

the improvement of the general cultivation from the increased production of the ordinary crops brought about by the cleansing effects of the cultivation the above named plants receive. And we need not fancy they will exhaust the land, if we spend some of their proceeds in manure or cattle-food. We sell two tons of hay off an acre of land, with the seed half, and in many instances, wholly formed, and we have an idea that one ton of tobacco, which has never been allowed even to flower, must do the land more injury than the hay, though we can burn the stems and refuse, and thus restore the major part of the potash to the soil. The old Virginian tobacco-lands were exhausted, because they were never manured. We have no such fertile farms here—we must manure, if we would have a crop, and there will be enough left in the soil, after the removal of the tobacco, to grow any grain we may wish to sow in abundance; at least, it will certainly give more than the average crop of wheat in the province, viz. *eight and a half bushels per acre* (1).

I have answered all the questions proposed in this article except the following:

How should grass land be prepared for tobacco?

Answer.—If absolutely necessary to be so used, it should be ploughed shallow in August; broken up with grubber and harrows, to kill the turf (what is called a bastard fallow); ploughed deeply before winter, and then treated as to preparation as mentioned in the body of the article.

I know of no treatise on tobacco worth the trouble of consulting, except, perhaps, Dr. Laroque's *Manuel d'Horticulture pratique*, which contains a *resumé* of the subject, though nothing that seems to me original.

As to the quantity of Red Clover seed required.—Fourteen pounds to the acre, and, if possible, sow seed that has not been deprived of its husk: this is the plan suggested by Mr. Keene, the introducer of *Keene's forty days' maize*, and has been found to help the plant to stand the winter. At all events, observe these rules: don't sow it oftener than once in eight years; sow it shallow, and roll afterwards. Cut it when the majority of the heads are in blossom, turn it, don't shake it out, and get it into barn or stack *with all the leaves on*.

P.S.—The cost of artificial manure would be somewhat as follows: 12 bushels of bones (raw), at half a cent per pound, \$2.64—If the bones are mixed with three times their weight of earth, turned over twice, at intervals of a fortnight, and kept moist, they will be pretty well mouldered down in two months' time. They should be prepared a year in advance, and kept under cover. The large bones must be smashed with a sledge-hammer. Ground bones cost \$25 a ton—600 lbs., therefore, will come to \$7.26.

One hundred pounds of Sulphate of Ammonia, are worth \$5, and of Nitrate of Soda \$7.50.

So, the manure for one acre, consisting of dung, bones, Sulphate of Ammonia, or Nitrate of Soda, would cost:

300 lbs. of bones.....	\$ 3.60
100 lbs. Nitrate of soda.....	7.50
10 loads of dung.....	2.50
	13.60
600 lbs. of raw bones.....	\$ 3.00
20 bushels of ashes.....	2.00
10 loads of dung.....	2.50
	7.50

(1) I have left out of the calculation the ashes, as the price varies so much. Add \$2 for them, if you like, and there are still \$292 left for profit.

300 lbs. bones.....	\$ 3.60
150 Sulph. Am.....	7.50
10 loads of dung.....	2.50
	13.60

By loads, I mean tons.

The Sulph. Am and Ni. So can be had of Messrs. Lyman & Co; the bone dust, at the office of the Newell Grinder Co., Hospital street, Montreal.

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APICULTURE.

It has been thought right to give, in one number and in a compendious form, the different articles on bee-keeping which have appeared in the Journal. Our thanks are due to M. Lamontagne for his useful work. I have taken the liberty of adding a few quotations from the fourth Georgic of Vergil.

A. R. J. F.

PART FIRST.

The natural history of Bees.

"In tenui labor; at tenui non gloria."

1. POPULATION OF A COLONY.—In its natural and flourishing state, each hive should, in summer, consist of from 20,000 to 40,000 bees.
2. CLASSIFICATION.—There are, in this numerous population, three individual kinds: the queen, the workers, and the drones (figure 1 a. b. c.)



Fig. 1. a. Queen.

b. Worker.

c. Drone.

3. THE QUEEN, called by the Romans the King, the mother of the whole colony, is about eight lines in length, her wings are, proportionately short. Like the workers, she possesses a sting, but she never uses it except to exterminate a rival of her own dignity. Her

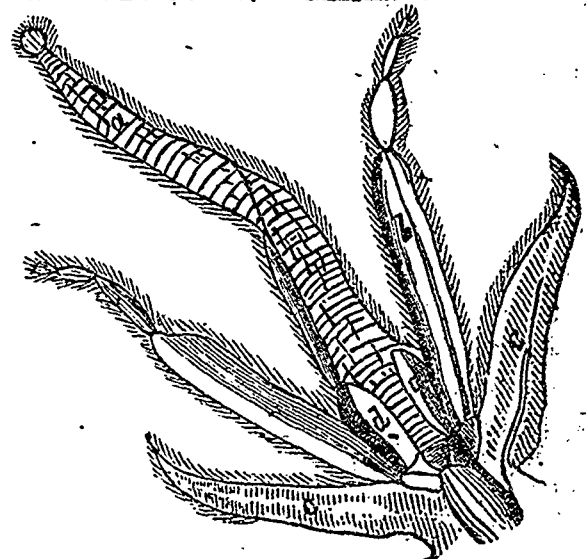


Fig. 2. Proboscis (magnified).

hind-legs have no pollen-baskets: Her sole duty is to lay eggs, of which, in the height of her season, she produces as many as 3,000 in 24 hours.

4. HER FECUNDATION AND THE LENGTH OF HER LIFE.—The queen never leaves the hive, except with a swarm, or 6 days after her birth for the act of copulation, when she is fecundated for her lifetime, which lasts about 3 years.
5. SHE EXERCISES NO AUTHORITY.—Although the colony could not