

Fig. 6.—The inspection cups.

visible evidence of a rise or fall in rate of flow with the action of the pulsator. There is certainly a slight choking of the milk during the squeeze with a slack soft inflation, but with a well-tightened inflation the milk seems to “get away” quite effectively during the squeeze phase.

Towards the end of the milking the flow becomes erratic and shows little regularity, while when the machine is “stripping” in some cases there is a tendency for what little milk there is coming out to come on the squeeze. It is interesting to observe that if the pulsator is shut off the milk at first seems to flow normally in continuous streams, but it soon ceases. However, as soon as the pulsator is turned on the flow is resumed.

Theory of Milking Process

From the above, it would appear that the action of the machine is entirely different from hand-milking. In hand-milking the milk is actually extruded by blocking the upper portion of the teat and forcing the contents out through the bottom sphincter. In machine-milking the milk is continuously drawn out by the action of the partial vacuum to which the teat is subjected.

If we are to accept Dr. J. Hammond's views (Vet. J. Vol. XVI, 17, 520) the following is briefly what happens. When the cow is about to be milked quite a fair portion of the total yield is contained in the milk cistern and the larger milk ducts. This is the milk drawn away by vacuum alone without the pulsator. However, the remainder is contained in the finer milk tubes (alveoli and ductules), and

cannot drain from these tubes without some mechanical action. This is provided by tissue in the udder which, under certain conditions, causes the fine milk tubes to contract, thus squeezing the milk out into the larger tubes, from which it runs freely to the milk cistern. Such action is brought about by the application of a suitable stimulation of the cow's teats.

If this theory is correct—and it seems to fit most known facts about the milking process—it means that the sole function of the pulsator is to stimulate the teat and so to set up a nervous

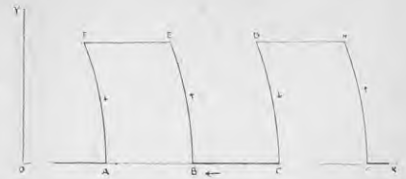


Fig. 7.—A graph of a pulsator test.

reflex action which will cause certain tissue in the udder to swell and force the milk down from the fine milk tubes of the udder.

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