIONAL BEE JOURNAL, and send a copy to each member who has paid the annual fee, and also to other Bee publications and Agricultural journals, and that the Secretary make an official report in pamphlet form as soon as he has funds to do it, and that the Secretary be paid a reasonable sum for performing the above service.

General Adair urged that the proceedings be published in full as soon as the membership fee is received, and preserved, as promising great value. Our Society was not formed for the purpose of meeting to talk and then adjourn, leaving no record. The subjects discussed were of vital importance to all bee-keepers, and if the right course was taken the proceedings of the meeting will be our most valuable bee literature.

Committee of arrangements for next meeting consisted of the President elect, the Vice President from Pennsylvania, A. J. Hoover, and the present Secretaries and Treasurer.

Mr. Grabell would like to have the question discussed whether it was possible in the latitude of Tennessee to feed bees that had no stores on their summer stands.

Mr. Murray, of Memphis, had no trouble. He covers with a quilt, which prevents accumulation of moisture, and always finds bees under the quilts dry and nice.

Mrs. Tupper said it could be done without an ounce of honey. Put sticks of candy among the bees under the quilt in cold weather; but when the bees were able to fly in warm weather would feed syrup, removing it when the weather became cold again. This advice is not given for a Northern climate where bees must be kept in a warm place to feed, or else fed before cold weather.

Mr. Murray repeated that in his boyhood home, Scotland, all honey was removed and syrup fed to bees all winter.

Mr. Wright, of Kokomo, placed a hive in a warm room near a window and fed them sugar syrup and kept them there until the syrup was sealed over.

I. Z. Smith has a hive in his sitting-room which he is feeding. They took food greedily at first, but do not now; though they set up a lively buzz when moved.

Benedict said it was utterly unsafe to feed bees that had been long confined, unless a chance was given them to fly before feeding. He puts a wire screen over them in a warm room, and they fly enough for exercise and to discharge the fecal matter. His box was made to fit the top of the hive. He did not allow the bees to go out at the entrance. Use sugar syrup for food, and it is always safe. Mr. Grable asked if they would not store too much honey where the cluster was. Benedict had no trouble in this respect.

MOTH AND ITS TROUBLES.

Smith—There is no trouble in strong colonies.

Tupper—If Italians, but there is trouble with common bees, and they are often destroyed by the moth.

Winder—No experience with Black bees; with him moth no trouble.

Adair—Put a colony of black bees in a hive with comb, having the worm with plenty of webs all through the comb, and the bees cut out almost all of the comb, and carried out; all they could carry out, and he scraped out a quantity of the matted comb and web that had fallen to the bottom board, and the bees went on and done well.

Benedict—Did the same with Italian, with like results.

Wright—Also with both and never lost either, and frequently found moth in transferring black bees.

Grabell—Was taught to dread the moth, but in two or three years got the Italians. Failed to Italianize in one case, and let it run down, and it

filled with moth. Then put in sheet of brood, and when the young bees hatched out they soon cut out and carried out of the hive all the worms and webs. The old bees did not meddle with the moth. Old bees may be overcome with moth, but young bees never.

Wright—Raised 1,000 of moth in some loose frames of comb in 1866, by inattention, but used the comb in making new colonies, and paid no attention to the moth or worms.

Winder—Wanted to know how he raised the moths.

Wright—In boxes of comb, but no bees.

Winder—Had the large black ant to destroy a nucleus that he had setting under an apple tree.

Perry—Has this fall lost several stocks by moth; was likely his negligence, not looking after them enough. Used the Langstroth hive and grooved blocks in front.

Winder, Adair and others—That's what is the matter. With those grooved blocks; turn the groove up is better than down.

Hamlin—At first feared moth; used many preventives and succeeded well in common box hive, but after using the moveable frames has no trouble, and with Italians did give no thought to the moth. Sometimes find a moth or two in a hive; placed comb in the second story of a Langstroth hive and in two weeks were a mass of moth and web; so we must always watch for moth, and all comb not protected by bees, must be put out of the way of the moth. Blocks with the grooves down is the way to raise moths.

