

The Apiary.

Parthenogenesis in the Honey Bee.

THE wonderful doctrine of parthenogenesis was first promulgated by Herr Dzierzon, a German bee-master and naturalist, about twelve years since, when he called attention to the extraordinary fact of the production of males by the queen, without any intercourse with the male or drone bee, and raised a swarm of opponents in nearly all the naturalists in Europe, who scouted the idea, and produced such a host of objections, that Dzierzon himself began to doubt the correctness of what he had seen with his own eyes. A number of the objectors set to work to prove the fallacy of Dzierzon's statement, but every experiment that was properly conducted only confirmed the correctness of his theory, and Professor Theodor von Siebold (one of the most distinguished German naturalists) fully confirmed this doctrine; and after a laborious investigation he discovered a set of voluntary muscles for impugning some of the male element, which is stored up in the spermatheca of the impregnated queen, to every worker egg, during its passage through the "common oviduct." He also discovered spermatozooids in the drones, as well as in an impregnated spermatheca, and detected the same spermatozooids in worker eggs, whilst they were waiting in those eggs that would produce drones. Thus this long and acrimonious dispute was at last conclusively settled; and it has explained many of the mysteries of the hive, respecting which the great king of bee-masters, the illustrious Huber, after discussing the effects of retarded impregnation, exclaimed, "It is an abyss wherein I am lost."

All other bee-masters have been equally lost in this abyss, until Dzierzon discovered the doctrine of true parthenogenesis, and it is now a confirmed fact that the queen has the power, at will, to lay either unfertilized drone eggs, or fertilized worker eggs. It has been stated by a number of writers on bees, that the queen has to lay worker eggs a certain length of time, and then a quantity of drone eggs. But I have seen queens, in glass observatory hives, lay worker eggs, then a few drone eggs, and immediately worker eggs again, all in a few minutes, and I saw these worker and drone eggs hatched out into perfect bees, which conclusively proves that the queen has power to fructify the eggs or not at will.

I always like to fully confirm or not all these theories about bees, by my own experiments. So, having received some Ligurian queens direct from Switzerland, on the 22nd Sept. last year, I thought, a few days after, that it would be a very conclusive confirmation of this wonderful doctrine if I could raise a queen so very late in the season, as every drone had disappeared several weeks before; so, on the 7th of October, I examined the combs in one of the stocks to which I had joined one of the imported Ligurian queens on the 23rd Sept. previous, and found a large quantity of eggs laid in these combs. I removed one of these combs and put it into another stock from which I removed the queen.

Oct. 18.—Examined the combs, and found five royal cells sealed (eleventh day).

Oct. 22.—Examined the combs about three o'clock, and found one of the queens just ready to leave its cradle (fifteenth day), and the next day the other young queens were thrown out.

Oct. 26.—Examined the combs and saw the newly hatched queen.

Nov. 11.—Again examined all the combs, and could not find a single egg laid. I saw the virgin queen (twenty-three days old).

Feb. 21, 1865.—I found a drone pupa on the alighting board.

Feb. 27.—Examined all the combs and found drones hatched, and drone brood in all stages of development in two combs, containing only worker cells. I saw young drones emerge from these cells. Removed these combs as specimens, also a few of the drones that were hatched. I put in the hive bar-frames containing drone combs.

March 6.—Examined the combs and found eggs and brood in two combs.

March 31.—A number of drones flying out.

April 7.—Examined the combs and found about one-quarter of the bees were drones. I supplied the stock with several worker brood combs, and saw the virgin queen frequently from April to June, and she laid eggs that only produced drones, not in the regular order that a fertile queen lays eggs, but here and there one, so that the combs with the sealed drone brood had a very singular appearance; she also sometimes laid two or more eggs in one cell, which,

in some cases, came to maturity, the bees enlarging the entrance to the cell to the size of two cells, and then covering the two larvae with one large conical cover.

In June I removed this virgin drone-brood queen, and placed her in my entomological collection, and gave the stock a young queen.

There never was a clearer confirmation of this wonderful doctrine, as I never read or heard of a queen being hatched so late in the season as the twenty-second day of October, and afterwards kept until the June following, producing only drones.—WILLIAM CARR, in *The Bee*.

Over Stocking Bees.

To the Editor of THE CANADA FARMER.

SIR, I find that it is the received opinion of many, that a neighbourhood or district may be overstocked with bees. From several persons I have received enquiries something like the following: "I would like to keep bees, but as there are already quite a number of stocks in the vicinity which do not seem to do very well, I fear it is overstocked. What is your opinion?" For the benefit of such, and all others who may be interested, I would say that I consider the opinion an erroneous one, and calculated to keep many from engaging in bee-keeping, as well as to deprive themselves of a great and wholesome luxury, if not of a source of profit. It is thought by many that bee-pasturage may be exhausted as easily as pasture for cattle; but such is not the case. Cattle pasture thoroughly cropped to-day, will require several days or even weeks to grow again. It is not so with bee-pasturage. An acre of white clover may be drained of every drop of its delicious nectar to-day, yet it will again yield the same supply to-morrow. The honey cups of every honey yielding flower, that are emptied during the day, are filled again at night. This process will continue until the flowers begin to wither, and no longer. It will hence be seen that if every flower is not visited daily by the "busy bee," a certain amount of honey is lost. If parties will take the trouble to examine fruit trees, or white clover in blossom, they will find while some orchards or clover fields are apparently alive with the "busy bee," that in others, in the same district, only now and then a straggling bee can be found. The principal reason for this is that there are not enough stocks kept to occupy the pasturage open for them. The truth is that owing to the scarcity of bees, thousands of pounds of pure honey annually perish in the cups of the many flowers that adorn this earth. Says Mr. L. Langstroth: "It is difficult to repress a smile when the owner of a few hives, in a district where as many hundreds might be made to prosper, gravely imputes his ill-success to the fact that too many bees are kept in his vicinity."

