

suppose they ever were more than half an hour in the nest before they were taken out.

Thirdly, we have all noticed that a hen usually lays a clutch of eggs varying in number according to her breed and disposition. Our friend's hens had been laying for some time, while ours, so to speak, were just beginning, the weak germed eggs were therefore, at the end of the clutch and the well hatching eggs were from the beginning of the clutch, and I believe this has a lot to do with the strength of the germ, it certainly would not be impossible for an observant poultry man to utilize this fact, if fact it be, as a means of securing stronger germs.

This is about all I have to say at this time. I don't know with what degree of patience my fellow readers have been able to read my effusions from time to time. I hope someone may get some help from something I have said, anyhow for my part I most earnestly hope someone else will now take the floor and give us some particulars of their success or failure in artificial hatching. We, ourselves, expect to incubate about 700 eggs between now and the end of May, and if, at the end of the season, the patience of the kind Editor of this journal is not exhausted I will give the results of our work, until then, "Au Revoir."

[It is, perhaps, unnecessary for us to say how glad we shall be to have Mr. Woods' further experience. His articles we have found most interesting and intelligent and such, we are sure, has been the experience of REVIEW readers.—Ed.]

#### VIBRATION AND INCUBATORS.

THE experience of an English breeder as given in "Poultry" will be of interest. Mr. McIntosh raises some questions that we should like to see freely discussed.

Does vibration injuriously affect the hatching of chickens in incubators? This is really a puzzling question. There are so many obscure influences at work to cause failures in the working of even the best machines, that it is not often easy to put one's finger on the real cause or causes of a bad hatch. Mr. Sutcliffe in his scientific and suggestive little work "Artificial Incubation and Its Laws," says nothing about vibration, possibly because he does not put any importance upon it. If that is his reason perhaps he

is right. It is somewhat difficult to see why vibration should be disastrous, and if it is so, why it is so only in the case of artificial incubation? I may be wrong, but I do not remember ever hearing that vibration injuriously affected natural incubation. Many readers must have considerable experience in hatching naturally in localities where the ground is subjected to vibration owing to its proximity to railway lines, or otherwise. Perhaps some of them may give us the benefit of their experience.

Two or three years ago I had the opportunity of seeing an incubator fixed up in a novel style for the express purpose of overcoming the vibration difficulty and the owner of it claimed that his device completely neutralized vibration. I purchased the incubator from him, device and all, and I must say its hatching results have been highly satisfactory. It is impossible to say, however, that the curing of vibration had anything to do with its results while in my possession, as there was little or no vibration where I had the incubator set. A friend of mine, who used an incubator quite near to a main line of railway, where there was a great deal of vibration, adopted the device, and experienced a great improvement in his hatching results, especially in a marked diminution in the number of cripples among his chicks. His experience has given him great faith in the device to which I refer. Still, it is possible his improved results may have been merely the consequence of greater experience in the working of his machine.

Shortly, the device is to refrain from setting the machine solidly on anything, but to swing it; and the way it is done is to make a square wooden frame to go all round the machine a few inches away from it on each side, then to fasten two ropes to one side of the frame and carry the ends and fasten them securely to the other side. The ropes must be of equal length, and should hang pretty slack. The incubator is then placed on the ropes, where it gently swings.

The argument used by the original owner of the incubator was that swinging or swaying could do no harm to eggs, as was proved by the fact that so many wild birds built their nests in trees where they swayed continually. Of course a good answer to this is that other wild birds (swallows for instance) habitually build their nests in walls which are subject to severe vibration, with no apparent injurious results. This