Mrs. Tupper, like Dr. Hamlin, had seen no moth for several years before leaving Brighton, but had seen enough to make up the past two seasons. Either she had forgotten her vigilance or else black bees were more easily injured by the moth. Still, she did not think this necessary and was sure she

would again be rid of them by using tight hives and Italian bees and killing every worm next spring.

Murry—Had found the moth in full possession of hives. He took a bushel of worms out of four hives, but he mastered them and now had no fear whatever. He kept colonies strong and examined often.

Mrs. Tupper said eggs were deposited in old comb oftentimes before they were given to the bees. Worm and bee grew together, and soon the hive was infested.

Mr. Wright never loses any; he keeps them strong.

Mr. Allen, in his experience, had no trouble with moth if the bees were strong enough to cover the comb.

D. Hamlin always contracted the hive to suit the size of the colony.

Adjourned to 2 P. M.

AFTERNOON SESSION.

Met according to adjournment.

The following letter was read from the old Secretary, H. A. King:

NEW YORK, NOV. 28, 1873.

To the President North American Bee-keepers' Society:

I regret exceedingly that circumstances prevent my attendance at this session of the Society. Various circumstances combine to this result—prominent among them, the stringency of the times requiring my presence here and close attention to business. The great distance to be traveled, and the extra time required, must also be considered.

Although absent bodily, I am with you in heart and purpose, and hold myself ready to co-operate with you in every laudable effort to advance the cause of bee-culture among us. I have been identified with the Society from its very inception and organization, and in loyalty to its interests and devotion to the objects it seeks to establish, I hold myself second to none.

The past two years have been years of severe trial to our cause, but I am happy to state that earnest workers in every locality have not lost faith. The calamities through which we have passed have practically demonstrated the advantages of the improved methods of management which we mutually seek to foster and establish.

This "mortality" question, permit me to suggest, is worthy of, yes demands, your serious consideration. When we met, last year, at Indianapolis, the losses of the preceding winter was the burden of thought on every man's mind, and while discussing the cause and prevention, we little thought, perhaps, that we were entering upon a second calamitous winter, exceeding the first in its wide-spread destruction. We had learned nothing by the sad experience. Have we learned anything yet?

I will not deny that much light has been thrown on the subject, but we are still groping in the dark. Some points are not yet well understood, and although we may not apprehend a repetition of this extraordinary mortality, soon, yet it seems to me that we ought to get at the bottom of the difficulty, and thus at once and forever remove

the only serious impediment to the rapid advance of bee-culture. It is a question that can be solved only by practical and well conducted experiment, and I would respectfully suggest that the Society offer a suitable reward for its solution.

I would also respectfully call your attention to the death of Major W. Augustus Munn, of Dover, England, and suggest that suitable resolutions be passed, recognizing the position he has occupied, and the service he has performed in apiculture. Not having a record of all the proceedings of every session of the Society, I do not know whether he was an honorary member or not. He was a life-long worker in the cause, and his labors in revising and preserving the writings of Dr. Bevan deserve consideration from the bee-keepers of America.

Heartily wishing you may have a pleasant, harmonious and successful session, I am

Your obedient servant,
H. A. KING.

Various remedies were proposed for bee stings.

Winder—Sulphate of Zinc, dissolved in water and wet the parts.

Murray—Baking soda, applied moistened to the part.

Pope—Compound Tincture of Lobelia.

Allen—Cold water, and wet cloths, applied to a child that was badly stung, and in ten minutes the child went to sleep.

Pope—Had face, neck, arms and body covered with bee stings; removed the stings and bathed with compound Tincture of Lobelia; pain was immediately removed and went about his business.

The corresponding Secretary read a letter from Dr. Phillips, which was placed on file.

To the Officers and Members of the Bee Convention to assemble in Louisville, Ky:

Gentlemen:—Not remembering your proper appellation, I trust you will pardon an old man and an old worker for the mission.