Says Mr. Wagner, in a letter to Mr. Langstroth, "In Russia and Hungary, apiaries numbering from 2,000 to 5,000 colonies are said not to be unfrequent, and we know that as many as 4,000 hives are oftentimes congregated in autumn, at one point, on the north of Germany." According to Oettl, Bohemia contained 140,000 in 1853, from a careful estimate, and he thinks the country could readily support four times that number. The kingdom contains 10,000 square miles.

"In the Province of Attica, in Greece, containing forty-five square miles, and 20,000 inhabitants, 20,000 hives are kept, each yielding, on an average, thirty pounds of honey and two pounds of wax."

For a report made to the Austrian Government, on the state of bee-culture in twenty-one States of that Empire, furnished in an article on "Bee-culture," by Mr. Bruckasch, of Texas, in the U. S. Patent Office Report for 1860, p. 282, we quote as follows:

Average number of bee-hives to one square mile.	
Transylvania.....	400
Croatia.....	320
Gorz.....	310
Galicia.....	250
Lombardy.....	200
Serbian Banat.....	400
Canada.....	500
Syria.....	610
Camelot.....	900

I might give other statistics equally as convincing, but perhaps more are uncalled for. From the above it would appear, that it is not an easy matter to overstock a district with bees, where it will pay to keep them at all. Of this I am certain, there is no danger of overstocking Canada, at least during the present century.

Let all who desire to keep bees commence at once, without fear of failing on this account.

Brooklin, C. W.

J. H. THOMAS.



IN MEXICO WANTED.—"Thomas Belford," of California, makes the following enquiry:—"Is it necessary to put grafting composition on when budding, the same as when grafting?"

ANS.—No; it is only necessary to wrap some bass matting round the incision, after the bud has been inserted.

A CORRECTION.—Chas. Jas. Blomfield, Esq., of this city, calls our attention to an error in our issue of January 15th, of the current year, which we gladly correct. He writes:—"A small farmer on Lake Katchewanawigamog is made to say—probably by an error of the press—'a letter addressed by me to the Secretary of the Canada Company, upon whose lands I have settled.' The Company which owns the Township of Dysart is the Canadian Land and Emigration Company."

SEEDS TO IDENTIFY.—"John A. Lough" of Onslow, makes the following enquiry:—"Can you tell me what kind of seeds these are that I send you enclosed? A man brought some of it to my mill to be made into flour. It made pretty good looking flour. He told me it made light bread but very dry."

ANS.—The seeds submitted are those of the Common Millet, (*Panicum Miliaceum*). Millet is frequently sown for cutting and feeding green, for soiling purposes. It yields largely, and produces an abundance of luxuriant juicy leaves. The seed is rich in nutritive qualities, but is seldom ground. Millet requires good soil, and is an exhaustive crop.

GRAVEL HOUSES.—"W. F. S." writes from Woodstock, New Brunswick:—"Would you be kind enough, through your columns, to make an enquiry if any of your many readers have had any experience of what is called Gravel Houses, made by a mixture of gravel and lime; also the manner they are constructed? In this country, there is but one, and it not very good. A friend is about constructing a house upon a farm. Seeing notices of this kind of a building, he thinks favourably of it, but wishes further information."

HEAVY SPRING PIGS.—"Peter Nisbet," of Pickering, writes:—"Please to give space in your valuable journal to an item regarding the weight of three spring pigs, which I slaughtered on Tuesday, 23rd January, and which weighed respectively 374, 352, and 326 lbs. their age being nine months. The sow that suckled the same pigs I killed in the latter end of December; weight 480; age about 18 months. They were fed on the farm of Lake View, Township of Pickering. Let any of my brother farmers heat this if they can."

PLANTING TREES BY THE WAY-SIDE.—"W. Grant Silcox, of Tona observes:—"This is a matter that should receive encouragement, not only in this country, but in all countries. What can be more grand and beautiful than stately avenues of shade trees, through which all our highways extend in their various ramifications throughout the Province! How much would be added to the value of property in rural districts so improved. The planting of trees is a matter of so much importance to all classes of the community, that Township and County Councils should take it into their serious consideration, inasmuch as it is their duty to take any steps that have for their end the increase of wealth, comfort, and prosperity among the people. For instance, let us suppose the local pathmasters to be empowered to make certain concessions to farmers planting trees in front of their lots, in lieu of their statutory labour, there would soon be such an impetus given to tree planting, that the aspect of our country would, in ten years time, be quite renovated. No inducement, perhaps, could be offered for such works in newly settled parts, as the labour is all needed there in improving the condition of the roads,—but in the older parts of the country, much might be done in the way suggested. In dry localities it is almost impossible to plant too many trees, but in localities where the highway is inclined to be somewhat wet, care should be observed not to shade too much."