

COCOA-NUT FIBRE DUST AS A COVERING FOR HOT-WATER PIPES.

I THINK if your correspondent, "J. M.," (page 32) were to read Mr. Beaton's remarks in the previous Number of your Journal, page 3, he would discover that the cause of the cocoa-nut refuse not becoming hot was its being allowed to become too dry. I have experienced a similar instance. Last spring I covered-up my hot-water pipes with this refuse, taking care to keep it wet, particularly where in contact with the pipes, and it answered admirably.

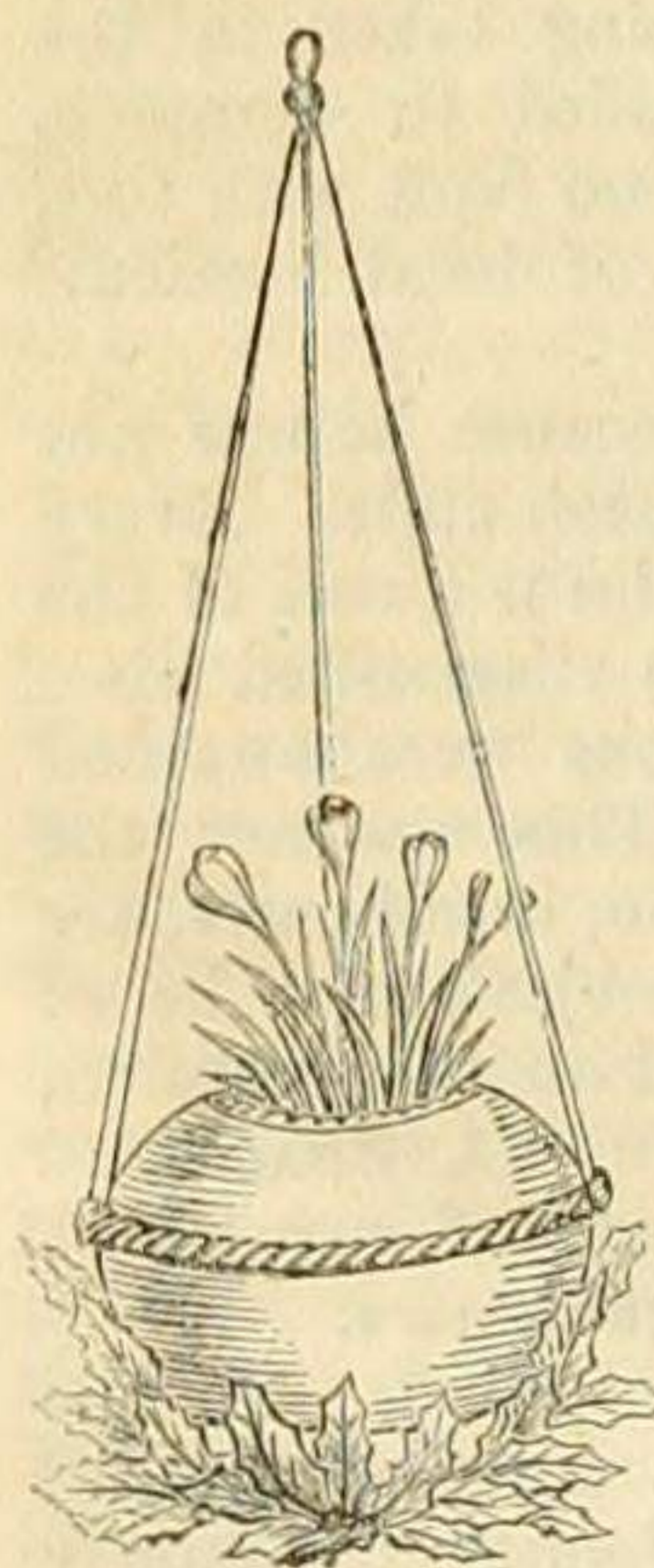
For the last six weeks I have not been able to attend to my little propagating-house, and my man, who is no gardener, suffered the refuse to become dry, and, consequently, he could not make it hot. On removing it I found about 2 inches thick round the pipes completely caked, very dry, and lighter than cork. I made the whole quite wet with warm water, and again covered-up the pipes about 10 inches thick, plunging pots in it as before. I now find the surface very little warmer than the temperature of the house, but on lifting the pots steam immediately rises, and the stuff is very hot near the pipes.

In another part of my greenhouse I filled-up the space from the ground to the bottom of the pipes to prevent the heat escaping, and then filled-up with broken pieces of brick even with the top of the pipes, making a flat surface, on which I placed a thin sheet of iron. On this I spread cocoa-nut refuse about 3 inches thick, sprinkling it with warm water occasionally to keep it moist, and by so doing I obtain an even and regular heat over the surface.

I have been informed by an engineer that if this refuse is made quite dry, it is the best nonconductor of heat that could be used for covering-up steam boilers. I have also heard it recommended as a casing for cold frames or pits. About 3 inches thick will keep out the severest frost; but it must be made quite dry and kept so. Gardeners and agriculturists are using this cocoa-nut refuse very freely; but we shall probably hear of its being applied to other purposes soon.—H. E.