My friend, A. J. Murray, informs me he will attend your Convention, and I desire he should represent me and my paper, *Phillips' Southern Farmer*. Mr. M. is an enthusiastic bee man, and at my solicitation he has helped me in this department, which I have been running for years, showing my interest in an object that can be made to pay the citizens of Mississippi more ready cash than they handle from cotton. Strong words, but true. My mother was a devotee to bees, ten years ago, and I, her first born, over forty years ago, had a large number of colonies, and thought I had made inventions, but being a planter, they died with the place.

I would be pleased to know you would accept him as my representative, and also of my paper, and that you be apprised I am ready, willing, waiting to press the business before my people.

Hope you may have a large delegation, an enthusiastic meeting, and do great good. I am a well-wisher, co-operator, and

Yours truly,
M. W. PHILLIPS.

On motion Dr. Phillips was elected an honorary member of the Society.

The question as to size and form of

hives was passed over, as the proponent of the question had gone, and would soon return.

The question of best way of making artificial swarms was discussed at length, but nothing new was brought forward.

Mr. Murray related two methods not in the books, which excited much mirth.

Mr. Wright took all the brood away in artificial swarming, and gave it a new queen. Put the swarm of bees with the queen in the new hive on the old stand.

The next question asked was: Is artificial swarming as good or better than natural swarming?

Adair moved that the Society answer by vote in the affirmative.

Widner—Why? Can you give reasons?

Adair—Natural swarming is alone the result of disorganization in the colony, and is always produced from abnormal conditions, and is invariably injurious to their productiveness and well being. A properly constructed and managed hive will not swarm, nor will it build drone comb, nor will the queen lay drone-producing or male eggs, and when any of these conditions occur it may be set down as the result of a disturbance of the normal balance of hive. If the queen has always room to deposit all the eggs she can generate in the proper position, and the bees are never at a loss for room to build comb, and deposit honey without crowding the brood nest, they will not swarm nor prepare for it.

Murray—said when in the Rebel army, he assisted in cutting a bee tree, the cavity in which was so large that there was two separate colonies in it; and in another part of the tree was another colony, probably a swarm from the others. He also gave an instance where bees passed in through a ventilator and located themselves in a large room, but with unlimited room swarmed.

Adair—The size of the hive or apartment has nothing to do with the crowding of bees. The queen occupies a certain place with her brood nest. Around this is placed bee bread, and outside of this honey. In this way the queen is circumscribed to the place she occupies at first. As the season advances, and she is stimulated to greater prolificness, the brood nest is too small, and produces disorganization, and the perfect balance of the hive is destroyed, and swarming is the result. In answer to numerous questions, he said: That a hive in which the brood nest could be enlarged as the season advanced, so as to always accommodate the queen, and in which there was ample room for all the workers to labor, there would be no natural swarms. He had a hive the past two seasons that had in it space for 64 frames, 10 by 13 inches, inside measurement, that was all occupied but about 5 or 6 frames. The hive had a capacity of over 12,000 cubic inches. No drone comb was constructed; no drone eggs were laid in it, although drone comb was repeatedly laid in the centre of the brood nest. In such cases the bees filled the drone comb with solid honey. A hive of double the standard size of 2,000 cubic inches was too small; 8,000 inches was not sufficient; 10,000 inches was none too much, but a smaller hive, by proper attention, can be kept in a balanced condition.

Wright—Adds frames and comb as fast as the queen filled them. He removed all honey during the season and filled up with syrup.

Mr. Murray asked the best time for making swarms.

Mrs. Tupper said if the greatest amount of honey was the object, she would make them late—getting all the hives as strong as possible before the best honey season comes. Give them all the room they will occupy, taking the honey as fast as they store it—then after the best honey is gone,

divide as you please. First of all, know what you want to secure. If the object is the greatest possible increase of stocks, she would then divide very early. Every year she learned more about the capacity of a queen.

Hosmer gets his great yields from having very strong colonies in large hives.

