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GARDEN NOTES.

SCHOOL GARDENING.

It has often occurred to me that it would be a fine thing if gardening were taken up seriously in our elementary schools. It is by no means the fact that gardening is a subject specially fitted for country schools only. Country children are, by reason of their surroundings, brought naturally more into contact with Nature and with gardens than town children, but when town children are afforded a chance to garden at school they do so with enthusiasm that is delightful. If anything could help to lead town men back to the land it would be the desire latent in them to put into practice instructions at school which they have not forgotten, and have warmly cherished. No one can deny the refining influence flower-growing and gardening generally has. I know that in the majority of cases in the city the getting of ground for such a purpose would be a serious problem to solve, yet in many schools there are vacant spaces which could be profitably utilised. I have seen many boys and girls who have a natural liking and adaptability for gardening. As a rule, teachers and boys prefer individual gardens, for not only does each boy or girl take more pride in working his or her own plot, but also seeks to emulate the best work done in any one plot, and the pupil cannot shelter himself behind his fellow when he is responsible for his plot solely.

I suggest that a certain amount of land be trenched up two spades deep and manured, this done with the assistance of the boys, so that they may get the first lesson and one of the most important. Then allotments should be marked off for each boy, giving sufficient space to allow of one short row of each kind of vegetable across his plot—say of spring-sown onions, parsnips, carrots, turnips, dwarf kidney beans, potatoes, cabbage, cauliflower, lettuce, radishes, and peas. After a season or two of vegetables, flowers should be grown by way of a change, both for the pupil and for the soil. I suggest that prizes be given, and to my mind nothing could be more suitable than practical and well-illustrated books on gardening. Exhibiting has a great fascination, not only for young people, but grown-ups also, therefore school exhibitions should be held to enable each plot to be judged, and prizes awarded accordingly, as well as the collections on the show table. Without doubt school teachers, when good gardeners, as many of them are, make the best teachers of gardening, as they have the art of teaching, which is the best of gardeners may not possess.

THE VEGETABLE GARDEN.

Further sowings of peas may be made from now onwards. To have really first-class peas and a great crop they should be sown in prepared trenches—viz., the trenches should be prepared as for celery, though not quite so deep, finishing off a few inches below the surface of the ground for the convenience of watering, should we have continued spells of dry weather.

Keep down weeds by frequent hoeing and raking. This should be done often and when the ground is dry. To cope successfully with weeds do not allow them to get so large as to go to seed, or the labour will be greatly increased for a long time to come. As the old saying goes: "One year's seeding, seven years' weeding." The next thing requiring attention will be the thinning out of early-sown carrots, parsnips, onions, turnips, etc. This should not be delayed too long. If the young plants grow too large before thinning, they become drawn and weakly, thus a great amount of plant energy is wasted. With carrots, turnips, and onions it is not advisable to do all the thinning at once. Leave them fairly thin only, so that many of the half-grown ones may be used for kitchen use, doing the final thinning as you go along.

Turnips may be sown for succession. Plant out celery in trenches. A good way to economise ground space with celery growing is to make the trench broad, and plant two or three rows in each trench. They succeed quite well when planted in this way, only a little more care is needed in earthening up the trenches later on. A trench 18in in width will take three rows; the one row up the centre, and the two outside rows 3in from either side.

Plant cabbage, cauliflower, lettuce, leeks, etc. It is now time to sow broccoli and savoy for winter use. The sowing of broccoli should consist of not less than three varieties, to come in early winter, midwinter, and late winter or early spring. Indeed, it is possible to have good broccoli from late autumn to well on in the spring. It is the latter sorts that prove so valuable when very little else is available, it being too late for the cabbage, and also too early, hence the

value of the very late kinds of broccoli—or, rather, early—coming in, as they do, in the spring months. So insist on getting from your seedsman some seeds of the first, second, and third divisions. Many people make great mistakes and often come to grief because they will treat the broccoli as they would a cauliflower. Botanically they are very far apart, because to grow cauliflower well you must have a rich and deep soil, with plenty of manure and an abundance of water. To grow the broccoli the same would be to court failure. All the broccoli requires is a good, sound loam, both for the seed bed and for their permanent quarters. When planting make the ground nice and firm. Keep the weeds down, and in excessively dry weather give them water, and you will be surprised at the result.

Cucumber plants that are in full growth will require careful attention by way of shading, airing, and thinning. Judgment is necessary in order to prevent the space becoming overcrowded, and to have it well covered with fruiting shoots when the plants are in a young state it is a good plan to top them when they have made four or five joints. They will then break into as many shoots, and a shoot can then be carried to each corner of the frame. If it is a light frame, then two plants will be sufficient to furnish the whole frame and give a finer crop than if more plants are used.

SCIENCE NOTES.

THERMOMETER DETERIORATION.

Even thermometers become old, and consequently inaccurate with age, mercurial instruments reading too high and spirit instruments too low. In the former case the bulb appears to shrink, thus forcing the quicksilver too far up the stem. This gradual shrinkage is supposed to be due to the fact that the external pressure on the bulb may be considerably higher than the internal pressure, the air as far as possible having been removed before the glass is sealed off. On the other hand, the spirit thermometer is sealed with the bulb covered in a freezing mixture, in order to lock up in the glass as much air as possible. The instrument thus starts with an internal pressure which in time appears to be reduced either by expansion of the glass under the internal pressure or by the leakage.

