



THE TOMATO :  
ITS ORIGIN, CULTIVATION, AND VARIETIES.

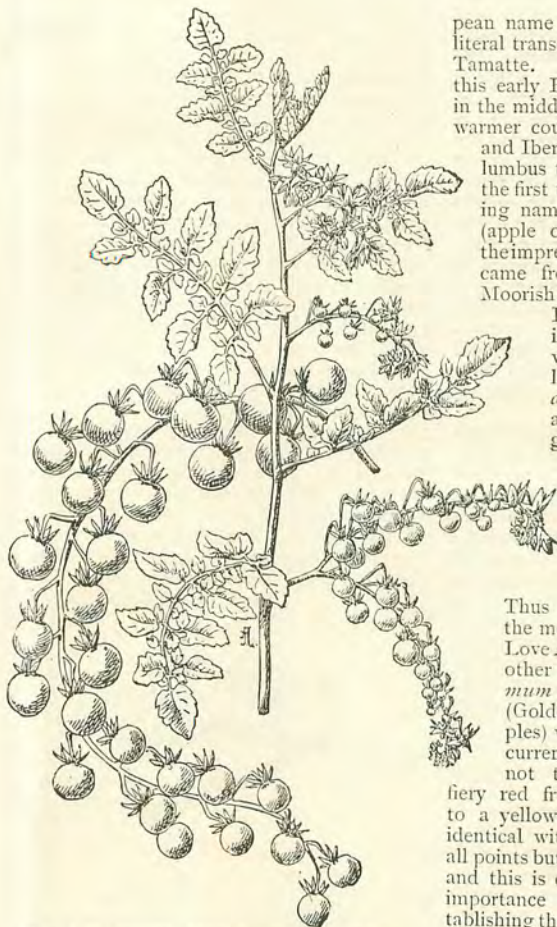


FIG. 1.—LYCOPERSICUM RACEMIFORME.  
(From plant grown in Copenhagen from seed collected from wild plant.)

WITH the wider use and cultivation of the Tomato in England in recent years has come the familiar employment of this name instead of "Love Apple," by which for three centuries it was better known. It was first grown in England, late in the sixteenth century, by old Gerard, the herbalist, in his celebrated garden at Holborn as an odd, curious or interesting plant, and as such it continued to be grown chiefly in botanical collections till about thirty years ago, when its cultivation as an esculent became general under its Euro-

All rights reserved.]

pean name Tomato, which latter is almost a literal transcript of the native Peruvian name Tamatte. An interesting history attaches to this early English name. It was introduced in the middle of the sixteenth century into the warmer countries of Europe by the Genoese and Iberian adventurers who followed Columbus to America. The Italians were the first to acclimatise it under the misleading name of pomi del Mori (apple of the Moors), with the impression that the Tomato came from Morocco, or the Moorish provinces of Spain.

By a pardonable error in sound this became with the French a little later on *pomme d'amour* which Gerard renders into English very literally in

his large folio herbal of 1596 as Apple of Love.

Thus we reach the modern name Love Apple. Another name *Pomum aureum* (Golden Apples) was also current, given not to the fiery red fruit, but to a yellow variety identical with it in all points but colour, and this is of great importance in establishing the fact of the existence of the bright yellow forms of the Tomato in Europe concurrently with the red. The impression is pretty general with those familiar with all the modern forms, that the numerous bright and creamy yellow tomatoes are the results of quite modern cultivation. Research has however only confirmed the ancient existence of these varieties. By no stretch of imagination could the descriptive name "Golden" be applied to red fruit, while it quite well describes such forms as the "Golden Nugget," and "Golden



FIG. 2.—GOLDEN QUEEN.

(A handsome yellow variety, usually grown under glass. Drawing made from plant in the open air at the trial grounds, Chiswick, R. H. S., 1893.)





FIG. 3.—LYCOPERSICUM HUMBOLDTII.  
(From wild specimen in the Herbarium, Kew.)

Queen," Fig. 2, which are of a brilliant yellow.

Both the yellow and red grow wild around the outskirts of Rio de Janeiro at the present day. In 1835, Charles Darwin sent home a yellow variety which he found in the Chatham Islands of the Galapagos group during the memorable voyage of the *Beagle*. A bright, orange-yellow berry, sour to the taste, is gathered and used for esculent purposes in New Grenada, and also a yellow fruit is eaten in the maritime provinces of Peru.

Though, with but few exceptions, there are yellow tomatoes answering in form to all the variations of the red which have been produced by latter-day culture, this colour seems to be a fixed quality. Messrs. Laxton Bros. of Bedford, who have crossed and hybridised this fruit for many years, inform me that there is no tendency to sport from the red to the yellow stock. It is true that Messrs. Carter of Holborn have a variety which they call "Blenheim orange," in which the red appears as streaks upon the yellow, but this is the result of a direct cross between the red and the yellow, and only proves their close relationship. It is not a spontaneous sport.

There is little doubt that the world is indebted for the cultivated form of the tomato to the ancient civilisation of Peru; and the Eastern Hemisphere, to the mariners who accompanied Columbus. The wild tomatoes are confined to the South American continent and to the sub-tropical regions of North America. The cultivated form has followed western civilisation into almost all the warmer parts of the globe, where it exists as an escape from gardens. The pioneer agents in this work were the Portuguese in the period of their maritime ascendancy. For its introduction into India, China, and Japan, the English must stand sponsors.

It is a somewhat strange evidence of the little intercourse there was between the old civilisations in America and the outlying regions, that although the tomato was well-established as a cultivated plant in Peru, Mexico and Brazil at the time of the so-called discovery of that continent, it was not known in the West Indies till the latter part of the eighteenth century, when the Portuguese took it to Barbados. It also accompanied them in their voyages round Africa, for Livingstone sent home specimens found growing wild at Shamo on the River Shire during the Zambesi expedition of 1861, and it was found wild on the Niger by Vogel. It grows wild upon volcanic debris on the Peak of Teneriffe, also at St. Helena and St.

