

Comet B, 1881, as the recent comet has been called, is probably either a comet of long period or non-periodic. Admiral Mouchez argues that it is the 1807 comet returned a hundred years before its calculated time; but, although it is difficult to calculate the periods of comets which have long narrow orbits, the error here implied is somewhat dubious, and the concert of opinion is that Comet B is quite a stranger to our history.

It was first seen by Dr. Gould, of the Cordoba Observatory, Buenos Ayres, on May 29th last, and in England on June 22nd, shining in the northern sky a little below the star Capella, which it outvied in brilliance. The tail stretched some 8 degrees across the sphere in a fiery brush, and was computed to be 200,000,000 miles in length. On June 24th, the head seen through a telescope presented the appearance shown in Fig. 1, where a jet of fire is seen to shoot out from the round nucleus towards the sun and mingle with the coma, as if the sun repelled it. Next night the nucleus was rayed round with fiery jets, as shown in Fig. 2, and on the 29th of June the comet had acquired the beautiful shape seen in Fig. 3, and on a larger scale in Fig. 4. The bright jet now appeared like an open fan, and through the nebulous coma a small star, A, shone with almost undiminished lustre, as the stars shine through the violet haze of a tropic evening, or the evanescent flush of the aurora borealis. After this date the comet rapidly grew dimmer, and finally disappeared.

The spectroscope gave the usual spectrum of a comet's head, that is to say, a continuous spectrum crossed by bright bands, and indicating that the nucleus is probably an incandescent liquid, surrounded by a glowing gas. The tail shone partly by its own, and partly by the borrowed light of the sun. Its

spectrum declared it to consist of some hydro-carbon gas in a luminous condition, and one observer found so close a resemblance between its spectrum and that of a blue spirit-flame, that he did not hesitate to consider them identical. Alcohol has been found very widely diffused of late upon the earth, but its presence in a comet is somewhat unexpected!

What the repulsive force is which drives the tail away is yet a mystery. Indeed, having regard to the extraordinary manner in which these appendages grow and shrink, or sweep the sky, it is difficult to believe they are material at all. Dr. Tyndall has supposed that they are merely an appearance caused in the shadow of the comet's head by the chemical rays of the sun. Dr. Tait, again, has likened them to a covey of sea-birds swaying into view as they change their flight. Our own opinion is that the luminosity of the tail is really an electrical effect like the aurora or the glowing gases of the electric arc, and when we consider that both sun and earth are highly charged with electricity, and that the outbreak of a flame upon the sun is sometimes attended by a thrill of all the magnetic needles on the earth, and by an auroral light in the upper atmosphere, we need not wonder if the electric repulsion of the sun acting on the electricity of the comet should render its gaseous tail self-luminous.

What purpose a comet serves is equally unknown. It may be appointed the carrier of fuel to the suns, and the streams of meteoric stones which follow in its wake would seem to bear the theory out; it may be a world in growth which has not found its settled course; it may even, as a famous physicist once suggested, bear the seeds of life from world to world; we cannot tell; but that it serves some wise and most important end we dare not doubt.

J. MUNRO, C.E., F.A.S.



STRAWBERRIES, AND HOW TO GROW THEM.



IT is a very poor house at the present day that has not at least "a bit of garden," and of all the many flowers and fruits that are likely to be suggested to the amateur, there is not one that will pay him better for a little care and attention than the strawberry. Hardy and prolific, it thrives well on most soils, though perhaps a rich stiff loam in which is plenty of clay suits it best. The method of cultivation, too, is exceedingly simple.

In the month of June, July, or August—the earlier the better, but plants may be put out as late as November, and then give a crop the next year—a quantity of well-struck plants should be secured.

The ground on which they are to be planted must be well and deeply dug, and all roots as well as stones carefully removed. After the ground has lain still for a few days, a couple of trenches about fifteen inches apart, parallel to one another, and six or eight inches deep, should be made. At the bottom of these trenches some good old stable manure, well rotted, must be placed; about half the soil previously taken out of the trench should then be raked on the top of the manure. The young plants may be put in six inches or so apart, care being taken to press down the soil firmly about the roots, and to avoid covering up the crowns of the plants. Copious drenchings with rain-water will be necessary in order to give the young

plants a good start ; and by degrees the remainder of the soil, as that in the trench settles down, can be placed round the plants. If the plants are put out as early as June, it is extremely likely that they may send out a few runners during the latter part of the summer, and these must be carefully removed.

The plants now will require to be kept free from weeds, and to be watered frequently. It must be borne in mind that the quantity as well as the quality of the first year's crop depends almost entirely on the care that is bestowed on the plants during the first autumn they are out. A slight hoeing will do good now and then to let warmth and moisture down to the roots ; but the hoe must not be allowed to penetrate deeply into the soil, or the numerous root-fibres would be injured.

