

few days, with only a small run. Then after being marked, they are ready for the "Knowles Brooder," which we often call "the old reliable." This change is made at night, and the next morning they come out and go to work—some scratching in the oat chaff in one corner, others dusting themselves, and others amusing themselves as they feel disposed. For the first day or two I look after them, to be sure they have learned the way to their new mother, and there ends that trouble.

When about three or four weeks old they are again transferred to another brooder house, not so warm, and in which there is a "Campbell Brooder;" that is, a hot air brooder after Campbell's plan. This I found cheaper than the "Knowles," but in case the fire should go out, it would cool so rapidly that the little baby chicks might suffer. But here let me say that I've never yet lost a chick by cold in the brooders. Last spring I raised all my chicks this way—had over three hundred hatched and did not have a single case of gapes! And did not lose more than twenty-five from any cause, and the little ones grew and matured so rapidly they astonished the natives.

Our place is a very old settlement, and I believe the gape worms are all over it. I think we tried every remedy, from pulling out the gape worm with a feather, down to nothing; with more or less success—generally *less*. We have gotten as many as thirty-six of the gape worms from one chick, some of them an inch long. While this was a cure in almost every case, to catch two or three hundred little chicks and perform this operation on each one was a never-ending job, not to speak of the pain to the poor little chicks, or the disagreeable performance itself.

I do not believe vermin have anything to do with gapes, for a neighbor of mine always has plenty of vermin and to spare, while he never had a case of gapes. We always had gapes, although

we are rarely troubled with vermin. Our poultry houses are swept nicely every morning except Sunday, and kerosene, etc., used.

Nor do I believe cleanliness will prevent gapes, for I know when I had hens with broods of chicks I gave them whitewashed coops, on floors, and kept them clean; gave them fresh gravel often, used fountain jugs for water, and never left food to sour; and then had the gapes. But of course no vermin to bother, nice food and surroundings, and fresh water, all tended to promote a strong, vigorous growth, thereby in a measure outdoing the gapes.

Then, too, another thing in favor of brooders: I think it the cheapest way to raise chicks, by far less trouble, and a great deal more pleasure. It is cheaper because when you take the chicks from the hens, you can reset them, and defy the other hens that say they won't sit, or else turn them out to lay again. Then the food, prepared for the little ones, is not devoured by a greedy hen. I think the hens eat about as much as the oil costs to run the brooders. It is certainly less trouble to go to two or three brooder houses and feed than to run around to so many old hens in coops, especially in bad weather. Of course it takes much of one's time and attention to care for them properly, but work is divested of half its horrors when it is pleasant work.

"There is no rose without a thorn," nor can we expect to raise poultry without trouble; but as sure as some roses are prettier and sweeter than others, just so sure are there more convenient and pleasant ways for our work.

GAPES.

BY J. M. CARSON.

In reply to your circular of the 13th inst., in request to the causes of gapes in young chicks, and the cures, I must say it is a disease with which I have had very little experience, but when I

do have a case I generally extract the worms from the windpipe of the chicks with a horsehair doubled, inserting double end downwards. This operation must be performed very carefully and quickly, otherwise you will choke the bird. It is stated that a small piece of camphor, half size of a grain of wheat, will effect a permanent cure of this disease. Be very cautious not to give too much or it will also kill the chick in a few minutes time.

CAUSE OF DISEASE.—I believe the cause of this disease originates from the chicks drinking of impure and filthy water, such as may be often seen in little pools around the yard. I made a thorough examination once of such water and I found it to contain large numbers of these small worms which were identical with those found in the windpipe of the chick. They adhere in little groups on the inside of the windpipe, thus producing the trouble as indicated in this disease.

I cannot close without saying I gained considerable additional information from the many letters published in last REVIEW on the disease Roup. I read with great interest MR. SPILLITS and also MR. FLEMING's letters on the original cause of this disease, and I believe both of these writers to be on the right track as regards tracing the disease to its origin, but we are not speaking of roup this time so I must close.

BY A. HOBBS.

Gapes.—The disease, so far as actual symptoms extend, is a small worm or worms which infest the windpipe. By attending to all chicks and giving them plenty of clean cold water several times each day, and plenty of green food, there will be no gapes; of course the coops must be kept very clean, and some coaloil sprinkled over the sides and bottom of coop, if it is wooden floor, will keep away gapes, also vermin will keep away. I am not troubled with gapes of late years, having followed the above plan. Formerly I found