Vincent (Fig. 3). It was probably introduced by them into the Islands of the Malayan Archipelago, for there it is known as the American Tamatte, almost exactly the old Peruvian form of the name. Beccari, the Italian naturalist and traveller, found it growing wild in Northern Abyssinia, probably introduced by missionaries from Italy. Although now found wild in many parts of Asia where Europeans have established themselves, the fact that there is no native name for the tomato throughout the East is conclusive evidence of its recent introduction. It is only of late years that the tomato has assumed the even spherical form under the selective care of growers for the trade in seed. This is but a return to the shape of fruit in the wild *Lycopersicums*, and is due largely to the more perfect pollination. The

crinkled irregular form is not found wild, or only as a temporary escape from gardens. The fruit of the truly indigenous species vary in size from a pea to a large cherry, resembling the latter in shape (Fig. 4). This removal in size and form from the wild type indicates a lengthened period during which the tomato has been under the hands of man. But unlike many other food-plants, there is no question as to the source of the cultivated varieties of this most recent and valuable conquest of horticulture from the realm of wild nature. There is no need to enlarge upon its unquestionable nutrient qualities, or the strong hold the desire for it has upon those who have acquired a relish for this fruit, often amounting to a passion.

It is botanically known as *Lycopersicum* esculentum, and lately as *Solanum lycopersicum*, under which name the reader may find it in any but the most recent text-books. The difference between the two genera is in the way in which the pollen grains leave the anthers, by spores at the apex in *Solanums*, by the stamens splitting up their whole length in tomatoes. It belongs to the natural order *Solanaceæ*, in which is included some of the most noxious plants known to man, as the deadly nightshade, the woody nightshade, the henbane, and thorn-apple, and many others less widely known, affording the violent drugs belladonna, stramonium, henbane, etc. The attractive juicy berries of the nightshade exact every year a toll of many lives through incautions and ignorant use.

In violent contrast with these deadly members, and redeeming the character of the order are many others of most undoubted and wide benefit to man. Egg-plants, chillies, Cape gooseberries, tree tomatoes, and more particularly the potato are more or less known beneficial congeners of the tomato, and with the exception of the first have their ancient home in the South American Continent.

Another but more doubtful ally is the tobacco, which is baneful or good, according to the view of the reader, but admittedly useful as yielding a poisonous vapour to keep in check insect pests on plants in greenhouses. It may be interesting to the reader to learn that it takes about 3 cwt. of the leaves to fumigate the large palm-house at Kew. The tobacco used is that seized by the revenue officers and condemned as smuggled goods.

It is, doubtless, owing to the association in the popular mind both in name

and colour with virulent plants, that the tomato has taken three centuries to find its way into favour. Both the potato and the tobacco rushed at once into favour, but our subject has only just won its place in universal esteem. A study of the nature of the potato and its diseases, and of some other closely-related plants native to England would throw a valuable light upon the best methods for the cultivation of the tomato, but the limits of the present article forbid us entering upon this subject. It may perhaps be stated that the tomato is a sun-loving plant, rejoicing in unclouded skies; that over-much moisture clinging to leaves and stems expose it to the attack of fungoid enemies, and that the sturdier and more woody the growth, the better is it able to withstand its foes. In a later article we may be able to give directions which will help to guard it against the fickleness of the English climate.

The great traveller, Humboldt, was of opinion that the tomato was grown in Mexico long before its conquest by the Spaniards. A drawing (Fig. 3) of the plant named after him is given, but botanists do not agree with him in this, although the plant is wild in South America, owing to a well-marked difference in the flowers. De Candolle and later botanists prefer to trace the parentage to *Lycopersicum cerasiforme* (Fig. 4), and others again to a species known as *L. peruvianum* (Fig. 5), both of which grow wild in Peru. In both the fruit is round and regularly formed, the former when well-grown being almost identical with the currant-tomato now grown in England in both red and yellow forms. Growing upon the sea-board of Peru, they have spread northward as far as South California, and eastward into the interior. The shape of the flowers agree with the cultivated tomato, and the leaves are large and of the familiar type. There is yet another wild *Lycopersicum*, known under the specific name of *puberulum* (Fig. 6), found in Chili, much more dwarf; it has smaller leaves, and the whole plant is covered with short hairs, which is most likely a degenerate or debased form of the preceding. It is in no essential characters different, but has acquired these habits in consequence of the arid conditions of its growth. The species discovered by Darwin and known as *L. pimpinellifolium* is doubtless a still more starved variety.

(To be concluded.)

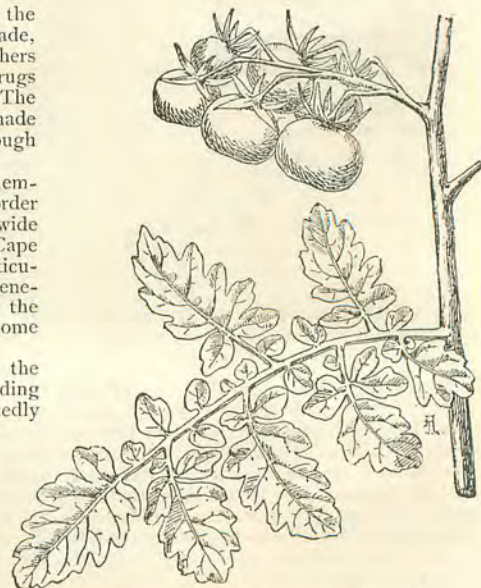


FIG. 4.—LYCOPERSICUM CERASIFORME.  
(From wild specimen in the Royal Herbarium, Kew.)





FIG. 5.—LYCOPERSICUM PERUVIANUM.  
(Drawn from wild specimen in the Herbarium at Kew.)



