

are hatched under hens and reared under artificial mothers, mechanical contrivances which are safer and more manageable than the hens for brooding in the early period of the year, when the weather is inclement. The chickens, hatched in May and June, are brooded by their mothers in the open air. At five or six weeks old, at that season, the chickens are sheltered during the night in wooden huts measuring 6 feet high and 8 feet by 10 feet square, which are set upon a pasture sloping to the sun. The sun is all important. There is nothing like the sun's rays in promoting the health of all kinds of young stock. Light alone is not sufficient. Place some of your poultry or your pigs on a northern, some on a southern slope, and the latter will thrive faster than the former, escape diseases, and afford every proof of the special influence of the sun. Last year Mr. Hawkins hatched nearly 6000 by June 1, and the previous year 4000. They were all hatched, without the use of an incubator, in the old way which the first hen that ever clucked originally introduced, and which has not yet been superseded.

The Lancaster coops for sitting hens are novel. Two boards 12 inches wide and 6 feet long are set on edge 14 inches apart. The nest is placed at one end on the ground, and is covered over with a board, the rest of the coop being lathed. The hen is thus confined to her coop when sitting. Water and corn are placed within at the end furthest from the nest, and the inducement to roam is in that manner removed. This is a necessary part of the management when a large number of birds are kept. The eggs of the incubating hens are occasionally examined, for the purpose of removing any that may be broken. Mr. Hawkins is his own "help;" as some young gentlemen in his position have been obnoxious to unfriendly criticism for doing their own sporting, so, for want of game in Massachusetts, Mr. Hawkins looks after his own poultry. His stock consisted lately of about 200 hens sitting or rearing and 1200 laying hens, and his cooped hens had hatched an average of ten chickens each, hatching sometimes every egg. The hatching coops face the south, and lie, as already said, on the ground. They are shedded over inexpensively by a lean-to building. The brooding house measures 60 feet by 35, and has a span roof springing from a low sill, 1 foot from the ground. The southern side of this building is glazed like a greenhouse roof. It is warmed by hot water pipes, which pass along the middle of the building near the ground, and are connected with a series of iron tanks, 1 foot wide, 2 inches deep, and 6 feet long—i. e., the length of the chicken pens. They are jacketed with flannel, and form the artificial breeders already mentioned,

beneath which the young chicks nestle, the space under them being adjusted to the size of the young birds by means of a movable board, which forms their floor, and which can be raised or lowered at will. These artificial breeders for rearing young chickens early in the season, when the number kept is sufficient to afford the small extra cost, are preferable to rearing in the usual way. The process is completed under cover, within a small space and without confusion.

The laying stock consists, as stated before, of 1200 hens, which are marketed in July and the two following months at 18 months old after two winters' profitable work laying eggs, beside the spring business just described. The egg producers only are kept in yards in lots of fifteen or twenty without cocks among them. The want of free range, which has been so often insisted on as a necessity for hens, has not been felt, all the needs of Nature having been apparently supplied by art. Two flocks were respectively confined and allowed to range, and the former produced throughout autumn and winter 20 per cent. more eggs than the others. Certainly the ranging hens on many farms do not produce many eggs during winter, and they might be expected to do far better in the warmer atmosphere of houses. But Mr. Hawkins has found that the eggs of confined hens prove always less fertile than those of ranging hens which enjoy the advantage of exercise. His eggs for sale therefore are produced under one system, and those for hatching under another. His yard coop for laying stock is 8 feet high in front, 6 feet in the rear, 12 feet wide from front to back, partitions 10 feet apart, with a swinging door kept shut by a weight. They are placed in long ranges facing the south-east, and each door opens into a yard the same width as the partition (10 feet) and 30 feet long. The yards are protected along their exposed fronts by a fence which need not be described, inasmuch as every poultry keeper on the large scale must contrive according to the circumstances of his district, and if profit be his object he must keep down the expense. There are no fences that I know of so cheap as rough wooden fences in wood-producing districts. Elsewhere iron may be best.

Mr. Hawkins builds cheaply of wood. His roosts are 2 feet from the ground, and beneath are the nests protected with a board which is cleaned and kept dusted with ashes. The laying hens are kept in the coops, described already as "laying coops," and in their open yards throughout the year. Their food costs 4s. 7d. a year, and we learn from the *Southern Cultivator* that they lay nine dozen eggs a year. Both these totals seem moderate, and they leave a large balance to the credit of the general ac-

count. We should not expect to keep confined hens in this country at a cost of 4s. 7d. only per annum, and we should, I think, manage to persuade them to lay at least ten dozen eggs, taking time by the forelock and commencing in October as pullets of seven months. We should expect 100 eggs from each, and then a pause in spring, which would be followed, in the case of Leghorn and other famous egg layers, by an early resumption of business. We should expect also to beat the American competitor in the marketable value of our birds as boilers or roasters in July and September. He would probably "can" his hens; we should send them to London, where some "parties" would swear they were "spring chickens." But we are wandering far from Lancaster. Mr. Hawkins feeds twice a day—at 4 a. m., when light enough, and 4 p. m. The first meal consists of boiled vegetables (potatoes, &c) mixed with refuse meat from a bone-boiling establishment, chopped fine, and made into a pudding with meal and middlings. The second meal consists of maize, wheat, and oats, or other grain; cabbages, turnips, or other raw vegetables are always placed for the hens to pick at, which they seem to require to amuse them, and clean water. Refuse beet pulp from a sugar manufactory is used and much relished. Oyster shells are supplied, and dry ashes as a dust bath and for deodorising.

The young chickens of this well-managed establishment are fed on cooked food—oat and maize meal, wheat and buckwheat, a little meat, chopped cabbage, raw; fresh, clean water. A little at a time is the maxim in feeding young chickens, and five or six times daily when they are very young. A little bone meal is added to their food. They are kept in-doors early in the season entirely, as stated above, and straw chaff is scattered over their floor and frequently removed. It keeps them dry and serves to amuse them and teach them to scratch. These are the leading features in the management of poultry which have in this instance been advantageously kept on a large scale.—*OLD POULTRY-KEEPER in London Agricultural Gazette.*

At the winter meeting of the Ontario Fruit Growers' Association, opinions were elicited from several experienced growers on some important subjects:—

#### STRAWBERRIES FOR MARKET.

Mr. Gott thought the old Wilson's Albany stood at the head of the list. The Crescent Seedling is a new variety and one of great promise. The Kentucky is a very valuable variety. It is not a very heavy bearer, but commands a good price, being a late bearer. Mr. A. M. Smith said he did not grow many for market, and could not give much enlightenment