H. Pope said that different localities have different seasons for honey and artificial swarming.

D. L. Adair read an able paper on the wings of the bee. Received and thanks given for it to the author.

To the novice the wings of a bee appear as a dry membrane or tissue of skin, stretched over a frame-work of as equally dry and lifeless ribs of hard, elastic horny matter. He does not suspect that they have other use than to enable the bees to fly, or that their loss or destruction does other injury than to disable them from flight. It is a common practice even among well informed apirians to cut off the wings of the queen to prevent her going off with a swarm. A better acquaintance with the structure and uses of the wings would show that any such mutilation must be injurious.

Bees do not breath through the mouth, neither do they have lungs, like the higher animals. Respiration is carried on through an intricate ramification of minute tubes called *trachea* having their outlets or mouths as pores (called spiracles or *stigmata*) in the sides of their bodies, under and behind their wings. Through those breathing pores the air is led by those delicate tubes to every part of the body, even to the tips of the wings.

Bees have no heart as higher animals have. A tube, or as it is called a "dorsal vessel," lying just beneath the middle line of the back, and extending from the head to the tip of the abdomen, performs that office. The blood is received into this tube, and, as bees have no veins proper, it escapes from all parts of the tube and traverses the body in currents, bathing all the organs, even to the extremities of the wings.

The nervous system of bees consists of a cord, or rather a double cord, commencing in a knot in the head, which is their so-called brain; from thence it extends throughout the whole length of the body under all the internal organs, resting on the "floor" of the body walls. On this cord, at intervals, there are swellings (*ganglia*) from which fine filaments are sent out, which are special nerves for the various organs to which they lead; one branch passing to the wings is distributed through all parts of them.

The horny frame upon which the fine membrane of the wings is stretched, is all of it composed of hollow tubes of a hard substance called chitin (the same substance that constitutes the hard parts of the organs and crust of all insects.) Those tubes are double, being one tube inside of another. The inner ones are extensions of the trachea, through which the air circulates in breathing, between which and the other is a space through which the blood circulates and is brought in contact with the air through the thin walls of the air tubes, just as the air and blood are brought together in the human lungs, and with the same effect.

Thus we see that the wings, besides being organs of flight, are in reality lungs. The blood in the wings, however, is not confined to those tubes, but circulates like the sap in the leaves of plants

to all parts of them, and, it is likely, is thus also created.

The nervous filaments we have also seen pass to the wings. They follow these tubes, and all the fine venations, and terminate in every part of the wings in what are called nerve filaments (papillæ) which in all animals are the vehicles through which all sensations are perceived; so that we may infer that the wings of bees, besides giving the power of flying and acting as lungs, are also organs of sensation of some kind. All parts of the human body have these nerve filaments on the surface, through which the sense of touch is exercised. The eye has them so modified that they give us sight. On the tongue they give us taste, in the nose smell and in the ear hearing—in each case modified to give different perceptions. For what purpose the wings of bees are so supplied has not been determined. We would of course conclude that the wings were not organs of sight or taste.

In all the investigations of naturalists none of them have been able to locate the organ of smell, although the belief is that it is the most powerful of all their senses and the most necessary to them in searching for honey. By means of it it is supposed that they recognize each other and distinguish between their fellows and strangers to the colony. Some have suggested the antennæ as the organs of smell, but as they appear to be poorly adapted to perform such an office, it is just about as likely that they smell with them as it is that they see with them, which some have supposed they did. Invisible and subtle particles emanating from odorous bodies (often so fine that they elude all attempts to detect them by any other means,) coming in contact with the olfactory nerve fibres, produce the sense of smell. These atoms are mixed with and floating in the air, and in order to collect them a considerable volume of air must be made to pass over their surface—a thing which the wings certainly accomplish in an eminent degree. It is highly probable that the sense of smell is lodged in the wings.