FIG. 6.—LYCOPERSICUM PUBERULAM.  
(From wild specimen in the Royal Herbarium, Kew.)

## HER OWN WAY.

By EGLANTON THORNE, Author of "Aldyth's Inheritance," "The Studio Mariano," etc.

CHAPTER XXVI.  
A TALENT UNWRAPPED.

IN a quiet little watering-place on the breezy coast of Lancashire there stood, some years ago, a pretty gabled cottage which had long lacked a tenant. It stood in a good-sized garden, well-stocked with shrubs; it could boast a small stable and out-house, and a charming little conservatory opened out of the drawing-room. It was indeed a "desirable residence," as the advertisements proclaimed it; but owing probably to the extreme quietude of its situation, and the lack of society in the little place, save for its brief invasion by strangers during the months of July and August, the house had remained unlet from one year to another.

Quite a sensation was created at St. Anne's when it was known that the gabled cottage had found a tenant. A widow lady was coming to reside there with her daughter. In due time they arrived and took possession of their new home. Such information as could be gleaned concerning them rapidly circulated amongst the inhabitants of the little place. The lady's name was Tracy, she came from London; the daughter who lived with her was young and very pretty; but Mrs. Tracy had also two elder daughters, the children of a former marriage, who kept a school at Leeds.

The cottage was simply but tastefully furnished. Its occupants did not seem to mind the dulness of the situation, though it was strange that a bright young girl should be content with a life so quiet as she must lead at St. Anne's.

As time passed on the most eager of the gossips did not find much to add to these early discovered facts. They became familiar with the appearance of Mrs. Tracy and her daughter, as they saw them driving about the country in a little basket-chaise drawn by a smart young pony, Juliet handling the reins very skilfully and with much pleasure in the novel diversion. The girl's bright hair, vivid complexion, and violet eyes, the taste with which she dressed, the spirit and energy which marked even her slightest actions called forth much admiring comment. The clergyman's wife, Mrs. Staines, who early called on the new-comers, proclaimed her "a sweet girl," and spoke of Mrs. Tracy as the "dearest little woman imaginable." The doctor's wife, who also called, was less discreet, and opined that there must be some extraordinary reason why such people buried themselves alive in a dull little hole like St. Anne's. It was all very well to say that it was on account of Mrs. Tracy's health, but there were numbers of places ten thousand times livelier than St. Anne's, equally sheltered and favoured with sunshine and sea air.

Mrs. Tracy and her daughter, however, far from complaining of dulness, showed no wish to avail themselves of such society as the little town could offer. They received every overture courteously and pleasantly, but made no attempt to advance to terms of intimacy with any of their new acquaintances. Thus it came to pass that when they had lived a year at St. Anne's, their neighbours knew little more about them than they did when they arrived.

One mild April afternoon, Mrs. Tracy was sitting alone in the pretty drawing-room of the gabled cottage. Juliet had gone by rail to a large and flourishing watering-place a few miles distant, which boasted a good circulating library, to which she was a subscriber. She had become a great reader, and was developing quite a critical taste for the "solid" literature which she had formerly spurned.

Mrs. Tracy had not long been alone. A visitor had just left her, the object of whose visit was now causing Mrs. Tracy serious reflection, and leading her mentally to review the tranquil, unvarying course of the last year's life. Not so long ago she would have thought it impossible that Juliet could be content with so quiet and uneventful a life; but the girl seemed calmly happy as she read and studied and took long walks and drives. Only the mother felt sure that



moved for the first time in her history in extempore prayer.

Anyone might have smiled had they not cried over that petition, so quaint and so pathetic was it.

"Dear Lord," she began, "pardon the liberty, but don't let 'em put anyone wi' a smelly disease, a 'ackin' cough, or a bad temper in the bed next mine, for Jesus' sake. Amen," and with that she fell asleep as sweetly as a child.

When she awoke, a stir and confusion beside her made her look round to find that clean sheets were being put on the vacant bed in preparation for a new occupant, but pride forbade her showing curiosity on the subject. At last she turned to her window again determined to take no notice, and she adhered to this although she could hear them bringing in someone who was laid on the bed next hers.

Presently the bustle subsided, the footsteps departed, and all was quiet save the laboured breathing beside her, and Vashti felt irritated by it and said to herself: "I hope her isn't allays goin' to breathe like that!"

As if in answer to the thought it softened to a moaning sob which seemed more aggravating to the listener, who determined to speak her mind on the subject as soon as she found opportunity.

At length she thought, "I'll jest turn round an' make the best of it," and with that she rolled over and gave a look at the new inmate.

She could see little beyond a grey face surmounted by snow-white hair, but it was enough.

The ward was startled by a cry and by the spectacle of Vashti Vincent bolt-upright in bed stretching out her arms towards the one next hers, and sobbing: "Susie, have I found you at last? Father forgave you, Susie, an' told me to give you the message!"

## CHAPTER IV.

MISS REYNOLDS entering the workhouse ward next day was conscious of the air of excitement pervading it before she saw any reason for it.

Under her eyelashes she perceived that the bed next Vashti was occupied, but she took no notice, going from one to another in regular order, until one of the attendants stepped up to her and said, "Would you come to Mrs. Vincent, miss?"

"I am coming," she replied.  
"Oh! but will you come to her at once?" pleaded the messenger. "It's very particular."

Thus adjured the visitor obeyed, and kneeling beside the bed, whispered, "So you have a new neighbour, Vashti?"

Vashti was excited beyond measure, and looked almost young again as she exclaimed, "Yes, my dear love. Jest give me both your hands an' I'll tell you all about it. I took the liberty of mentionin' to the Lord about the 'ackin' cough, an' the smelly disease, an' the bad temper, an' then jest left it to Him, an' how do you s'pose He answered me?"

"I don't know," murmured her friend.  
"Why, by sendin' me my pretty sister Susie

as married a scoundrel when she was sixteen, an' we've never met since," finished Vashti, triumphantly.

