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what must be the condition of the seminal receptable or spermatheca during the long life of the queen?

It may be a puzzle to some how such definite conclusions are arrived at, such as locating germ growths in the uriniferous tubules, malformations of glands, relative position of organs, etc. No better way can be found to explain this than to send with this sections of a larva and of a pupa. These sections are about 1-500 of an inch thick—much too thick for bacteriological study, so I send two or three sections about 1-1000 to 1-1500 of an inch in thickness. Serial or ribbon sections show the position very accurately of the organs, thickness and all. I have sections and bees of all ages and conditions.—American Bee Journal.

### Apiary Experiments.

The Agricultural Experiment Station of the Agricultural College of Colorado has sent out a bulletin (No. 54) giving a report of experiments made in the interest of bee culture by Prof. C. P. Gillette. The results of some of these experiments may be of interest.

It sometimes happens that in the spring there is nice weather for flight of bees, but there is nothing from which they can gather nectar or pollen. At such times it is the practice of some bee-keepers to feed some substitute for pollen. Bees will work eagerly upon such substitute so long as no natural pollen is to be had, but when the genuine article is had, they will be had the substitute will be utterly neglected. Prof. Gillette made experiments to see what substitute was preferred by the bees, putting out a number of articles at the same time. As nearly as could be determined, their preference was in the following order: Ground

whole kernels of oats, corn and wheat, wheat bran ground over so as to be fine, waste dust and chaff as taken from cleaners at flouring mill, cottonseed meal, wheat bran, pea meal, wheat flour, rye flour, bean meal, barley meal. They would hardly touch the last three so long as they could get the others.

The practical conclusion of all this is that the bee-keeper may take what substitute is most convenient for him, which in most cases will be the ground feed he is using for his horses or cows. That can be used without any waste, for when the bees have used out the fine particles the remainder can be fed to the four-footed stock.

Using sheets of comb foundation made of melted wax which had lampblack added to it, Prof. Gillette could easily determine where the coloured wax was used, where it was mixed with fresh wax, and where it was wanting entirely. He found that the coloured wax was freely used in extending the midrib, and also in drawing out the cells, the the colour gradually shading from pure black to pure white. Later than the publication of this bulletin comes the report of experiments in Holland not only showing the same results, but something more marked. A frame of foundation coloured green was put in a hive, and many of the cells in the other combs had green cappings! So the bees must have nibbled wax from the green foundation and carried it to the other combs.

If the midrib of the foundation was made heavier than natural, little or no thinning was done by the bees; but if the cell walls were made heavy, the bees did more at bringing them to the thickness of the natural comb.

When foundation sufficiently light