

to dispense with the separators, it is necessary to fill the entire sections." It is not absolutely necessary, but it is desirable. If the section is filled with foundation, the cells near the wood are drawn out to full length, and the combs are securely fastened to the wood; while, if the section is not filled full, the bees are quite apt to shorten the cells as they approach the wood, and, finally, when the wood is reached the comb is very thin. It is in fact, what bee-keepers call a "brace-comb," and it is easily broken. At a time when honey is coming in very plentifully the bees cannot build natural combs rapidly enough to store the honey, but when furnished with foundation they can draw it out even faster than it is needed. The use of foundation also prevents the consumption of honey that becomes necessary in order that wax may be secreted for the construction of combs. Combs built from foundation are usually straighter and more even than natural combs. It is the usual custom, with at least the majority of apiarians, to fill the sections with foundation with the exception of a space one-eighth of an inch wide at the sides of the foundation, and one-fourth of an inch at the bottom. W. D. A. says he thought, from what he had read, that in order to have the honey in the sections as pure as possible, and free from all objections, it was customary to insert only a narrow strip of foundation as a guide. It is true that when foundation was first introduced, considerable was said about the "fish-bone" to be found in the honey when it was used. Improvements, however, have given us foundation with the base of the cells even thinner than that found in the natural comb, and the side walls so soft that the bees very easily draw them out and thus form the combs, while the heat necessary to its manufacture very thoroughly purifies the wax.

Another person inquires by personal letter about the "controllable hive," advertised in some papers by a person living in Maine, and also about the Kidder hive, made in Vermont. The proprietors of both hives are unfavorably known to apiarians.

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#### Securing Comb Honey.

I would ask, through the columns of your paper, for practical instructions in bee-keeping. I have about twenty colonies, mostly in movable comb frame hives (Langstroth's patent), and would like to have one colony or swarm for each hive, and have them devote their energies to storing surplus honey, rather than to sending out second and third swarms. How can I accomplish this? R. D. B.

#### Ground Limestone as a fertilizer.

J. W. R., and several others, inquire as to the value of ground limestone, as a fertilizer.

ANS—Limestone is the name given to all rocks which are principally composed of carbonate of lime, and so abundant is it among the strata that compose the crust of the earth that it is supposed to constitute about one-half their substance. Carbonate of lime is composed of carbonic acid and lime. In the process of burning the carbonic acid is expelled and the lime, or oxide of calcium, remains. This is known as quicklime. The change in the composition causes also a change in the properties. Limestone, or carbonate of lime, is mild in its alkaline properties, while burnt lime is caustic. Applied to the soil the latter is a powerful agent in decomposing the inert and inactive vegetable matters in it, making them available as plant food. Moreover, it acts beneficially on the silicates of potash and soda combining with the silica, forming silicate of lime, and liberating the soda and potash. The latter is an essential element of plant food and one that

is seldom found in large quantities in soluble form, in the soil, and is, therefore soon exhausted. Ground limestone, often called "raw" limestone is insoluble or nearly so, and therefore can have no such effect. Where "free" carbonic acid is present its solubility is increased. Where the soil is destitute of lime in sufficient quantities to supply what is needed for plant food the effects of powdered limestone are good, but this is rarely the case. Its action is in all cases slow, and its effects more lasting than those of burnt lime. Where fuel is scarce and limestone or marble abundant, the stone may be cheaply ground and be thus economically prepared for improving those soils which are deficient in lime; but neither lands in which calcareous matter naturally abound, nor those containing a large proportion of imperfectly decomposed vegetable remains can receive any immediate benefit from the application of unburned lime, unless in the way of rendering clay soils mechanically lighter and boggy ones more firm. On poor sandy soils, and when reduced to the finest powder, its effects have been found to be the most beneficial.

#### RAISING CALVES.

FORMERLY I used to raise calves by feeding them skimmed milk twice a day, and I usually fed them until they were five or six months old and thought, on comparing them with others not fed as long, that it paid extremely well to do so; but last Spring, not having conveniences to handle milk profitably, and wishing to send it to the factory, I tried a new plan. Oilmeal was bought at \$2.50 per cwt., and every morning a kettleful of porridge was made. One porringer was used, wet up in a pan with cold water and then stirred into the boiling water. The kettle held about a pailful. This made a feed for ten calves both morning and night. The meal swelled so when wet that it made the porridge sufficiently thick. When dipped into the pails to be fed about a quart of skimmed milk was added for each calf, which amount of milk was decreased, and at last none was given as the calves got older. After a while a sup of middlings was used with the oil-meal.

This kind of feeding was begun after the calves had been fed new milk until they were about four weeks old, and was kept up until they were five or six months old. Care was taken when this kind of feeding was begun not to overdo it at first, and they were accustomed to the new feed by degrees. The result has been all and more than was expected; the calves grew and thrived in a way that did credit to their feed. They were kept in a pasture where they had grass and fresh water and went into the winter in good condition, as good as any calves that we ever raised, entirely on skimmed milk.

A VOLUNTEER.

#### THE POULTRY-YARD.

##### Arrangement of Perches.

EDS. COUNTRY GENTLEMAN—The perches for roosting should not be too large or too small, as in either case they are injurious to the breasts of fowls while young. A three-inch round pole is sufficiently large for any age. When first commencing to roost, smaller perches are better, as the young birds can cling to them and thus learn to balance the body. Flat perches should not be allowed, when first beginning to roost, as the fowls in this position press the whole weight on the breast bone, which has a tendency to flatten or curve the tender cartilaginous bone. A flat perch is different from

(i) The addition of a little pease meal would be an improvement  
A. R. J. F