

get into the trap. In this way we raised every young pheasant except one, which met with an accident. The birds were strong, fat and rapidly feathered, and at six weeks old were just twice the size of some pheasants of the same age that we had raised for us by an Englishman and after the old English plan. 40 per cent. of the birds raised according to the old way of raising pheasants die.

There is one thing must not be lost sight of. It is the fact that flies lay their eggs and then die, and if their increase is not provided for, the whole neighborhood would become exhausted of them. To keep up a good supply of breeding flies, we let go a trap full alive about every second day.

#### SCIENTIFIC METHOD.

Our investigations in ornithology and especially the study of that twenty or more varieties of birds commonly called pheasants, has forced upon us the absolute necessity of further investigating the most natural food for these birds. This leads us to leave ornithology for a time and wade into entomology to study the particular kinds of flies and their culture that produce the larvæ which is so very essential to the lives of young pheasants.

The first we will describe is the most common and is called the blue-bottle fly (*Lucilia Cæsar*). The females hibernate in sheltered places, and emerge with the warm weather to deposit their eggs (fly-blows) on animal matter. These soon become maggots, and during a period of only about 15 days in warm weather, from the time the eggs were deposited on the flesh, it will have changed into a maggot, then pupa, from which emerges a full grown fly. Single females of the blue-bottle kind have laid 74,143,223 eggs. Mr. Kirkland of the Board of Agriculture of Massachusetts has estimated the product of one female fly for ten generations, and states that roughly speaking this product would make a belt of flies two hundred miles wide around the entire globe, so great is the reproductive powers of this insect when not destroyed by its enemies.

The flesh fly (*sarcophaga carnoria*). The peculiarity of this fly is that the females after being fertilized, retain the eggs until they are hatched. They deposit large numbers of living larvæ on exposed meat. They are not so pentiful as the blue-bottle, but they are

more desirable for pheasant food, as their maggots are larger. It is therefore advisable to favor the production of the flesh fly. This may be accomplished by allowing occasionally a few quarts of maggots to pupate, and as the pupa of the flesh fly is much larger than that of the blue-bottle, they may easily be separated by a sieve that will allow the pupa of the blue-bottle to pass through but will retain the other. Allow the fresh flies to hatch out and go at liberty for breeding flies. In this way a fine supply of the most desirable breeding flies can be obtained.

There is another fly which breeds in animal matter and furnishes some food for young pheasants. It is called the blue-tailed fly (*Calliphora vomitoria*). It is not of sufficient importance to further describe it.

There is a wide-spread belief that maggots are disgusting, stinking things. Our investigations and study of entomology prove to us that maggots separated from their usual surrounding are just as clean and odorless as young chickens, goslings, etc. Flies do not lay their eggs on tainted meat when fresh meat can be found, and maggots are clean feeders from choice and thrive best on fresh meat. This being the case barrels full of the flesh fly maggots may be produced without the slightest odor, and not hundreds but thousands of young pheasants may be raised without difficulty or any great mortality on the following plan. Feed the maggots twice a day on very thinly sliced fresh meat. Learn what they will eat up cleanly and feed them no more. The assimilating power of the maggot is so great that it can change every particle of meat to maggot without leaving any residue, consequently there can be no smell. Sheeps' plucks, livers, etc., can be purchased at the butcher's for a trifle, and turned into maggots in this way; blood is also good food for maggots.

To provide for cold and wet weather when flies are not out, place a bushel or two in a refrigerator, at from 40 to 45 degrees. Development is suspended, and they may be kept for weeks. In the case of a scarcity of full grown maggots caused by cold weather, put the undeveloped into an incubator at 90 or 95 degrees, and development is hastened.

In breeding maggots care must be taken to keep them covered with woven wire fly netting to protect them from a very large winged bug which would otherwise get in and destroy them by the hundreds.