

Our researches so far have led us to believe that the great secret of the uniformity of markings, size, shape, and color of wild birds and fowls is the result of the natural law of instinct implanted in them which leads them to make such selections and matings as tend to reproduce that uniformity. Man has not that instinct to guide him in arranging the reproduction of species of the animal kingdom, and must trust to art, experience and the science of *natural selection*, guided by the teachings of nature, and of the organic laws.

My next article will commence with the origin of the Plymouth Rocks.

(To be continued.)

The Gape Parasite.

The worm, which is a nematoid (worm-like) parasite, has been found in the trachea of the turkey, common fowl, pheasant and partridge (European), and in various storks, crows, and in small birds of several species. The female worm measures five-eighths of an inch in length, the male one third of an inch. The mouth is situated at the extremity of the body, and is furnished with six prominent, horny lips. The body is smooth, and ends in an abruptly pointed tail, which folds more or less upon itself in the case of the female worm. The male has a sucker-like *bursa* or pouch at the lower extremity of his body. The ova are large for so small a worm, being fully 1-250 of an inch in length; active embryos may at times be seen in them. The two sexes are frequently found firmly united together, and it is probable that the eggs can only be liberated by the death and decomposition of their parent. If the infested fowl does not succumb to their ravages, they are probably, after a certain time, expelled, and dying on the ground, the ova and embryos are liberated by the decomposition of the maternal body.

The larval parasites then burrow into the soil or into decaying vegetable matter, and there pass through certain metamorphoses, at the completion of which, though still in a larval condition, they are ready to be returned to the proper habitat of the adult worm, viz: the trachea of certain birds. Introduced into the mouth with food or drinking water, they make their way to the air passages, and there commence their ravages, and reproduce their species, to again pass through the same cycle of changes.

Several modes of treatment of gapes are successful. The best in ordinary use is to strip the web from a feather to near the extremity of its shaft, introduce this carefully into the windpipe of the affected fowl, and, after twisting it round, withdrawing it, when the parasite will be found adhering to the ruffled plume.

The application of spirits of turpentine to the

outside of the neck, along the line of the trachea, is an excellent adjuvant to the above treatment. In extreme cases the skin of the neck may be cut through, an incision one-third of an inch or more in length made in the windpipe, and the worms extracted with a fine forceps. The wound should be closed with a stitch or two of fine thread, and the fowl will suffer no further inconvenience, generally at once running about and feeding as usual. The parasites when extracted should always be dropped into *boiling* water, so that the ova may be killed; to simply kill the adult worms, and throw them on the ground, is only to liberate the embryos, and, so, as it were, sow the seed of a fresh epidemic. Plenty of hemp seed with food, and an infusion of garlic as drinking water, have proved efficient aids in overcoming the evil effects of the *syngamus* disease in the large game preserves of Europe, and among domestic fowls in this country. —RALPH W. SEISS, M. D., in *Country Gentleman*.

Notes for Beginners.

The chicken season is again upon us, with all its pleasures, spiced with more or less annoyance, as we have houses and appliances convenient and suitable, or not so. Still, like everything else of an earthly kind, the most perfect arrangements will still partake of the universal impotency of man; and this is nowhere more plainly exemplified than in hatching chicks. After all that mortal man can do to make all the conditions favorable for a good hatch, there are still several conditions beyond his power to control or influence. A hen will do her work in her own way, and if she choose to be obstinate, or restless, or perverse, or make up her mind that matters can be expedited by a good deal of tramping about, till the whole is reduced to a pudding-like mixture, no power of reasoning or coercion will convince her to the contrary. Yet, after all, to give our old servants what credit is their due, this state of things is the exception and not the rule, and in five years I have had only one hen leave her work and refuse to continue operations. I have found Cochins more addicted to uneasiness when the eggs begin to chip than the Brahma or Plymouth Rock; indeed I have never had a Brahma exhibit this restlessness, while I have had Cochins tramp everything to pieces. Still I find it is better not to interfere with them, as it only makes matters worse; and when eggs are hatching unevenly it is best to slip the hand under after dark and remove the chicks. But the hand should always be inserted from the breast, and not from the side or from behind, as the hen if restless will be sure to turn round, and once get her started and the business will be finished in short order.

I shall now give the results of my experiments