scartes, destined to become one of French philosophers and se school of thought was to give rilliant scholars who came after tes was the forerunner of the ists who made France the most entre in Europe a hundred and er, and it was upon his foundaof the profoundest thinkers of their philosophy. "As soon as I h," he wrote "to be set free from nt of my teachers, I entirely forof letters; and determining to knowledge than that which I r within myself, or in the gre-orld, I spent the remainder of my elling; in seeing courts and are ociety of people of different huiditions; in gathering varied exesting myself by the chances of n always trying to profit by my what happened-And I always e desire to learn how to distinom falsehood, in order to be actions and to walk sure-foot-

was a contemporary of the great nom history has preserved such ctacle in his renouncing of the discovered, before the Inquisiot pleasant to think of the chame, wrote Huxley of Galileo, "old, his knees before the Cardinal Inng his name to what he knew to d no doubt the Cardinals rubbed they thought how well they had discredited their adversary. But years have passed, and however alty her soldiers, physical science and enthroned as one of the legiof the world of thought. Charwould be ashamed not to know moved while the schoolmen are

fate of Galileo that disconcerto some extent, for probably the ilosophers would not be blamed me qualms of misgiving, if they ted with the tortures of the Inthe fate of such a man as Bruno, ed rather than renounce his docartes books narrowly escaped bethe hangman, and he himself nounced the pursuits by which s so greatly benefited, and was ubterfuge and evasions which thy of him." All the same Desnd died a good Catholic, even if d declare him an Atheist and the ivines designate him as both a

xistence; I think, therefore I am on of those, who think that the ts passions in the heart, is of no is based upon the fact that the e a change to be felt in the oreasy to see that this change is vere in the heart, only by the inof a little nerve which descends it inst as pain is felt as if it oot; and the stars are perceived, ere in the heavens, by the inter-their light and of the optic nerves. no more necessary for the soul unctions immediately in the heart, ssions there, than it is necessary be in the heavens to see the stars

## Huxley on Descartes

ral propositions of the "Discours de pour bien conduire sa Raison a verite das les Sciences," are e is a path that leads to truth so ny one who will follow it must goal, whether his capacity be 11. And there is one guiding rule an may always find this path, and from straying when he has found lden rule is, give unqualified aspositions but those the truth of clear and distinct that they can-

ation of this first great commandnce consecrated doubt. It refrom the seat of penance among sins to which it had long been and enthroned it in that high the primary duties, which is t by the scientific conscience of days. Descartes was the first morns to obey this command-rates; and, as a matter of religstrip off all his beliefs, and reto a state of intellectual nakedich time as he could satisfy him-

ere fit to be worn. hat I did not imitate the skep-Descartes, "who doubt only for ake, and pretend to be always unthe contrary my whole intention at a certainty, and dig away the sand until I reached the rock

saw that the discoveries of Galhat the remotest parts of the uniroverned by mechanical laws; of Harvey meant that the same d over the operations of that pororld which is nearest to us, namebodily frame. And crossing the ween the centre and its vast cirby one of the great strides of gensought to resolve all the phenoiniverse into matter and motion, erating according to law.

SUBURBAN THE BEAUTY OF THE SWEET WIL

washed walls covered with flourishing grapeapes cluster everywhere. The grapes are laga, a large oval grape of the color of red

Thomery is a picturesque and quite unique have a beautiful golden hue. There are two French village about four miles from sub-varieties of the Frankenthal. The variety Fontainebleau, on the southerly bank of the with pale green leaves yields finer grapes than Seine. To the eye of the visitor it presents the other, the foliage of which has a reddish an almost uninterrupted succession of white- tint. The Ciota chasselas is cultivated in pots for exhibition. The Caesar, an oval black grape with a tough skin and excellent vines. Most of the houses and the garden keeping qualities; the black and white Muswalls are so covered. In autumn golden cats, with globular fruit; and the Rose Ma-



The Espaliers of Thomery at Harvest Time

culiar to the district, to await a favorable mar-

Practically only two varieties of grapes are cultivated at Thomery, the Golden Chasselas of Fontainbleau, which probably originated in Cahors or in Piedmont, and the Frankenthal, which was imported from Germany about surmounted by pitched tile roofs, the ridges

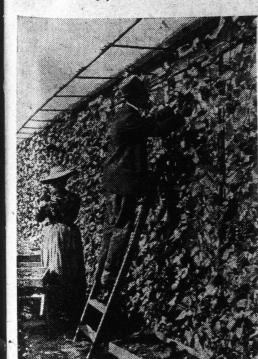
kept in a fresh condition, by methods pe- wine lees, which ripens only in favorable exposures, are also cultivated to some extent.