Directly the cold weather makes its appearance, a good covering of long "muck" should be placed round the plants and between the rows. Nothing more need be done to them until the following spring.

In March, during a dry time, the old litter, now thoroughly deprived of its goodness, may be removed, and the surface of the soil lightly stirred with a Dutch-hoe. If any weeds make their appearance, they should be drawn out by hand if possible ; or at least cut down with the hoe. Then a fresh lot of manure must be placed round the plants.

The goodness from this will be washed down to the roots by the rains of spring and early summer, and the cleansed straw of the manure will form an admirable bed on which the trusses of fruit may rest. If good stable manure cannot be procured, the plants will have to do without it ; but then liquid manure of some kind will have to be used, and clean straw, cut grass, or something similar will have to be placed under the fruit to keep it away from the grit. By the middle of May, blossoms will make their appearance, and just at this time the plants will require a considerable amount of watering, natural or artificial, or both.

Directly the runners appear, which as a rule they will do with the blossoms, they must be cut off, unless indeed fresh plants are required, and then the gardener must be prepared to sacrifice the size and quality of his fruit, for much of the strength of the parent plant will go to establish the young ones.

When the fruit is well set, watering will not be necessary, unless the rain holds off most persistently. Even then it is well to put off using the watering-pot as long as possible ; but if it is used, it must be used copiously to do any good. A mere wetting of the surface of the soil will not suffice, but the moisture must soak well down to the roots. If extra-sized berries are desired, the amateur can bring about this result by removing all the later and smaller fruit from each truss, leaving only one or two of the earliest and largest to ripen.

When the fruit is all gathered, the plants must not be neglected. The runners will still continue to grow, and they must be diligently cut off. The litter may be raked off as soon as the fruit is gone, and this will enable the hoe to be used with effect—but not

deeply—between the plants during the autumn. The winter culture of the now established plants will be the same as that recommended for the young ones during their first autumn.

If the plants are properly tended, they will last for three seasons ; but after that time the fruit will begin to deteriorate both in size and flavour. The amateur will do well to make at least one new bed each year ; and in this way he can afford to do away with an old one without lessening in any appreciable degree his crop of fruit.

Strawberries grown in this way will far surpass both in size and flavour, as well as in appearance, those produced on the old slovenly plan, where the bed is allowed to become a tangled mass of plants of all ages, with a goodly sprinkling of grass and weeds which cannot be properly cleared off while the plants are so thick.

The amateur will be wise if he does not confine himself to one variety. Indeed, I would recommend a trial to be made of six or seven of the best kinds. A few only need be grown of each sort at first, and those that take most kindly to the soil can be retained. In this manner, too, a succession of fruit will be secured. The following varieties, which I have tried and found to be good ones, may be mentioned:—Sir Joseph Paxton, Vicomtesse Héricaut de Thury, President, Dr. Hogg, Keen's Seedling, Refresher, Forman's Excelsior. This last variety, indeed, is the best strawberry I ever met with. It is particularly hardy, of large size, a prolific bearer, and of the most exquisite flavour. In 1880 I had berries from this variety, grown in the way I have recommended, which weighed from $1\frac{3}{4}$ to 2 ounces each.

