

Far more to be commended is he, than the man who can pay a small fortune in cash for the birds which he exhibits, and most likely wins with.

I am sorry to see the change in the Industrial list, in the classes for Wyandottes. The silver-laced last year were a good class. The chances are that this year it will be doubled in numbers.

It is at least unfair to the breed to cause golden and silver laced to compete together, they are so totally dissimilar in color, that there cannot be any comparison made, and it will cause a feeling if judged so, that either one or the other is unjustly slighted. The golden are not known here, or in very few cases, and as the silvers are now a large class and a really good one, they should be allowed a class by themselves. Cochins, are a very small class by their varieties, yet how unfair it would be to make black and white, or the buff and black complete together. The association has given separate classes to R. C. B. and W. Leghorns, and that is their just due. I hope it will not allow the Wyandottes to occupy the only unfavorable place in the poultry list.

Angus, Ont., May 18th, 1888.

THE ADVANCES AND COMPLETION OF THE CHICK IN THE EGG.

BY E. W. HUBBELL, OTTAWA.

If you could find space in your much appreciated journal on poultry, it would, perhaps, be interesting and instructive to many of your readers, especially during this season of the year, to spare a few minutes in the perusal of the following subject:—"The advances and completion of the chick in the egg."

I will not take too much space and time in describing these parts of the egg which are familiar to nearly everyone dealing in poultry, but will merely describe its composition, &c.

Immediately under the shell lies that

common membrane which lines it on the inside, adhering closely to it everywhere except at the broad end, where a little cavity is left, that is filled with air, which increases as the animal within grows larger; under this membrane are contained two whites, though seeming to us to be only one, each wrapped up in a membrane of its own, one white within the other; in the midst of all is the yolk, wrapped up likewise in its own membrane; at each end of this are two ligaments, called chalafoe, which are, as it were, the poles of this microcosm, being white dense substances made from the membranes, and serving to keep the white and yolk in their places. The cicatricula, which is the part where the animal first begins to show signs of life, is not unlike a vetch, or a lentil lying on one side of the yolk, and within its membrane. All these contribute to the little animal's support, the outer membranes and ligaments preserve the fluids in their proper places; the whites serve as a nourishment, and the yolk with its membranes, after a time, become a part of the animal's body. This is a description of a hen's egg, and answers to that of all others.

Upon placing the egg in a proper warmth, either under the sun or in a stove, after six hours the vital speck begins to dilate like the pupil of the eye. The head of the chicken is distinctly seen, with the backbone, something resembling a tadpole, floating in its ambient fluid, but as yet seeming to assume none of the functions of animal life. About six hours more the little animal is seen more distinctly, the head becomes more plainly visible, and the vertebrae of the back more easily perceivable. Six hours more all the signs of preparation for life are increased, and at the end of twenty-four hours the ribs begin to take their places, the neck to lengthen and the head to turn to one side. At this time, also, the fluids in the egg seem to have changed places; the yolk, which was before in

the centre of the shell, approaches nearer to the broad end. The watery part of the white is in some measure evaporated through the shell, and the grosser part sinks to the small end. The little animal appears to turn towards the broad end, in which a cavity has been described, and with its yolk seems to adhere to the membrane. At the end of forty hours the great work of life seems fairly begun, and the animal plainly appears to move, the backbone, which is of a whitish color, thickens; the head is turned still more on one side, the first rudiments of the eye begin to appear, the heart beats, and the blood begins already to circulate. The parts, however, as yet are fluid, but by degrees become more and more tenacious, and harden into a kind of jelly. At the end of two days the liquid in which the chicken swims seems to increase; the head appears with two little bladders in the place of eyes; the heart beats in the manner of every embryo, where the blood does not circulate through the lungs. About fourteen hours after this the chicken has grown stronger, its head, however, is still bent downwards; the veins and arteries begin to branch, in order to form the brain, and the spinal marrow is seen stretching along the backbone. In three days the whole body of the chicken appears bent, the head with its two eye-balls, with their different humours, now distinctly appear, and five other vessels are seen, which soon unite to form the rudiments of the brain. The outlines also of the thighs and wings begin to be seen, and the body appears to gather flesh. At the end of the fourth day the vesicles, that go from the brain, approach each other, the wings and thighs appear more solid, the whole body is covered with a jelly-like flesh; the heart that was hitherto exposed is now covered up within the body, by a very thin transparent membrane, and at the same time the umbilical vessels, that unite the animal to the yolk, now appear to come forth