The vines are planted in espaliers and counter espaliers. The high walls are ten feet in height and placed at varying distances averaging one hundred feet. Between them lower walls are placed. The high walls are



Bagging Grapes to Protect Them from Insects

its leaves are greyish-green above, smooth beneath and deeply incised. The ripe grapes



Gathering Grapes at Thomery

1840. The wood of the former is reddish, and of which are protected by curved tiles. These walls also carry iron supports on which, about the first of September, planks or glazed sashes, twenty inches wide, are placed to protect the grapes from rain. Similar sashes are placed on the small walls when they are need-

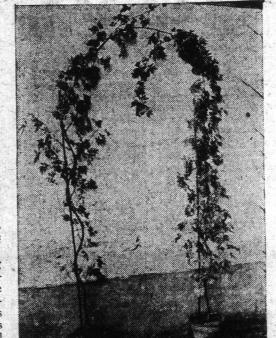
> Various systems of trellising are employed, with horizontal, vertical and oblique wires. Many of the high walls bear five horizontal wires nineteen inches apart, the lowest sixteen inches above the ground, and the highest twenty-seven inches below the top of the wall. The vines are planted sixteen inches apart. In hot and dry situations a single virtical wire is used for each vine. Wires inclined thirty degrees to the horizontal are used to a considerable extent. The vines are planted twenty inches apart, and are pruned and trained as in the case of horizontal wiring, except that twice as many canes are left. The first counter espalier, or detached trellis, is set six or seven feet from the wall, and the others follow at intervals of fifty-two inches. These trellises may have either horizontal or vertical wires. The vines are often pruned to three or four canes and trained in the shape of a fan.

> The fine clusters of golden grapes, for which Thomery is celebrated, are not produced without much care and labor, in pruning, tying, spraying, pinching back, thinning, bagging the grapes and removing superfluous leaves, buds and tendrils. When the green shoots have attained a length of five or six

inches the weak and apparently baren shoots are broken off with the fingers; two weeks later the tendrils are pinched off and the suckers are removed entirely from the older vines, but are merely pinched back on the young vines, as their complete removal might cause too rapid growth of the vine. When the grapes have grown to the size of peas they are thinned with scissors, from one-fourth to one-third of the grapes of each bunch being removed. Thinning increases and equalizes the size of the grapes that are left and hastens their ripening. At Thomery the grapes are usually thinned between July 10 and August 10. In the second tying, which is made necessary by the growth of the shoots that were too short to be tied in the spring, some of the leaves which touch the wall are removed in order to give light and heat to the grapes, and many more leaves are removed during the first half of September.

Fungus diseases are combated by spraying the vines with mixed solutions of copper sulphate and lime (Bordeaux mixture). ripening clusters are enclosed in bags of horsehair or paper to protect them from bees, wasps and flies, and the mines are covered with nets to exclude birds. The grapes are gathered about the middle of October, on fair but slightly cloudy days, if possible.

The finest clusters are cut with some of the wood attached, for the purpose of keeping them fresh. The clusters of the second grade are also kept until winter, but by the dry



Vines of Ciota Chasselas in Pots

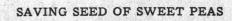
As the clusters are gathered the imperfect grapes are removed with scissors, and the trimmed bunches are laid carefully on trays

now (late July) in the zenith of its beauty. Of late years the Sweet William has played, and rightly so, a more important part in not only the mixed border, but in beds. This has been brought about through the raising of several varieties of striking color, and none more so than Sutton's Pink Beauty, a warm salmon pink that has a peculiarly rich glow. I noticed groups of it recently and thought the color, a Crimson Rambler shade, one of the most distinct in the garden. The plant is of compact, rounded growth, making quite a little bush, crowned with a thick clustering of

LIAM

One of the most welcome of flowers in the garden in summer is Sweet William, which is

flowers, which, if not individually of what the florist would term "perfect form," have their glorious color as compensation. It is a flower to plant in front of an evergreen hedge, which throws into strong relief the rich coloring. Sweet Williams are easily grown; raise them from seeds sown as soon as they are ripe in a well-prepared bed in the open garden. Ordinary soil and a fine surface are sufficient, and sow thinly. When the seedlings are 2 inches high prick them out into another bed, and in September transfer them to the places in which they are to flower. In the case of such an exceptional variety as Pink Beauty, the wiser course would be to sow the seed in shallow pans and to put them in a cold frame. Many fine selections of Sweet Williams are available now, but the selfs, the single and double crimsons, pure white and other forms appeal to me more than those with edged and mottled flowers.-E. T. Cook.



Sweet peas are very sportive. They occasionally will send out a double stem with 8 to 5 flowers upon it, but this appears to be a deformity. Seed saved from such flowers do not repeat and, in fact, generally produce inferior flowers.