Miss Reynolds turned and gazed at the pathetic face on her other side.

There was no trace of the prettiness that had been the curse of Susie's life, and she looked ten years older instead of younger than her sister, but to Vashti she was the same as ever, and tears rose to the listener's eyes.

"Her husband took her to America an' deserted her," whispered Vashti, "so she worked her way back, an' starved an' struggled till she was too broken to do it any longer, an' then God sent her to me in time to give her father's message of forgiveness, an' we are together at last. Eh! but it's a long lane as has no turnin'!"

Tears were falling down Miss Reynolds' face like rain, so she failed to see the look that passed between the sisters of almost divine love on one side and wholly human regret on the other, but she rose from her seat murmuring a promise to come again soon.

The paths of it never decreased in her opinion, though she came every week till they died, to sit between them, holding a hand of each and sharing her gifts impartially between them.

For seven years the two sisters so strangely reunited, lay side by side within sight of the home where they had spent their early life, and Vashti was the first to go, murmuring softly to herself her favourite proverb: "It's a long lane that has no turning!"

[THE END.]

## THE TOMATO:

## ITS ORIGIN, CULTIVATION, AND VARIETIES.

## PART II.

*Cultivation of the Tomato.*—The rapidly growing taste for the Tomato in recent years has caused its cultivation to proceed by leaps and bounds. The only form which was in the market not long since was the ugly, irregular crinkled fruit which now can only be disposed of at the lowest rates. It has increased in regularity of form and beauty, while for intensity and variety of colour the present-day tomatoes rival other table fruit, and many kinds are now solely grown for dessert purposes. In common with most other fruit the English growers hold a pre-eminence for quality and flavour admittedly unapproached outside our seas. The Americans grow fruit of larger size; the variety called *Ponderosa* (Fig. 7) has reached three pounds in weight, but such mammoths are not in favour with the English public, who prefer fruit which scales six or eight to the pound, high coloured and regularly spherical, to a corrugated monster, "chamfered and bunched," as Gerarde puts it, out of all comeliness.

When grown under glass, with ready access to the markets of large towns, there is no more lucrative, safe and assured crop. Given a fairly favourable season—that of 1893 was exceptionally so—its open-air cultivation under proper conditions is especially lucrative. At the low price of 2d. per pound an acre may produce a return of £200. A photograph lies before the writer of a plant self sown, and merely supported by a few stakes which bears a crop of upwards of twenty pounds, and this with an absence of attention. In moist and sunless seasons, the Tomato as an

out-door crop is liable to failure in consequence of the attack of the potato fungus *Phytophthora infestans*, but after extensive trial, a remedy has been found which effectually combats the attack. Mr. William Laxton writes me: "It is certainly a splendid remedy if applied early and often enough." There is another feature which makes its cultivation acceptable to the owners of suburban gardens, which it shares with the chrysanthemum among flowers. Its constitution shows no aversion to the impure air of towns. In such not very remote districts as Chelsea and Walworth, plants are grown in the open loaded with fruit. Even the choicer kinds, which get exceptional prices, have this season, 1893, been produced in good form, colour, and abundance in the trial grounds, at Chiswick, of the Royal Horticultural Society. The drawings which accompany this article were made from fruit hanging on plants in an open border, the only shelter being a high wall on the north, and some shrubs on the east. It was once thought that fruit could only be produced by plants trained up a south wall, but such is the abundant vitality of the tomato, that a crop may be looked for in any position in which the sun can get at the plants, for most of the day. There is no plant more easily grown, the difficulty is to keep its exuberant growths in check. With a little attention in staking or training, the pinching off of extra growths in the sides, and a supply of liquid manure when the plant is in heavy bearing, there need be little fear of a total failure. Some amount of heat is necessary to germinate the seed, and for those whose opportunities are restricted, a hot-bed of stable manure with a frame over it

will be found sufficient to rear sturdy plants to meet the requirements of the amateur; and to meet the case of those who do not care to raise their own plants from the seed, a visit towards the end of May to Covent Garden or the local nurseryman will furnish them with plants of approved varieties hardened off for planting out.

*Open-air Cultivation.*—The ground in which it is intended to grow tomatoes should be well trenched and manured in the autumn. It will be found in good condition to receive the plants about the end of May or the first week in June. Towards the end of March the hot-bed should be ready for use. Sow the seed thinly in six-inch pots at this time. The pots should be clean and well drained. If the seed is new, sow about a score of seed in one pot, if older, more. Use fine sandy soil mixed with well rotted manure. If in very cold weather warm the soil with hot bricks buried in it for a time. The soil should be moist not wet. Cover the seed lightly with soil and water gently from a fine hose. Cover each pot with glass and paper to exclude light. Seeds germinate best in darkness. Place within the frame on the hot-bed.

A few words upon the best varieties to sow may not be out of place. As just indicated, all the varieties of *Lycopersicum* will in favourable seasons ripen fruit in England out of doors, but by careful selection during a course of years, certain strains of tomatoes have been produced, which will bear better than others the vicissitudes of our climate. The end aimed at by the great seed houses which have given attention to this point, is the production of a strain of sturdy (close) growing dwarf, early fruiting plants, that the utmost advantage may



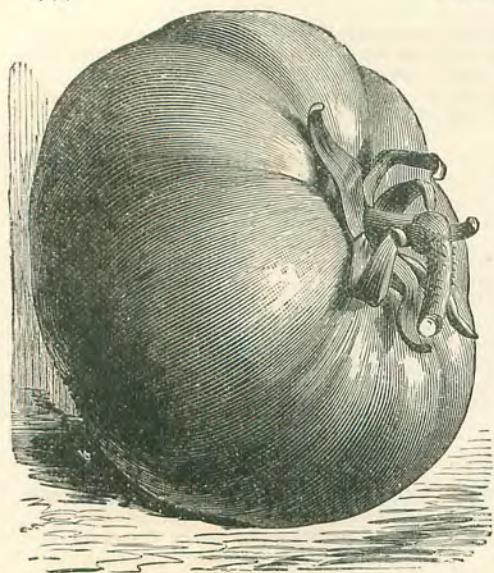


FIG. 8.

