

in rows two inches apart and the rows half an inch wide, press the seed lightly with a piece of board the size of the box, then sift a very thin sprinkling of soil over the seed. A springling of dry moss over the box acts as a nice light mulch. Water with a fine sprinkler, and place in a sunny window. When the plants come up, which will be in about two weeks, they should not be allowed too much sun, as there is danger of scorching because of their delicacy at that stage. When the second leaf appears, the boxes should be put in a moderate hot-bed, and as the weather warms, into a cold frame. When the plants get about two inches high they should be pricked out to about two inches apart, so that they can be cultivated with a hand-weeder, or some such implement; keep them well watered till about July 1st, when they will be ready to transplant.

The old idea that celery must have a two or three foot trench has exploded long ago. All that is needed is a trench a foot wide and nine or ten inches deep. Fill in the first four inches with old manure, well dug into the soil at the bottom of the trench; then spread on two or three inches of soil, and the trench is ready for the plants. Now dig holes with the garden trowel, and put the plants in about the same depth as before moving; give them a little water now and again when necessary. As the plants are cultivated and scratched among they should at the same time be banked up by holding the stalks together with one hand, while the earth is being drawn about them with the other. It is no bad plan to tie a soft string loosely around the plant when about half-grown, which will keep the leaves together and expedite the banking-up business considerably. The rows may be four feet apart, or less if the ground is scarce. When the celery is about three-quarters grown place boards close on each side of the rows, and put stakes behind to keep them up. The celery will bleach just as well as if banked up to the tops; all that is required to whiten celery is to exclude the light.

The above outline is the general plan followed by celery growers who have plenty of land and who cultivate with horse-labor. For persons with less land, and who desire to make the most of every foot, what is termed "the new celery culture" has commendable features. By it the soil is prepared by adding plenty of manure and working well. When the season comes for setting out the plants the ground is marked off in rows seven inches apart, and with a dibble or trowel the plants are set out—from three to six inches high—seven inches apart, straight in the rows. If they are half an inch from a straight line, either to the right or left, they are in danger of being cut off by the knives of the wheel-hoe. Press the ground firmly about the roots. If the weather is warm and dry, water well after the plants have been set out, giving the ground a good soaking to keep the plants from wilting.

When the weeds begin to appear run the wheel-hoe through the rows. The knives of an ordinary wheel-hoe are too long, and should be cut off about five inches from the centre of the hoe. After going through one way let the crop stand a day or two before going through the other way. Four or six days afterwards go through again. If this is done frequently very little hand-weeding will be necessary.

When the plants are about half-grown scatter broadcast about 1,200 pounds fertilizer to the acre. Do not do this when the foliage is wet.

Cultivation will now have to cease, on account of the size of the plant. All that is necessary now is to keep the ground well watered and manured with artificial fertilizer. The plants will cover the ground sufficiently to blanch themselves white, and will be tender, crisp and nutty. Now, about the

HOT-BED.

The situation for a hot-bed should be facing the south or south-east, and sheltered from the north and north-west. In land with an open, gravelly sub-soil, in which water will not lie, the bed will be most economically handled in a pit, but if water is liable to gather and lie along with the manure, the bed should be made entirely above ground.

As a material to use for raising heat, there is nothing better than good fresh horse manure, well wetted in the stables. Throw it into a pile in a sunny place or under a shed to heat, and when well warmed up turn it over, shaking it loose and mixing it well, and see that it is all moist. Then pile it up till it again gets hot throughout. In making the bed, throw the hot manure into the pit or build up upon the surface, as the case may be, shaking it up and spreading it evenly as you go along, and tread it down firmly along the sides and corners. The manure should be at least four feet thick when first put up. Now put on the sashes, and keep them tight until the heat again gets strong; cover up with mats, straw or shutters at night, but let the sun shine on the sashes in the day time—it will get up the heat quicker. Now spread on four or five inches of soil, and neither sow nor plant in it till the heat of soil three inches beneath the surface has declined to 100° F. The boxes containing the celery plants may then be set into the earth an inch or so, and all will be well till the time for using the cold frames arrives. There are a few precautions to observe when using the hot-bed. So long as "steam" gathers in the frame, ventilate a little day and night, else the ammonia will burn the plants. Should there be danger of frost entering the ventilators, they may be covered with straw or matting in such a way as to allow the escape of ammonia and still keep out the cold.

Will some of our readers give their experience re-shearing the tops when the plants are small?

POULTRY.

Geese—Breeds, Habits, and Management.