CHEAP CROCUS-HOLDER.

I AM unaware whether any of the readers of the Journal have ever seen the following cheap Crocus-holder; if not, the description may be of some service; it is, at all events, no very costly experiment to try.



and novel appearance during the winter season.—A CORRESPONDENT.

GLOBE ARTICHOKE NOT QUITE HARDY.

I CAN testify that the Globe Artichoke is not able to stand a very severe frost unless protection be used. I well recollect having in my apprentice years—it must be at least twenty years ago—seen all the plants in a large quarter of the garden destroyed by the frost, which was very severe that winter. The plants had no protection. The soil in which they were growing was a very light, gravelly, dry, porous loam, upon a sandstone sub-soil, with an angle of about 25° to the north, situated six miles and a half west of Edinburgh.

So far as I then could judge, those plants must have occupied the same ground for several years, the stools being very large and producing a very large quantity of excellent heads.

It had been formerly the practice there to have the Globe Artichokes protected, but this had been omitted that winter.—JAMES REID.

INFLUENCE OF POLLEN ON THE APPEARANCE OF SEED.

FEW facts in vegetable physiology are more remarkable than the well-ascertained influence of the pollen of one species or variety on the seed and fruit of another species or variety whilst still attached to the female plant. There are several old accounts, and the case has been well proved by Gärtner of the colour of the pea in one variety of the Garden Pea, being changed by the direct action of the pollen of another differently-coloured variety. So, again, the famous St. Valery Apple tree produces many different kinds of fruit, according to the nature of the pollen used; for the singularly-constructed flowers yield no pollen, and they are annually fertilised by a party of French girls, who bring pollen from other trees, and mark with ribbons the flowers thus fertilised. About a year ago Mr. Beaton gave an analagous case, far more remarkable than any hitherto recorded, for he showed (if my memory does not deceive me) that the pollen of one species acted on the footstalk of the seed-capsule of another species, and caused it slowly to assume a position which it would not otherwise have acquired. I forget the name of the plant, and have vainly spent an hour in trying to find the passage, though I am sure I marked it. Will Mr. Beaton have the kindness to repeat the statement? and I am sure it is worth repetition. If he grant this favour, will he inform us whether his observations were made on several flowers, and during one or more years? I remember some difficulty in finding the name of the plant in such catalogues as I happened to have at hand, which led me to suppose that it had, like too many plants, more names than one.—CHARLES DARWIN.

[In answering Mr. Darwin's question, allow me, first, to clear myself of any participation in his opening remark, that "Few facts in vegetable physiology are more remarkable than the well-ascertained influence of the pollen of one species or variety on the seed and fruit of another species or variety while still attached to the female plant." Gärtner never proved that—he only asserted it; and when he was pushed to the proof, he lowered his sails, made a second edition of his great work, and confessed many of his errors.

The most practical cross-breeder who has yet appeared has stated "Gärtner's report of the cross-bred seed he *has obtained*, to be nothing but a mere enumeration of the crosses he *has tried to obtain*." And with regard to very many of the cases of impregnation mentioned by Gärtner, he, the said cross-breeder, otherwise Dr. Herbert, "utterly repudiates the probability of such impregnation;" and well he might.

It was not Gärtner, but Dr. Wiegman, in 1823, who first said he found the Pea changed colour from being planted along with *Vicia sativa*, or common Vetch; and Gärtner, two years subsequently, said he caused the same change by means of the pollen; and our Mr. Knight was somewhat smitten with that doctrine.

I had a commission to work over, again and again, every experiment mentioned by Gärtner, Wiegman, and Lageret, and I found over and over again each experiment was without a base. Others proved the same, but it remained for the late Professor Henslow to prove by scientific investigation that the pollen has no visible effect on the seed impregnated; and no cross-breeder of any practice in England at the present day would like to have his name associated with that of Gärtner, for or against any exploit in crossing. Nevertheless, I am firmly of the opinion that Gärtner was right in his belief of the *way* impregnation is effected.

I forget the plant I mentioned last year as having the peduncle, or stalk, of the flower affected by pollen. Of all the plants I recollect having mentioned, for the last twelve months, there are only five genera that are affected that way—*Corbularia* and *Hermione* among the *Narcissi*, and *Erodium*, *Pelargonium*, and *Geranium*, in that class of plants. The best generic distinction for upholding *Corbularia* and *Hermione* as distinct from the true *Narcissi*, is that the peduncle rises slowly from a horizontal to an upright posture as the seeds ripen in the pod. The *Erodiums* and a section of *Pelargoniums*, with, I believe, all the true *Geraniums*, have the peduncle affected differently from the great mass of *Pelargoniums*.

It is probable, however, that Mr. Darwin has been thinking of

what was said on the different stages of impregnation at page 330, of Vol. XXVII., the part for this time last year. And I think Gärtner's idea of how the pollen acts is proved both by the Erodiums, including Pelargonium, which is not a natural genus, and the true Geraniums, inasmuch as the footstalk of each flower in all that mass of species, and in their endless varieties, is the first part that is affected by the pollen. Indeed, I am quite certain of that, for I had at least ten thousand proofs of it. But let me explain.

