rest of eggs, found one chick dead in shell, and all the rest showed no signs of incubation. This made me disgusted, but I shall try it again this winter. I think the sponges that are in egg chamber always wet, the moist soil, and the steam from the ventilator tube, cause too much moisture, and the ventilator tube is always close by the elbow tube, this prevents any fresh air from entering chamber. I shall do away with so much moisture and allow more fresh air to enter egg chamber next time, and if this fails to produce good results I will give up the ghost although I die game.

G. H. SAFFORD,

Troy, N. Y., Aug. 27, 1889.

We think it is want of air more than anything else that is bothering you with the Craig Incubator. No machine ever invented can hatch without fresh air circulating in the egg chamber, and it must be warm and moist at that. The machine we use owes much of its success to the complete arrangements for supplying these necessaries, and yet the moisture is so controlled that it is absorbed as required, continually, and without coming in direct contact with the eggs, as it would if sponges were used. We are very glad you have the courage to try again, and most likely if you do as you intend your efforts may succeed. We hope you will receive your deserved reward.

Fertilization of Eggs.

A MEMBER of our Farmers' Club stated recently that he had a flock of hens that was separated from a cock (there being none on the farm and no near neighbors) for six weeks; after which time their eggs hatched. His theory is that the germ of the chick is deposited before the egg formation commences. How long should hens that have been running with certain cocks be mated before they will breed safely and truly to their last mate? At what stage of the formation of the egg does the impregnation take place?

ABRAM PALMER.

Iowa Falls, Ia., June 1, 1889.

Answer by I. K. Felch.—At what time does the germ take possession of the egg in its formation? The yolk is expelled from the egg-sack into the oviduct, where the spermatozoa takes possession of the disc in the yolk. This is generally 46 hours before the egg is laid. Three eggs are liable to be in the oviduct at the same time; one ready to be expelled, the others encased in the inner lining and both of which are past being impregnated. The spermatozoa from fresh vital fluid are so much more energetic that it is safe to say, if the male be in health and vigor, the four eggs the hen lays after mating, or any egg after the fourth day of mating will be his off-spring. If we take this male away, leaving the hen by herself, a large share of the eggs she lays during the next ten days will hatch—possibly the one laid on the tenth day. But all my experiments go to show that, in a hen kept by herself, the germs will live not longer than ten days in the oviduct, while forty days seem to be the *limit* of their vitality in an egg after it is laid. Of course there are exceptions where eggs have hatched after forty days of age, but the majority prove bad. Leghorns and non-sitters will lay eggs that will hatch a few days longer than ten days; but any hen mated with a healthy male will have chicks by *him in four days, and the effects* of previous matings will cease then.

It makes no difference how many males meet a hen, no egg is impregnated until it bursts its sack and is expelled in the oviduct. This is the yolk— the "white" is added to the yolk in the inner section, is encased in the lining in the middle section, and is shelled in the third division, near the vent. If the second egg be expelled from the middle section permaturely, the result is the laying of a soft-shelled egg.

A hen's progeny is not in any manner influenced by previous conceptions. When an egg is impregnated it is disconnected from all circulations of the hen. Hens that are kept always away from males lay eggs. but if such hens are mated and copulation takes place before the egg is encased in its shell-lining, in the middle section of the oviduct, the first egg even may become impregnated. We have seen eggs hatch true to mate that were laid 21 hours after mating. The hen had hatched a brood of chicks, had weaned them and commenced to lay. I put her in a coop with a male and the egg she laid hatched true to the breed of both sire and dam. I have the impression that the active germ kills the weaker one in the oviduct; therefore, it is the rule that the third egg will be the get of the new mate, and that the chances are ten to one on the fourth being true to last mate.—American Poultry Journal.

The fertilization of the egg is one of the most fascinating studies pertaining to the breeding of fowls. We clip a question and answer from the newsy American Poultry Journal. They will be read with interest by many we feel sure. The theory of the farmer referred to in the Journal that the germ is de