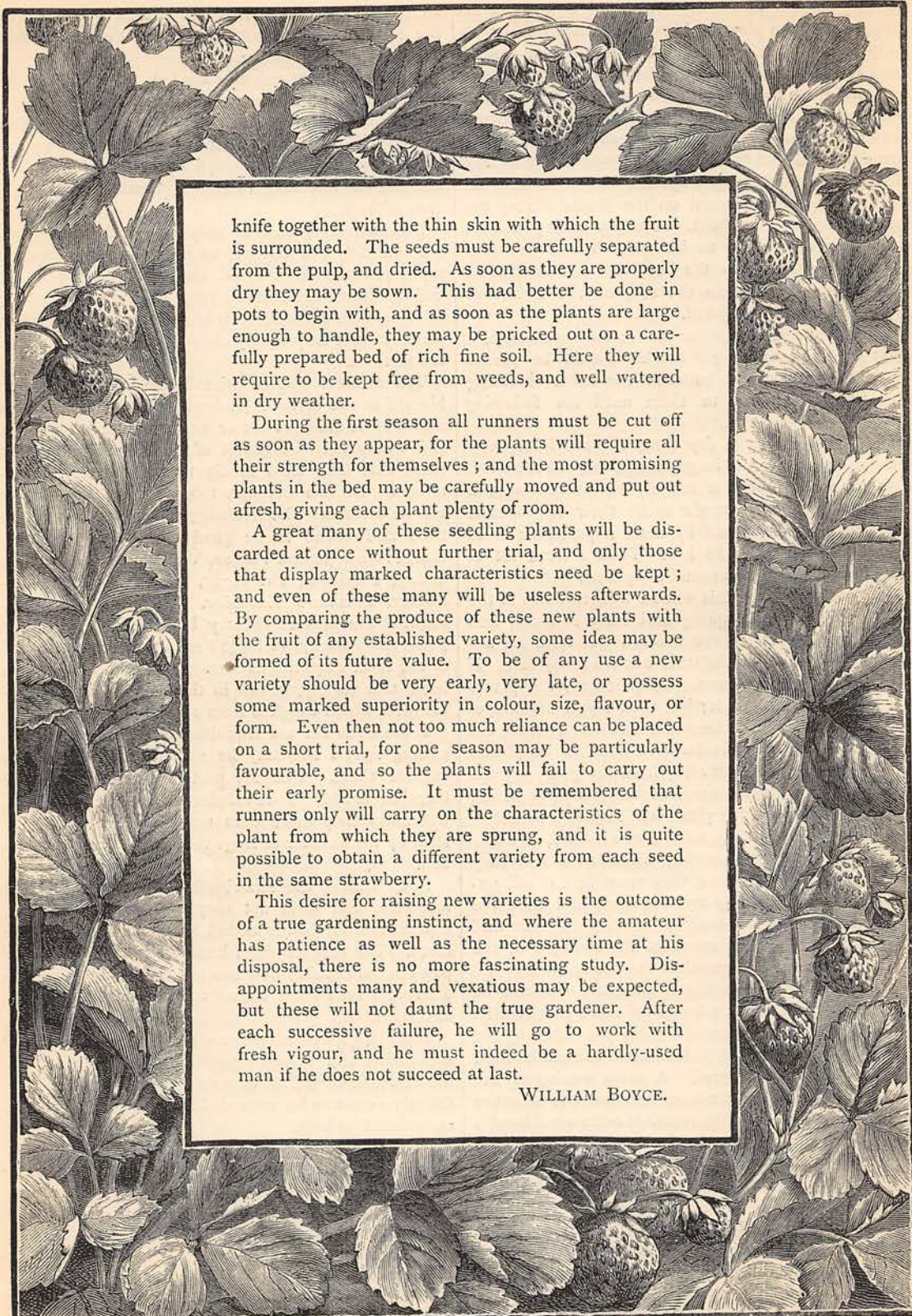
If the birds are too troublesome when the fruit is getting ripe, a net may be spread over the beds to exclude them. For my part I do not grudge the thrushes and black-birds their share of the fruit, for I well know they more than repay me for what they steal by the number of slugs they carry away from the bed.

Slugs among the strawberries are an unmitigated nuisance, and it is not easy to get rid of them, especially if the bed is netted so as to keep out the birds. The best remedy I know of is to look for the pests in the evening and destroy them. Soaking the litter with lime-water answers sometimes, but this is uncertain.

The hints given above are the results of my own experience, and if my suggestions are followed out, the amateur, even if he be only a beginner, may confidently expect to be rewarded by a fine crop of this most delicious fruit.

If the amateur be desirous of handing his name down to gardening posterity as the raiser of a new variety of strawberry—and the ambition is a natural one on the part of the enthusiastic horticulturist—the process is simple, but it involves the expenditure of considerable time and trouble.

The seeds, as is well known, grow on the outside of the berry, and the finest fruit available being selected, these seeds may be pared off with a sharp



knife together with the thin skin with which the fruit is surrounded. The seeds must be carefully separated from the pulp, and dried. As soon as they are properly dry they may be sown. This had better be done in pots to begin with, and as soon as the plants are large enough to handle, they may be pricked out on a carefully prepared bed of rich fine soil. Here they will require to be kept free from weeds, and well watered in dry weather.

During the first season all runners must be cut off as soon as they appear, for the plants will require all their strength for themselves; and the most promising plants in the bed may be carefully moved and put out afresh, giving each plant plenty of room.

A great many of these seedling plants will be discarded at once without further trial, and only those that display marked characteristics need be kept; and even of these many will be useless afterwards. By comparing the produce of these new plants with the fruit of any established variety, some idea may be formed of its future value. To be of any use a new variety should be very early, very late, or possess some marked superiority in colour, size, flavour, or form. Even then not too much reliance can be placed on a short trial, for one season may be particularly favourable, and so the plants will fail to carry out their early promise. It must be remembered that runners only will carry on the characteristics of the plant from which they are sprung, and it is quite possible to obtain a different variety from each seed in the same strawberry.

This desire for raising new varieties is the outcome of a true gardening instinct, and where the amateur has patience as well as the necessary time at his disposal, there is no more fascinating study. Disappointments many and vexatious may be expected, but these will not daunt the true gardener. After each successive failure, he will go to work with fresh vigour, and he must indeed be a hardly-used man if he does not succeed at last.

WILLIAM BOYCE.