be taken of the short summers which sometimes visit us. The reputation of the best houses is itself enough security to the buyer, but there is fortunately a public body whose verdict may be taken as conclusive on this matter. All the varieties to be recommended have received the imprimatur of the Royal Horticultural Society after trial in their grounds at Chiswick. The late Mr. William Laxton has reared a variety known as Laxton's "Open Air" (Fig. 8), which from independent sources, as well as from professional repute, may be safely recommended as well-adapted for outside cultivation. Selected originally from the well-known "Old Red," it has year by year improved in earliness, shape, and weight of fruit and hardiness. Messrs. Sutton's "Earliest of All" (Fig. 9), and "Maincrop" (Fig. 10), have both passed through the Chiswick ordeal

with the highest honours. Messrs. Carter have a well-recommended variety known as the "Dedham Favourite," and Messrs. Collins Bros. have a kind in high favour with those who grow for the market, known as the "Challenger" (Fig. 11), which is good for outdoor culture. Messrs. Veitch and Messrs. Dickson of Chester have also acceptable varieties.

To resume our notes on the cultivation. As soon as the cotyledon leaves appear above the soil, the young plants should be exposed to the full light of the sun, no troublesome shading happily being necessary in the cultivation of the tomato. Keep the pots as close to the glass as possible to prevent the young plants from being drawn up. When the second leaves after the seed leaves have appeared,



FIG. 10.—SUTTON'S "MAINCROP."  
(An open air variety of tomato.)

three days in a warm shady corner, till the young rootlets have begun to grow. Return the pots to the frame again with full exposure to the sun, giving air as the weather permits. As soon as the roots fairly fill the pots, and the plants are getting sturdy, change to pots of a larger size. To allow them to remain would check the development of the young plants. The effort should be for continuous growth, from the germination to the production of fruit. The next remove should be into six- or eight-inch pots, from which in due season they may be transplanted to their permanent position. Do not let the roots penetrate the ranker soil of the hot-bed, and give more and more air as the weather ameliorates, until towards the middle of May the light may be quite removed, and only replaced on the recurrence of sharp weather. About this time, *i.e.*, six or seven weeks after sowing, the flowers should appear, and by the end of May the first cluster set. If it is intended to grow the plant with a single stem (Fig. 12), pinch off all side



FIG. 7.—"PONDEROSA" TOMATO.  
(A glossy red fruit, the largest grown. Drawn from a plant growing in the open air at Chiswick, 1893. Usually grown under glass. Of American derivation.)



FIG. 9.—SUTTON'S "EARLIEST OF ALL."  
(A light red corrugated fruit. Ripens early, and is very prolific. One of the safest for open air cultivation.)

transplant into small pots. These should be clean and well drained. The soil should be a light loam with, say, a fourth part of well rotted leaf mould, neither too wet nor dry, and of the same temperature as the frame from which the seedlings come. If using three-inch pots, bury the seedling, having shaken off gently the soil from its roots, below the seed-leaves in the centre of the pot, and by a smart rap on the board, or by pressure of the fingers, cause the earth to close around the roots. If larger pots are used two may be put near the edges on opposite sides. Water gently with soft tepid water, and stand for two or



FIG. 11.—FROM A FRUIT OF MEDIUM SIZE.





FIG. 12.—“HAM GREEN FAVOURITE.”

(Drawn from a plant grown under glass at the Royal Horticultural Society's gardens, Chiswick, in a span-roof greenhouse. Planted in soil in the floor of the house, and trained up vertical stakes 10 feet high. The first crop produced £80.)

growths. If with two or more stems (Fig. 13), all growths but these. You will find new leaf buds constantly appearing in the axils of the leaves. If permitted to grow these will draw to themselves the elaborated sap, which would otherwise nourish the fruit, besides also making a thick shade.

*Planting-out.*—If the weather is promising, the end of May should be chosen for this, but if wet and cold, defer for a few days. To put the young plants into cold soil would check the growth—a point to be avoided. Remove enough soil to make room for the roots and the ball of earth enclosed by them, letting the new surface be only slightly above that of the pot. Press or tread down the soil around the roots. The writer has found it useful when the ground has not been in good heart, *i.e.*, not duly prepared in the autumn, to make the hole much deeper, and to put in a large spadeful of stable manure while still fermenting, covering it with two or three inches of soil, and planting the young tomato upon this bed. The heat of the manure gives a start to its growth, and presently the roots find it out,

and the plant being in fruit, the extra food is serviceable in bringing on the crop.

*Situation.*—In many cases there is practically no choice. Walls with a south or south-west aspect are well-suited. Also borders in which the sun can reach the plants for most of the day. They may very well be planted among the other occupants of the border, and if the choicer-coloured varieties are used will be an agreeable addition. In such cases grow with a single stem, and if the leaves over-hang valuable plants, pinch off the extremities, not forgetting that the life-work of the plant is done by the leaves. Or a row of tomatoes may be placed between a crop about to be lifted. If able to give a bed to them, plant out fifteen inches apart in rows, and the rows thirty-six inches apart (see Fig. 14). This permits the grower to attend to them, and admits light and air, most essential to healthy growth. Support the plant by a stout stake, and pinch off the top when about three or three and a half feet high. Grow by single stem. Mulch the soil thickly with stable manure to keep in the moisture and feed the plants; and apply as the fruit forms liquid manure, say, about once a week. Some growers fix up hurdles, screens, doors, lights, and wire-netting, and train against them, getting some protection for the plants. If the above system is pursued, it is possible to get ripened

fruit by the middle of July, the season being auspicious. Gather when the colour has changed, and also if the fruit cracks near the stalks. The plants will continue to bear till the frosts come, before which the nearly ripe fruit may be cut and put in a cool place to colour, and the under-ripe cut off in bunches with the stalk attached, and hung up to get the red colour. It is possible to get a supply thus till Christmas.