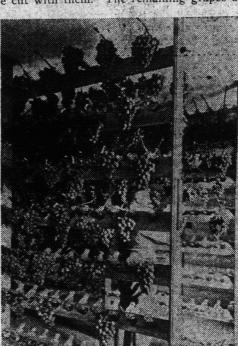
If you desire to save your own seed, do not try to get flowers and seeds from the same vine. Pick out the sturdiest vines to save seed from. Cut the porer flowers, leaving the best, with three or four flowers to a stem to seed. When ripe pick the pods, which will contain about seven seeds each. Those at each end of the pod will be smaller than the rest, discard these, and save only the big, fad seeds for next year, and you will probably get improved plants and flowers from them. By this method I have been able to get many flowers with sturdy stems 16 and 17 inches long. The earliest flowers are the best to save seeds from, as those which mature in hot weather do not seem to have the same vitality,

and strength. If your garden is very shady you cannot grow fine sweet peas. They thrive best with plenty of air and sunlight. Many of the orange and red varieties burn or discolor somewhat easily under a hot sun; hence if you want to have pure colors for exhibition, it is a good plan to throw a few yards of cheese clothe over the vines when the sun is striking them strongly.



Covering Espaliers with Netting to Protect them from Birds

method, which does not require the wood to covered with straw or ferns and carried on



Storehouse with Vine Branches in Bottles of Water

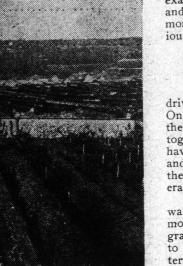
immediately shipped to Paris, packed in bas-

be cut with them. The remaining grapes are barrows to the packing and storage rooms.

In the dry method of preservation, which was used exclusively until the middle of last century, the grapes are simply laid in small trays of osier lined witr straw compactly arranged in the store house. The method is simple and cheap, but the grapes become withered and wrinkled if long kept. Larpenteur conceived the idea of immersing the ends of fruited branches in water, and found that in this way grapes could be kept for two months. Charmeux and Valleaux improved the process, to which an experience of half a century has given the following form:

The storage rooms, which are preferably situated on the first floor of the building, are fitted with shelves which have holes for the reception of bottles containing about a gill of water. The storehouses of the largest establishments often contain forty thousand bottles. A piece of charcoal is put in each bottle to keep the water sweet, and the end of the vine stem is then inserted. The doors and windows of the room are kept closed. Darkness is an important factor, as it prevents fermentation inside the grapes. The temperature is kept as uniform as possible, and little above the freezing point, 36 or 37 degrees Fahrenheit. The air of the room must be very dry, as dampness produces mold and decay. this method, which requires constant care, the grape-growers of Thomery keep fresh every winter from two hundred and seventy-five thousand to three hundred and fifty thousand

dollars' worth of golden chasselas and other fine table grapes. kets containing about thirteen pounds each.



The Vineyards of Thomery

# ARTIFICIAL POLLENIZATION

This is a very slow and thankless operation, and only those who, like Luther Burbank, possess unlimited patience and enthusiasm, may hope to succeed. The work may be divided into two classes; first the selection of any striking peculiarities which have made their appearance accidentally, and then following them up. This system is largely adopted in the case of wheat raising. It may happen that one ear of wheat is noticed in a crop which has marked characteristics of its own. This is carefully preserved, and sown that it may be further tested. The same may be done with fruits, but experts, like Burbank, deliberately assist nature by artificially fertilizing certain fruit with pollen selected from other kinds, and with properties they wish to impart to the new stock. All this may seem quite simple and, as a matter of fact it is, but it cannot be said that the results justify all the labor and patience involved. In some experiments of this kind Burbank had to go carefully through many thousands of young stock before he could trace the effect he had in view. In one instance he planted 7,000 plum trees, and out of that large number there was only one tree that turned out as he hoped. Just imagine the labor and expense of planting out 7,000 trees, and then examining them in detail! Only an enthusiast, and one possessing exceptional skill and money, could hope for success in such laborious work.

## WALKS AND DRIVEWAYS

When planning new grounds, walks and driveways must be taken into consideration, On large grounds they should be used to link the more important features of the landscape together, and to serve as entrances. They have an effect on the appearance of the place and as they are not beautiful in themselves. they should be as few as possible. The genera idea should be simplicity and directness.

On grounds of considerable extent, the walks and driveways should be laid out in moderate curves, not winding or twisting, but gracefully curving from the point of entrance to the house. The points of entrance are beta ter located at the sides. On small city lots, where space is limited, we are restricted almost to straight lines, but occasional slight curves may be employed with effect.