BY E. JOHNSTONE.

In those times elderly people speak of as "the good old days," before the hair mattress had so generally superseded the fourty-pound feather beds, which were family heirlooms and part of every marriageable girl's outfit, nearly every well-regulated family kept a flock of geese. If not made a permanent tenant on the farm, a flock was kept until the stock of beds and pillows on hand satisfied the housekeeper's acquisitiveness. In these days, however, goose culture is in its decadence, and relatively few flocks are kept.

Nevertheless, the fact remains that wherever there is a running stream on a farm, a flock of geese may be kept with profit, if within reach of a good market town. The feathers are always salable for pillows, etc., and manufacturers have a secret process by which plain, plebeian goose feathers are converted into aristocratic eider down, which is used to fill delicate silken cushions and comfortable, and brings a high price. The feathers, from first hands, if of best quality, are usually worth about fifty cents a pound. A Toulouse goose will often yield a half-pound at a picking, while the Christmas goose often costs its consumer a higher price than any other kind of poultry.

There are two leading breeds, the Toulouse and Embden. The Toulouse goose is the largest known, often weighing, when fully matured, from thirty-five to forty pounds per pair, while instances are known where the extraordinary weight of sixty pounds per pair has been attained. The goslings will weigh from four to six pounds when a month old. The plumage of this variety is dark gray on the back, shading to light gray, and almost white below. They are not as noisy as some kind, and are hardy and easy to raise.

The Embdens are not as large as the Toulouse, though attaining good weights, but epicures consider their flesh superior in point of tenderness and delicacy. Their plumage is pure white, and hence their feathers command a higher price in market. They are hardy also, and easily raised. A fine cross for market purposes is obtained by breeding Embden geese to a gander of the Toulouse variety. The result is a fowl larger than either, that takes on flesh rapidly, and is as hardy as its parents. But the cross must stop there. The cross-bred birds must not be kept for breeders, as the result is a great deterioration, exactly as occurs in all classes of live stock under similar circumstances. The goose begins to lay along the last of February or first of March, if well kept through the winter, and will lay from twenty to twenty-five eggs before becoming broody. If the eggs are taken away, she will lay again, but not so great a number. Indeed, she is a prolific goose that lays forty eggs a year. The eggs require about a month for incubation, and the eggs that are taken away to be hatched by hens ought to be given to persistent sitters like Cochins or Brahams. Even these sometimes get discouraged and quit just when they are most needed, so that the goose herself is most reliable as an incubator. Geese seldom lay until they are a year old, and the stock can be kept several years. Indeed, old stock is strongest and best for breeders, though the ganders are apt to get ugly as they age, and need to be kept from the goslings.

The care of the goslings does not differ in any material point from that of young ducks and turkeys. Though they require plenty of water always at hand to drink, they must be kept out of it until they are about three weeks old. At six weeks they may be turned out to pasture and require feeding but once a day. After they are eight weeks old they will forage for their own living, and at about this period the farm manager generally indulges in language akin to that in use when putting up an unmanageable stove-pipe. For they are voracious eaters, and, like a plague of locusts, devour every green thing before them, so that unless kept in an enclosure and yoked, and wing-feathers clipped so they cannot get out, they are a positive nuisance. They do not thrive in confinement. They should have ample pasture and be kept growing fast until they are full size. To fatten they ought to be penned out of sight and hearing of other geese, and given plenty of food, grass and water. For extra size geese, a feed of scalded meal or boiled turnips sprinkled with bran or meal once a day is excellent. They must *always* have plenty of water. In France and some parts of Germany geese are fattened by a peculiar process by which their livers grow to an enormous size. Each fowl is penned separately in very narrow quarters, allowing no exercise. Three times a day the attendant comes round with a bucket of food, seizes the goose by the neck, causing it to open its mouth, a specified quantity of the food is forced down, and the goose has nothing to do but digest it and wait for a repetition of the dose. A goose's liver, under this feeding system, is sometimes made to weigh a pound and above, and is used in the making of *pale foie gras*, or Strasburg pies, a much esteemed delicacy on the Continent. It requires an experienced hand to judge the proper moment to kill a bird thus fed, as death follows a too prolonged forcing. Green geese are those from six to eight weeks old. Fattened at that age, they sell well in any large market. When the later crop comes on, they must be watched to see when they seem to cease to improve, as they fall away rapidly. They ought to be marketed at once when they are fat. Three geese to every gander is the usual rule

for breeding stock, so it does not pay to winter a large flock. Those that are kept over should be fed with boiled oats and barley meal, boiled corn and cooked potatoes, and rowen cut fine and soaked in warm water. Dry grain is bad for them. They only need shelter during the winter and can be turned out early in the spring, as soon as the snow is gone, and let run until late in the autumn. Like ducks, they must be well cared for during the winter if they are to lay early, and as it does not pay to winter many or feed after the grass is gone, early goslings are very desirable.

