

germinal vesicle, and at this point, in a fertile egg, the development of the germ will commence when subjected to the proper temperature.

No process has yet been discovered whereby the fertility of eggs can be determined, previous to their subjection to heat. Neither can the sex of eggs be any more successfully ascertained, either previous or subsequent to the development of the germ. However, by a good egg-tester, the fertility of eggs may be accurately known, after they have experienced heat for the space of four days, thus enabling the operator to remove those not fertile, which, for culinary purposes are equally good with those fresh laid."

Our next paper will be on the subject of "the embryo," and exceedingly interesting.

#### BREEDING FOR SIZE AND COLOR,

**L**AST week we took the size side of his question and now our attention must go to the color of the parent birds.

It is well known among fanciers that a male transmits to his offspring more of the external features than the female; also that the surface color of a male is not a safe guide.

In choosing the bird for a breeding pen, the feathers must be lifted and the *under color* ascertained before we can trust the bird to sire a season's stock. Blemishes in the male's plumage are dangerously inherent, also any defects of form such as wry tail, crooked back, too long or too short bodies and legs, and thin, flat breasts, where a full round breast is the standard quality, have done untold harm to stock of large varieties when such males have been bred from.

We must not forget these facts, and no matter how fine in plumage a specimen may be, it should be discarded as a breeder if very faulty in shape. If bodies of males are too long or too short for their variety, they may be modified in the young stock by breeding to the reverse trait on the female side, but a male fine in form will father twenty standard shaped birds to the other's two or three, and then again these cannot throw back to the defect of the grandsire which often happens when bad shaped birds are used, even though the females were selected with a view to cover the defect in the first stock.

Our veterans in poultry breeding are the men who have studied these things and mastered the art of breeding to a required shape and plumage, the varieties they are interested in. And very many have been their difficulties and disappointments. The novice sees a bird and if he is a self color and looks uniform in it, he will, nine times out of ten, take him for a fine breeder, but the expert goes deeper down, even to the color of skin, before he decides what the specimen is worth as a stock bird. The under color is of vital importance and he does not forget it, but looks to see that the buff which is so beautiful on the surface, goes deeper and does not turn to cream color when the surface feathers are lifted and the roots of the feathers nearly white; he wants to see the rich buff extend well down and carry its color well to the end, not that it will be as deep in shade, but bear the shade of the surface color in it.

Or if the fancier wants shape in a variety that is deep and blocky in build he does not cast more than a glance on the specimen that looks as if it could have crossed the river without wetting its body; that is a mistake to fancy a tall bird, like one perched on stilts, is necessarily a large bird.

It is well to bear in mind that you can afford to have your male a little darker in color than you would usually select for an exhibition specimen, in all the varieties that are of mixed plumage, such as Plymouth Rocks, Wyandottes, Houdans, etc., being careful to get the markings distinct and good, for by a darker male we do not mean one that is smutty looking and undecided in markings; but only that the black can predominate, as the black is modified by loss of color in breeding.

In the Wyandotte the under color *i. e.* the fluffy portion at root of feathers, is very important in both male and female, and a dark male with white under color is not so good as a breeder as a lighter bird who has grey or slate under color, and if he holds good in the primaries too, is of great value as a breeder. I have proved this to my own satisfaction. Here comes in the merit of the scoring system when faithfully applied, (though I have seen some bad work done by it when used the contrary way). The specimen judged by the Standard and