*Cultivation under Glass.*—The protection which glass affords, and particularly if some artificial means of heating is available, makes this system safer and secures heavier crops. Seed may be sown about the end of January, and ripe fruit gathered in April; when of course they are of much greater value than in the heart of summer. Pursue the same system in rearing young plants. For permanent situation, they may be trained up the rafters of the house, or against the end or back walls, or dotted about among the other contents of the stages. Good crops are obtained from frames of all kinds, when the plants should be trained as close to the glass as possible, on hurdles, wires, stakes, or any means of supporting them. Melon and cucumber frames are very suitable, but the roots must not have free access to the rank soil, or the growth will be too succulent for pot culture; the last remove should be into ten- or twelve-inch pots, half filled with not too rich soil, well-rammed home to the roots. As the fruit is formed top dressings of rich soil are added and waterings of liquid manure applied twice or thrice a week. Sometimes temporary beds of bricks or turfs are made upon the staging, and the tomatoes are planted in them, or the pots are plunged in the soil to keep them moist. The same end is better gained by planting in wooden boxes of varying depth, well-drained; or the plants are in beds upon the floor of the house, or at the sides as in Fig. 15. The development of the under-

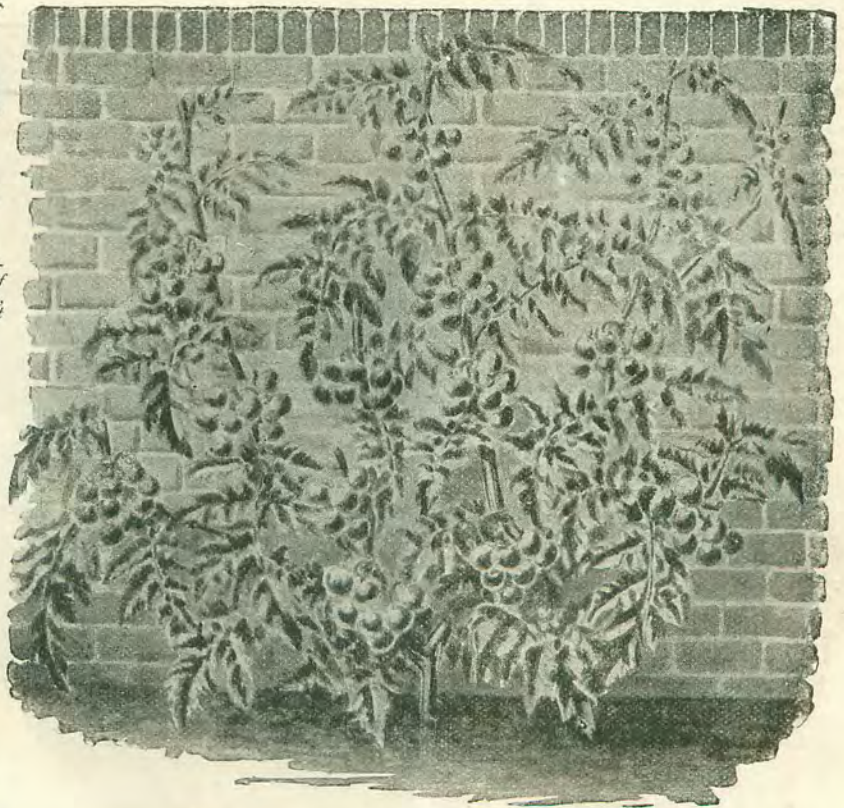


FIG. 13.

(System of training against south wall (open air). Suitable to almost all varieties of tomatoes grown in England.)





FIG. 14.

(To show system of open air cultivation of tomatoes. Plants in rows 36 inches apart, and 15 to 18 inches from each other. Stakes from 3 to 4 feet high. Ground mulched 2 or 3 inches deep. Drawn in the Horticultural Society's grounds, Chiswick, 1893.)

glass cultivation of the tomato has recently been most wonderful. Ranges 800 feet long by 45 feet wide, glass measuring 40,000 square feet or more, are built solely for these crops, which are produced in them by tons. They are put together at moderate cost, and give a most lucrative return unless invaded by disease, but the cultivation of tomatoes is now so thoroughly understood, that with proper precautions these disasters may be avoided. Close, healthy, compact growth, plenty of light and dry air moving about are the most effectual means of securing crops. To show the fruitfulness of glass culture, as much as one and a half tons of fruit have been harvested in a house 150 feet long. The variety grown in this case was the Ham Green Favourite (Fig. 12). Rapidly contracting space does not permit more minute directions for glass cultivation in this article.

*Varieties of the Tomato.*—There are about 200 varieties of this fruit grown in England, but as it will be utterly impossible to notice these even if it were desirable, and as many of them are but slight variants of other kinds, if, indeed the name is not the main distinction, only a few of the most typical forms and those only which are certified by the Royal Horticultural Society will be noticed.

As a type of large tomatoes, "Ponderosa" (Fig. 7) is perhaps the best. It commonly grows to the weight of a pound, but has the disadvantage of being variable in colour, though the shape is satisfactory. The "Mikado" is another large fruit, the leaves are quite distinctive

and more umbrageous than other kinds. It suffers under the double defect of being an irregular striated fruit, and of indifferent colour. The English public prefer fruit of a deep crimson tone in the reds, and any falling off in intensity is counted a defect. A much more popular variety and a well-recognised type is "Perfection," which is in possession of all the good qualities of the best tomatoes (Fig. 16). It has a regular form, is massive, of a deep red colour; it is a great favourite at exhibitions, and is very fruitful. "Ham Green Favourite" is another excellent cropper, rather smaller than the last, which is a distinct advantage, and equally good in colour and shape. A yellow fruit, "Golden Queen," comes next on our list. Its size is medium, the colour is a full bright yellow (Fig. 2). Some connoisseurs are fond of the flavour, and as a dessert fruit it is very good if a little large. Such are a few of the kinds open to the grower. They are usually produced under glass, though the drawings were made from plants growing in the open air. The kinds most suitable for outdoor garden culture have already been noticed.