Geese can be picked two or three times a year, taking only the best or breast feathers. Stock to be kept over need their down for protection, and should not be picked late. The directions for picking ducks apply to geese as well.

The Jews are great consumers of geese, and usually buy them alive, perhaps feeding a little celery and parsley to flavor the flesh, then killing after a method peculiarly their own. Roast goose is a dish they highly esteem, and they also smoke the flesh as a delicacy. The market for geese is generally best from November till after Christmas, and the process of killing and marketing are like these described for turkeys and chickens in the *ADVOCATE* of Nov. 15th.

The peculiar cry or "honk" of the wild goose is one of the earliest signs of the return of spring. The study of this species is very interesting to the naturalist. Wild geese have very keen instinct. It is wonderful how they direct their flight at so high an altitude and for such long distances. They winter in the West Indies, and even as far south as the valleys of the Orinoco River in South America, and it is asserted that great flocks have been seen crossing the South Atlantic, evidently bound for Africa. They always fly in a particular form—that of a V, with the point foremost, and the leader, or commanding general, is often relieved of his responsibility by his fellows, who share the duty of guidance. Though very noisy and garrulous on the wing, when they alight to feed at night they are so quiet one may pass within a few yards of a large flock and never notice their presence. It seems curious they should migrate, apparently in search of milder climates, when they are so protected by nature against cold, not only by their warm coat of feathers, but also by an almost impervious air cushion, being able to admit air between the skin and body as an additional safeguard.

Poultry-House Building and Heating.

BY MRS. IDA E. TILSON.

A man in one audience asked me whether a double-walled henhouse was absolutely necessary? "Not any more necessary," I said, "than an overcoat for you, but quite as comfortable." Drop siding for the outside, and matched flooring on inside of studing, makes an ideal henhouse, such as one of my neighbors is building. "It looks just like a living house," said his wee daughter to me. Our sand is of such a nature here that plastering is not strictly first-class. When many cracks and holes come in walls, there may be harbor for insects. But almost universally I found the right kind of sand was to be had in Minn., where plastering would undoubtedly be cheaper than the ceiling I did last spring, at 2½ cents a square foot, lumber and labor both counted. I met several who were well pleased with their plastered henhouses, not only plastered, but back plastered, too, and such winter quarters are certainly worth thinking of, when every breath a hen draws in has to be warmed by her, and every draught of wind that touches her takes away a little heat. Several flocks were doing well in log houses, which, with chinks well daubed, are warm structures, as I know by experience. I often say I began poultry culture with seven tough, old fowls, in a discarded log house. That was the beginning of my present business, but there was still another beginning, a foreshadowing of my future, when a grateful pupil in Florida, led by some fine instinct of what was suitable for me, gave me a hen. I bought a companion biddy, also eggs for them to hatch, had built a small house on stilts and reached by a ladder, said stilts supposed to discourage snakes and other vermin, and thus started a little flock, which removal to another State dispersed. An "A" roof gives half its surface to the south, whereas a one-slant roof must be entirely toward the north, if the house faces, as it should, south. Some builders do not place the ridge of an "A" roof in the middle, but put more than half the surface on the south. In order to shed water well from a building ten feet wide, the ridge should have an elevation of at least three, or better, three and a-half feet above plates, when shingles are used. For a comparatively flat roof, there are iron and other coverings. In any case, finish with a loft or attic above, as that air chamber also prevents loss of heat.

I have seen houses so low that I should fear tall cockerels might bump their heads, and perhaps get poll-evil, but I would not go above eight-foot posts. One lady was telling me about appropriating for her hens, an unused building fourteen feet high, in which she put a stove. Her fowls would singe their feathers, daytimes, and then freeze at night. She had a sort of cellar hole dug, put in straw, and sent them down there nights—to freeze, as before. I was shown, at another place, the scattered remains of a \$1,000 poultry plant, where an attempt had been made to heat cheap buildings through wood stoves. Its owners, by the way, started with a large flock bought up at random. We should expect a bird which began its climb at the top of a ladder, to fall and break its neck, and many