

The selected drones are anaesthetized by dropping them into a stoppered glass jar with a wad of cotton-wool soaked in chloroform covering the bottom. The penis of a sexually mature drone usually everts partially under this treatment, and more complete eversion is secured by squeezing the drone between the fingers. The semen is cream coloured and can be distinguished from the white and more viscous mucous. When the penis is at the right stage of eversion for withdrawal of semen it is brought in contact with the tip of the syringe and the semen skimmed off by withdrawing the plunger (Fig. 8). Inseminations at Wallaceville were usually made with the semen from three or four drones.

Immediately after being filled the syringe is placed in position above the queen, its tip having been moistened with water to act as a lubricant. The sting hook is pulled so that the sting chamber appears as in Fig. 1. Then the probe is inserted into the vagina and the valvifold pushed down so that the syringe can pass over it into the median oviduct (Fig. 9). When the syringe is in position (Fig. 10) the plunger is slowly screwed down so that the semen enters the oviduct. If semen begins to well out round where the syringe enters the vagina of the queen, it indicates that the tip of the syringe is not properly in place and the syringe must be withdrawn and reinserted.

Though at first some trouble was experienced at Wallaceville in mastering the insemination technique, it was found that after several weeks of practice the operation could be performed without much difficulty. At this stage of proficiency the time required to remove a queen from the adjoining apiary and inseminate and return her averaged about 30 minutes.

Inseminations, usually two, are made from the fourth to the tenth day after the queen emerges, and should be two days apart.

Conduct of Project

Artificial insemination of queen bees has provided a practical means of improving strains of bees but, though a satisfactory technique has been evolved, its application to the best advantage is still in the experimental stages. From work carried out in America it appears that the only practical method is first to inbreed strains of bees and then to cross the inbred strains to produce hybrids.

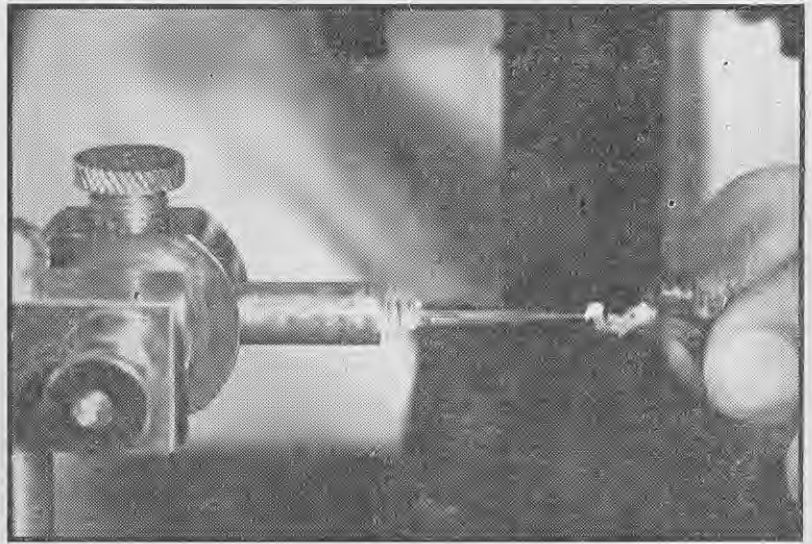


Fig. 8.

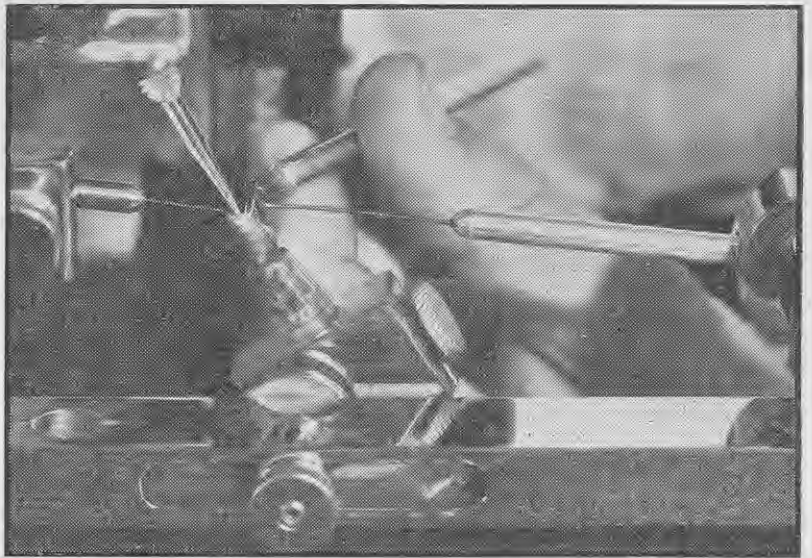


Fig. 9.

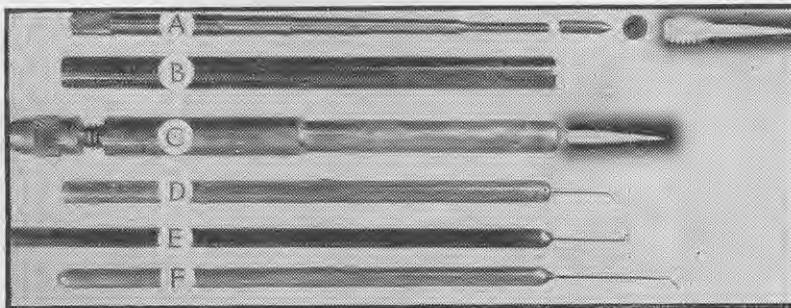


Fig. 7—A: The internal parts of a syringe. B: The barrel of the syringe. C: The syringe assembled. D: Probe. E: Ventral hook. F: Sting hook.



Fig. 10.