TIN RECOVERY.

The recovery of tin from scrap has engaged the attention of several chemists, especially since the demand for the tetrachloride of tin has been increased by the rapid growth of the use of silk. A new process has just been patented in which the scrap tin is first treated with a strong solution of sodium hydroxide at from 120deg. to 150deg. F. in an iron tank lined with graphite or some other material electro-negative to tin. The galvanic action set up between the graphite and the tin accelerates the solution of the tin, and the operation is repeated with various batches of scrap until the bath is rich in tin. The solution is then placed in a second iron tank and bales of scrap tin are suspended in the bath and a current passed. The tank acts as the cathode and the tin becomes the anode. In this process the tin from the bath is dissolved and deposited, while the tin is also deposited from the bath itself, so that it can be returned to the first tank and re-used.

CARBON BLACK.

Carbon black is a fluffy, velvety pigment, usually produced by burning natural gas with a smoky flame against a metal surface and the product is entirely different from lamp black, with which it is sometimes confused. Lamp black is gray in comparison with carbon black and in all places where carbon black is used, lamp black is practically an unsatisfactory substitute. In normal times the United States has been in the habit of exporting about 15,000,000 pounds and besides this has used in printers' ink ten to twelve million, rubber goods, twenty million; stove polish, four to five million; and miscellaneous, one million pounds annually. The United States Bureau of Mines has undertaken an investigation of probable sources of lamp black and with the gradual lessening of the natural gas supply the question of carbon black may become a rather serious one. The present methods are known to recover but a few per cent. of the carbon in the gas, and development work on efficient methods of production from natural gas and other possible materials is in order. The thermal decomposition of gas or other hydrocarbons with insufficient supply of air, or explosion with carbon monoxide, carbon dioxide, oxygen or their mixtures has been suggested.

MOTORING NOTES.

SLIDING SEATS.

Sliding seats, with adjustable tip-up mechanism are largely used in all enclosed saloon bodies, and a little ingenuity might be expended in utilizing the same device for touring and open cars. There is no doubt that the seating position cuts quite a big figure in the comfort of the car, and there seems no reason why the driver should not be made as comfortable as possible. Better driving and greater pleasure would undoubtedly ensue, if some such arrangements were more largely adopted.

A NEW SELF-STARTER.

A description of the German self-starter which is in reality a device for filling the firing cylinder with a strong mixture so as to permit of a starting on the switch—for use with the Bosch self-starting coil—has appeared in a recent issue of a German automobile paper. A supplementary jet is attached to the carburetter, and gas is drawn by means of a hand-pump and forced through a small chain-driven distributor to the required cylinder. The fixture for the cylinders consists of a Y adaptor, one arm containing a non-return valve through which gas is forced, and the other arm containing the sparking plug. The advantage claimed by this device is that it can be fitted to almost any existing motor at very little expense.

DRIVING COMFORTS.

Seats could well be made adjustable as regards height from the floor of the car, length from the back, inclination of the seat and back, and relative positions of steering wheels, pedals and brake, and gear shift levers. The steering column could very well be made adjustable as regards inclination, so as to bring the wheel at a convenient position for drivers of different heights, and there is really no insuperable reason why the wheel itself should not be adjustable up and down the column within reasonable limits also. It would be quite feasible to make the pedals controlling the brake and the clutch adjustable to or from the seat, as has been done in quite a number of American cars. The position of the hand brake and gear shift levers is rather a different and a more difficult matter; but it is possible even here, when these levers are centrally placed, to give them an inclinable adjustment.

STORING TYRES.

One of the best ways to store casings and tubes is to first clean the casing and fill all holes with tyre putty or vulcanise the larger cuts. Then sprinkle plenty of mica or talc inside them and put the tubes in them, inflating just enough so that all the wrinkles are taken out. Each casing should then be wrapped in heavy paper and all piled up on top of each other, throwing a canvas or burlap over the whole. They will then be in a position to keep indefinitely. Tyres so prepared should be kept in a basement or clean corner of a heated garage. Make certain that the tyres are not put away damp. It is not necessary to keep the tubes in the shoes, if so desired they can be folded and wrapped in paper, or placed in a cloth bag. Tubes can also be stored by inflating them partially and piling them up in the same manner as the casing, putting a cover over them. In storing tubes in the car they should be kept in a bag made preferably of rubber cloth, kept partly full of talc. The bag should be kept closed by means of a string which draws the mouth together. In this way they can conveniently be packed in a small space under the rear seat.

THE TREAD OF THE TYRE.

The tread of a tyre, as everyone knows, is the part which bears upon the road. It sustains the brunt of the battle and its capacity for endurance is of greater importance to car owners than type, design or appearance. This capacity for endurance depends upon the quality and quantity of rubber used in the tread, the accuracy of compounding, and the manner of vulcanisation. The tread that will wear the longest and give the least trouble is characterised by "life" or resilience, while it is at the same time exceedingly tough. Just as pure gold must be alloyed with a baser metal in order that it may wear longer, so pure rubber must be mixed with other substances to render it tough enough to withstand road service. In the making of this tread compound the quality and quantity of rubber and its proportion to the other ingredients is important. Plenty of pure rubber, accurate compounding, unusual thickness and generous traction surface, scientific non-skid design and long wearing qualities that are assured by proper qualities processes are the things that determine the life of the tread on a tyre.

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