The sense of hearing in bees has never been located by naturalists, although that office has by some been attributed to the antennæ also. It is not more probable that the wings exercise it? The impression of sound is produced on the organs of hearing in all animals by vibrations of elastic bodies (commonly the air.) A delicate, thin membrane stretched across what is called the drum of the ear, receives the impression, and communicates it by means of an intricate arrangement of parts to the auditory nerve fibres, or papillæ. What appendage of the bee would be more suited to receive such impressions than the thin, stiff membranes composing the wings?

But it is not intended in this article to discuss these questions. I only throw them out as suggestions. Whether the wings are the organs of smell or hearing or not does not materially affect the point I wished to make, i. e., that the clipping of a queen's wings is an injury to her. We have seen that they perform the office of lungs, and that a queen with clipped wings is in the same condition that a man would be with part of his lungs gone. Those who have seen human beings in that condition need not be told how useless they are for the active duties of life. An insect like the bee, with a different distributed vitality, may not be injured to the same extent, but that it is injurious no one certainly can doubt; and if by the mutilation the sense of smell is destroyed, and the queen rendered deaf, her usefulness would certainly be impaired.

In the act of flying the bee makes another use of the trachea. At the moment of elevating its wings it may be seen to increase in size suddenly, which is the effect of drawing in through the spiracles a quantity of air, which is distributed over the whole body, thus rendering it of less specific gravity; the air being further expanded by the warmth of the body acts like the heated air or gas of a balloon, and enables the insect to rise easily and sustain a long flight, even when loaded with honey and pollen. In the act of alighting it expels the air with which it has been inflated, and

falls suddenly to the alighting board of the hive. If the landing place is narrow and elevated and it misses reaching it, the bee will be sure to fall helplessly to the ground, and can only rise again by again inflating its body. Bees with larger bodies than our honey-bee, the large bumble bees, have at the base of the abdomen, in addition to the ordinary air vessels, two large sacs, called air vesicles, which are supposed to be used alone for inflation in flying, and some other insects have in the heavier parts of their bodies similar sacs.

Mrs. Tupper hoped there would be no discouragement on account of the failure of some to attend. We should rejoice that so many came in spite of adverse circumstances. Each one should do all that in them lies to promote a large gathering next year.

Mr. Murray thought that the report of this meeting would excite an interest in the South which would be well represented at Pittsburg.

Z. E. Smith suggested that each one present induce at least one other to attend.

Dr. Hamlin said that if he had allowed common obstacles to prevent he would not be here in his infirm state of health and pressing business.

Adjourned to meet at Pittsburg, the 2d Wednesday in November, 1874.

THE next annual meeting of the Central Iowa Bee-keepers' Association will be held at Cedar Rapids, Iowa, Jan. 21, 1874, commencing at 10 o'clock A. M., and continue two days. It is expected the usual reduction will be made in railroad and hotel fare.

WE receive each month articles on various subjects foreign to bee-keeping, which we must decline. Our rule is inflexible, that the JOURNAL shall be devoted exclusively to bee-culture.

ON page 291, "thoroughly ostracised" should read "thoroughly criticised."

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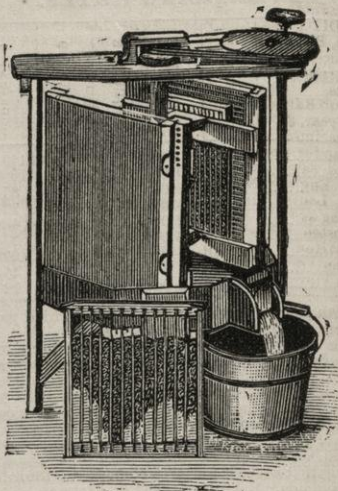
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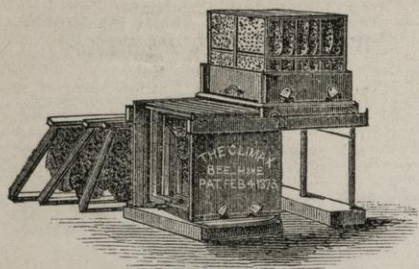
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{ For
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