It may be, perhaps, of service to hint to any of our readers who may incline to taking up the cultivation of tomatoes, that the great seed-houses do not invariably grow their own seed, but entrust the production to growers whose names do not appear except in the case of new and approved varieties. The seed has of course to be kept up true to name and standard of merit. The increasing demand for good seed, the comparative ease with which this market can be supplied, and the assured results from connection with good houses make this method of harvesting the results of their care at least open to consideration.

JOHN ALLEN.



FIG. 15.

(Showing system of growing tomatoes in span-roofed greenhouse. The largest crops of such varieties as "Perfection," etc., are obtained in such houses.)



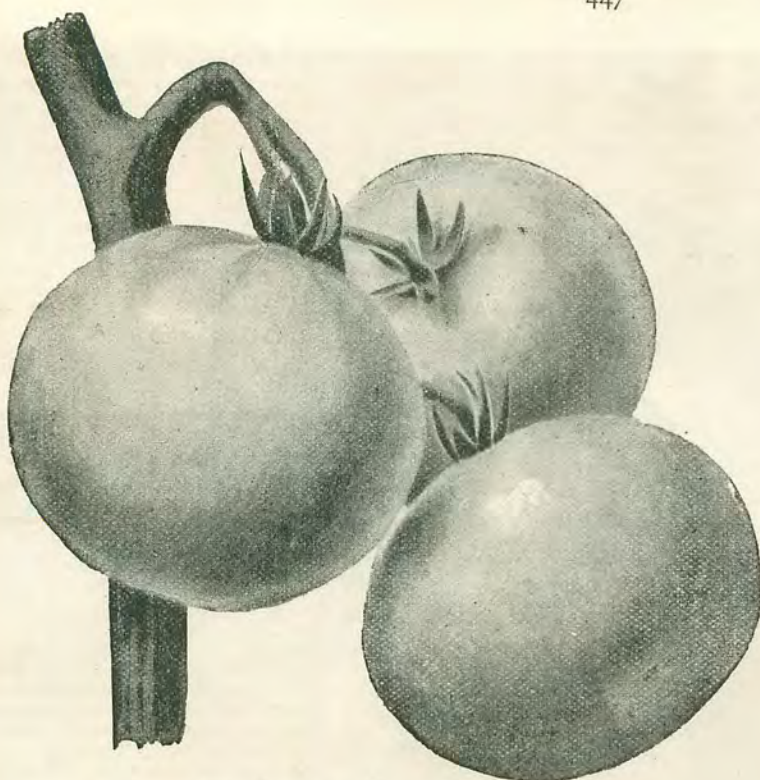


FIG. 16.—SUTTON'S "PERFECTION."

(Drawn in the trial grounds, Chiswick, 1893, from a plant in the open air. Usually grown under glass. The most favourite type of tomato, for size, flavour, and fruitfulness.)

## ANSWERS TO CORRESPONDENTS.

### WORK.

**INNOCENT INQUISITIVE.**—Get a small bottle of dye and re-dye the silk gloves; or still better, take them, if worth it, to a dyer.

**BROWNIE'S AUNTIE** must send the elastic bandages to a good cleaner's.

**LYDIA** is not at all too old at twenty-one to learn any trade, such as millinery, and had better take any situation she can find near home in order to do so. She would need time to build up a small business; and as she learns and improves might take in work and commence. Her letter does her credit in every way.

**VIOLET-TELOUV.**—1. To clean the armour, use a mixture of tripoli (procured at a chemist's) with half its weight in sulphur, rubbed well together and laid on with a piece of soft chamois leather.—2. The answer merely means that it is only by God's help we are able to accomplish great things.

**IRIS.**—Typewriting is greatly overcrowded at present, so many women and girls have pressed into the business.

**SEMPRESS.**—There is no connection in the origin of the name "Threadneedle Street" with the history of needlework, nor of any institution for the professors of the art or industry, beyond the fact that "three needles" constituted the device or sign on the shield of the Needle-maker's Company. According to Brewer, it is only a corruption of the Anglo-Saxon word *thrydda*, or "third." The street called "Threadneedle" was so styled because it was the third street from "Chepesyde" to the great thoroughfare from London Bridge to "Bishop Gate."

### MISCELLANEOUS.

**WINNIE C.**—Many thanks for your kind letter and appreciation of our paper. The lemon juice should be lightly rinsed off the hands before they are wiped.

**GERTRUDE MAY.**—We should treat such a fickle and unpleasant admirer with the utmost distant civility.

**S. D. W.**—Be patient; how would you put up with the reproofs of strangers if you cannot bear a few words of rebuke from your own guardians and aunts.

**BLACK HAIR.**—The Royal family of England is said, by Burke, to have no surname.

**A. M.**—Small manuals of Pitman's Shorthand are to be obtained at most stationers' at a low price.

**WHITE VIOLET** asks us to "recommend any good apologies to make to governesses" "which are haughty and cold and distant," as she wishes them to be. Poor little "White Violet," we should not call an apology of this kind "good" at all, and we hope she has thought better of it. To show such a spirit as this, if in the wrong, proves that "the secret of the Lord"—His gentle, peace-loving spirit—is far away from the person who feels it. Wrong-doing should always be acknowledged, and to say "I regret it," with grace and cheerfulness, is indeed a gift of great value.

