nection with the theory of parthenogenesis.

In our operations as a breeder of queens, it is our custom to place full sheets of drone comb in colonies containing our best breeders in order to increase the supply of drones from select stock, and it sometimes happens that a colony having a vigorous queen will object to so much drone comb, in which case the bees will proceed to remodel the cells by contracting them at the mouth with a surplus of wax to the worker size, after which the queen will deposit eggs in them that produce workers. To some this incident may be regarded as of little consequence, but to the careful observer of bee nature it is prima facie evidence of the inability of a normal queen to deposit a female egg in a drone cell of ordinary construction; in the face of such convincing evidence as this, those who advocate the theory that the power to decide the sex of the egg rests entirely with the queen should at least be able to offer some tangible evidence in support of their pet theory.

Concerning the statement that queens lay eggs in queen cells ⅓ of an inch in diameter, permit me to repeat my former statement to the effect that a closer scrutiny will reveal the fact that before the egg is deposited in a queen cell, said cell must undergo a radical transformation, which changes the cell cup to a queen cell proper, having been lengthened, and contracted at the apex to about one-half its diameter at the base. An expert queen-breeder can tell to a certainty whether or not a queen cell contains an egg or larva, merely by a glance at its external formation.

In our daily manipulations with queen cells and cell cups, we have learned to distinguish between them, as well to regard cell formation as an important factor in the successful grafting of larvae, and all our cell cups undergo the shaping process before being used in grafting. Such cells will be accepted by the bees without any hesitation and will be liberally fed from the start, and as a rule, will produce better queens, other things being equal. On the other hand, larvae that are transferred to open mouthed cups ⅓ inch in diameter will be viewed with suspicion by the bees and will not be accepted without a vigorous protest, during which period the royal larvae are robbed of the supply of food provided by the operator, and the future sovereign receives a shock to her sensitive organism from which it is doubtful whether she ever fully recovers.

During the swarming period our breeding colonies are provided with artificial cell cups, in which the queen is allowed to deposit eggs exactly as in natural swarming; these cell cups are under our daily observation, and since we have never yet known a queen to deposit an egg in a cell cup that had not been subjected to the shaping process as above described, I think I may be excused for believing that such an occurrence is rarely met with except in cases of abnormality.

This brings us to the subject of parthenogenesis, and the purity of drones from a mismated queen. I am fully aware that parthenogenesis is a stern reality that every successful bee-breeder must, sooner or later, recognize at its real value. While the underlying principles of parthenogenesis are too apparent to be lightly ignored, it is a deplorable fact that certain phases of its power and scope have been over-estimated to the detriment of the bee-breeder who would aspire to the development of a strain of bees of known purity. For example, the idea prevails to an alarming extent among bee-keepers that the blood of the male issue of a queen is not contaminated by her mating with a drone of another blood. My conclusions concerning this matter have been forced

upon me by facts that my personal observati the testimony of other great confidence, and qualified to judge of s

Mr. G. M. Doolittle, on subjects pertaining comes out squarely u indeed I can not better upon the subject than paragraphs from his Queen Rearing," a wo pletely revolutionized methods. Among othe "Now I am not prepa or wherein, the drones the mating of the quee know, that drones **are** a certain extent by th queen of one blood, wit other blood. Anyone ca in four generations, by each time to these pur bee can be produced t tell from a hybrid. Th ination does not show i is the reason, I believe, has been accepted by n truth."

"Worker bees and dro a little variation of puri does the queen, hence if of the stock which we rear queens from them. this we often decide that drones for breeding pu these same drones look a going into detail at cons to explain how the imp from a mismated queen the author ends his rem following sentences. "L longer deceived about **pu** a mismated queen; for if allowed to fly in your ya expect any satisfactory d from queens reared therein forced to this conclusion fully conducted experimen described."