INCUBATORS and BROODERS.



epondence for this important department of commercial poultry raising, which is growing so rapidly in Canada.

SOME CAUSES OF FAILURE IN ARTIFICIAL REAR-ING.

HE chief causes of failure in artificial rearing may be summed up under four heads, viz.: 1. Overheating. 2. Overcrowding. 3. Want of System, 4. Wrong feeding. I will take each in order, and will endeavor to point out the mistakes and how best avoided.

1. Overheating.—Of all the causes of failure this is at least one of the most usual. When brought up under a hen, the chicks are accustomed to run straight out into the open air, and only resort to their mother when in need of warmth. Also, it must be remembered that a hen, when brooding chickens, does not sit closely upon them, as when hatching, so that the warmth beneath her does not approach anywhere near 104 degrees. Now in many of the fostermothers on the market we find a contrary state of things altogether. A heated chamber, kept far too hot and insufficiently ventilated; with an outer run, in which the enervating chicks to herd together listlessly, instead of running about in the open.

But any well-ventilated and storm-proof fosters should be satisfactory, if properly looked after. In all cases plenty of light and air are necessary to success: there is no need to be afraid that the youngsters will catch cold, if they have a warm and dry chamher to resort to, but wet and wind must be guarded against. The temperature of the brooder need never exceed 80 degrees Fahr, for the first few days, and afterwards 75 degrees will be quite sufficient. with a slight rise in frost and decrease during mild weather. And the more chicks there are in the machine, the less artificial heat will be required; towards the end of April and later it will hardly be required at all after the first week or so.

I am accustomed to dispense with heat during the daytime when the chickens are about three weeks old (I am speaking of the early season now), and at about five weeks I abolish it altogether. With care in this and in other matters, it is not difficult to rear every youngster, if bred from strong and healthy parents.

2. Overcrowling. — Another fruitful source of failure. It is far better to rear ten really fine birds than twenty weakly ones, and as a rule those brought up in small lots (not exceeding twenty or thirty) do the best. When only a few are kept in each fostermother there is less danger of crowding and the consequent chrushing of the smallest, and each one gets its proper share of heat and fresh No doubt the vitiated atmosphere has much to do with the failure of large batches; and, curiously enough, lamp fumes, if properly carried off by ventilation, seem to have a less deleterious effect than the fumes from a large number of chickens themselves. The evils of overcrowding, how-



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ever, probably arise more from defective ventilation than from the actual numbers.

3. WANT OF CLEANLINESS is fatal sooner or later, usually sooner. All brooders, coops, etc., should be frequently lime-washed, and there is nothing better than peat moss, broken small, for bedding. Fresh dry earth or ashes, if renewed daily, will answer the latter purpose; but the peat moss keeps sweet for a considerable time, and is cleaner, sweeter, and drier. Vermin do not, or should trouble artificially-hatched chickens, but parafine applied to the crevices of the brooder and insect powder to the bodies of the chicks will keep them certainly at

The runs too, must be scrupulously clean; where possible they should be of short grass. It is stagnation of the air induces the

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