**MAY BLOSSOM.**—1. Many writers have discussed the observances of May-Day and their history. Our ancestors held an assembly on that day, and the May-pole took its rise in the earnest desire of the people to see their King, who made his procession at this time to the great assembly of the states, held in the open air; and the column of May was the standard of justice in the Eyecommons (or fields of May). The rod, or mace of authority in the civil power, and the truncheon of field-officers are derived from hence; and a mayor received his title from this May, in the sense of lawful power; and the crown hung on the top of the pole was also a symbol of authority, which, when so suspended, was the signal for convening the people. May-Day was regarded as a boundary-day, dividing the winter and summer; and so the youths were divided into troops, the one party representing winter, and the other summer. The sports and feasts were various. Some were originally old heathen rites; and the ancient Britons erected May-poles adorned with flowers in honour of the goddess Flora. Other trades and industries besides that of chimney-sweepers appeared in the games, which observances of the season have come down to us from the remotest ages. I have quoted from Brand's *Popular Antiquities*.—2. Napoleon was born at Ajaccio, on August the 15th, 1769, and died at St. Helena, May the 5th, 1821.

**HESTER.**—1. St. Botolph, or Botolph, was Abbot of Ikanho; born in 655 A.D. We do not find that he had any special connection with either walls or gates; nor was he, like St. Giles, the patron of cripples and beggars, nor the patron of any class of people. He was probably a fashionable saint at the time, and belonged to the Anglo-Saxon church.

2.—"Katherine" appears to be the early way of spelling this name, "Katharine" more correctly.

**E. F. B.**—You will probably grow out of the deafness as your general health improves.

**BRINDA.**—If you keep house for your father—your mother being dead—and your sister (as well as your brother) is younger than yourself, both in fact minors, you have neither any right to leave home and your domestic duties; nor should good feeling to your father permit you to entertain such a thought at present. Your sister is, probably, jealous of your position in succeeding to your mother's duties in the household; and possibly you may be a little "set up," and may provoke animosity and rebellion, more or less. Keep a watch over your words and manners towards them. Later on, after you are of age, you might consult your father's wishes on the subject of taking a situation. Without making any complaint you might say you feared your administration as housekeeper did not appear acceptable to either your sister or brother, and it might be better to resign your post to her.

**CAUTIOUS.**—No rule whatever obtains as regards the wearing of rings, with the sole exception of the wedding-ring, which must be worn on the third finger of the left hand. Of course should a woman become corpulent, it may be removed to any finger that it may fit—"Necessity has no law." A single woman may certainly wear rings on any finger.

**HOUSEKEEPER.**—You do not say for how many people you would have to provide out of the £2 a week, so we cannot answer the question.

**AUTUMN LEAF.**—The amount of pepper is certainly a mistake. Add to the chutney some more apple or tomatoes, or of whatever you made the foundation, so as to decrease the effect of the pepper; or take one bottle and try that, and see how the plan answers. Green gooseberries are also good.

**M. N.**—By your writing, and the way in which you express yourself, you are evidently a very ignorant girl, and your mind is not yet able to understand proofs, even if so deep and vast a subject could be discussed in so brief a reply as those we give. It is enough for you to believe what your parents tell you, and what you are taught in your church or chapel. You may learn of older people and wiser heads of the truth of the Bible, and pray to God, your heavenly Father, to give you more humility, and a more teachable mind, and to believe, obey, and trust in your Blessed Redeemer.

**M. and C., also V. ABBOTT, and E. T.**—We have before informed our readers that there is a parish (already specified) in London, in which there is a society for the resident domestic servants born in the parish, which gives a small sum (not a pension) to those who retain their situations for a certain number of years. Otherwise, we know of none. We congratulate you on having kept your respective places for ten years, as so many young women leave good ones, with which they have no fault to find, from a restless spirit, ever on the quest for variety and change, and so give up a certainty for an uncertainty. "Rolling stones that gather no moss."

**A. B. C.**—Why not remain in England, and try "fruit-farming" here? There is a very good opening in some counties.

**CHOCTAW.**—1. We do not see that you could act on suspicion merely; but we think you should put the presents aside, and say that you could not use them, as your mother did not wish it.—2. A visit should last from fifteen to twenty-five minutes, but it depends on the degree of intimacy, of course.

**AN ANXIOUS MOTHER.**—Want of memory may mean (sometimes) lack of attention to the events that pass. Why not try an out-of-door life, which would require less application, as, perhaps, the boy's brain may be weak, and he would do better in an open-air life.

**BEE.**—Eating dry tea, starch, and slate-pencil, is an instance of what is known, we believe, as "depraved appetite." It would be better to consult the family doctor about her health.

**IXA W.**—1. Dip the tips of the fingers in alum water. If she sincerely wish to cure herself of the habit of biting her nails, the taste of the alum will remind her to stop when she begins. Wearing gloves is also a preventive.—2. If your hair be otherwise healthy and thick, do not mind about the length of it.

**KATTIE.**—The word *tosco*, in Italian, means "poison," or it is another word for *toscano*, a Tuscan, or Tuscan-like.

**BLUNDERER.**—We must refer you to our indexes for oft-repeated advice on the question. Your handwriting is a good foundation for a "running hand" when formed.

**LADY HELEN.**—Were you of age and of independent means, to "devote a tenth to charitable purposes" would be quite right. But you will be a minor for the next three years, and as your allowance is given you for a specific purpose, you have no right whatever to apply it otherwise without special leave so to do. You should, therefore, ask permission to dispose of some part of it in a different way from that for which it was given, and have a clear understanding as to how much you may employ in the way you name. Of course you will be permitted to put something in the plate in church, or to buy wool or other materials to make up for the poor. If possible communicate your trouble to the cousins who act as your guardians, and ask for their advice.

**A READER FROM THE FIRST.**—It would be better to address him as "Dear Mr. Smith."

**EMILY.**—May 5th, 1866, fell on a Saturday.