Take any of the true species out of all the Geraniaceæ, cut off the stigma before the pollen can intrude, and the peduncle of that flower will retain its original or natural posture till it decays. A Tom Thumb, or any of the bedders, will prove that very shortly. Take another flower in the same truss, and cross it with the pollen of another species which you know will not cross with it, and the peduncle will turn to the opposite of its natural posture, and will never regain the true position, but die ultimately, as the process of fertilisation went no farther than to affect the footstalk. The next stage is the quickening of the pod, the next that of the lobes of the seeds, and all this may be, and yet no life be given to the embryo of the seeds.

Early next May any one may influence a hundred flowers of the Scarlet Defiance Geranium as far as the footstalk of its flowers, but no farther. Every flower of that one kind which is crossed by its own pollen, or by foreign pollen, will, in eight or ten hours, reverse the posture of the footstalks; but the seed-pod is not reached by the contents of the pollen, and the consequence is no seed and no rising of the peduncle. There are many seedlings which will prove the same as Defiance at the end of October, and through November.

Notwithstanding these facts, one can conceive a state of climate which would render the effect of that same pollen active through the three or four stages of impregnation, and produce fertile seed from Defiance. Indeed, the pollen of some kinds or varieties, which will only affect the footstalk very early and very late in the season, will effect a cross in the middle of July; and I have obtained, and I believe I am the only one who has done so, a real cross from Scarlet Defiance, which is over fifteen years old; but I may be mistaken. The case of Cybister, or "The Tumbler" Nosegay Geranium, is a different sport altogether, the truss comes naturally in a reversed position, and takes from three weeks to a month to make a right round change of position.—D. BEATON.]

THE GRAPE CONTEST.

ROYAL HORTICULTURAL SOCIETY'S FRUIT COMMITTEE.

A SPECIAL Meeting of the Fruit Committee of the Royal Horticultural Society was held on Wednesday last, to decide the challenge offered by Mr. W. Thomson, of Dalkeith, through the pages of the *Florist and Pomologist*, to Mr. Tillery, of Welbeck. Some discussion had taken place between these two eminent gardeners as to the relative merits of old and new Grapes, Mr. Thomson having succeeded in producing new Black Hamburgs on New Year's-day, and he held that new Grapes were preferable to old ones. Mr. Tillery advocated the merits of the old or hung Grapes against the new, and for some time an interesting and exciting discussion was kept up, one or two other members of the upper stratum joining in the discussion. As if to bring the subject to some tangible form, Mr. Thomson stated at page 70 of the volume of the *Florist and Pomologist* just completed, "If Mr. Tillery has no objection, and we are spared till the time, I will send newly-ripened Black Hamburgs to any of the January or February Meetings of the Fruit Committee of the Royal Horticultural Society, and he can send his best Black Grapes, for Hamburgs and Muscats could not well be compared in point of flavour, and let the Committee decide which are the best Grapes in point of flavour."

Accordingly, there being no regular meeting of the Fruit Committee in January, this special Meeting was appointed, which was numerously attended both by members and visitors to witness the result of the contest. Mr. Thomson sent three beautiful bunches of new Black Hamburgs which were ripe on Christmas-day. The bunches were of good size, well set, wide-shouldered, and shortly ovate. The berries large, and some of them quite hammered; but, though quite black, the colour as a whole was not so intense and even as in the bunch sent to us last year. This, we are told, has arisen from the dark, dull, and gloomy weather they had in Scotland during the whole of the

autumn, when the season was more unfavourable than any that has been experienced for some years. Nevertheless, the Grapes were so beautiful that the Committee decided first of all that *in appearance* they had the advantage over the bunches of Black Hamburg, of Black Tripoli, and of West's St. Peter's that were exhibited by Mr. Tillery. These, too, were as good of their kind as could be seen anywhere, but the shrivelled appearance which had begun to set in contrasted unfavourably with the plump fresh-looking new Hamburgs. Then came the question of all others, the most important in the decision—flavour; for it was on this point that the issue hung. After a very patient and very close comparison the decision was in favour of the *old* Black Hamburgs. Having begun to shrivel, and the juice being inspissated, the sugar was more concentrated than in the new. The question then arose as to the general merits of old and new in regard of appearance and general utility, and the decision was in favour of new Grapes. We confess to a leaning in that direction ourselves, for we think there cannot be a doubt but that fine, plump, and fresh Black Hamburgs, with their fresh, crisp, green, stalks, are more attractive, pleasing to the eye, and much more sightly at table than Black Hamburgs that are shrivelled, and from which the rigidity of the bunch and berry stalks has disappeared. Even in point of flavour the difference is so slight that it has to yield to the other qualifications. Altogether the discussion was a very interesting one, and no doubt the public will duly appreciate the opportunity that Mr. Thomson and Mr. Tillery have given them of coming to a decision on the subject.

In addition to those exhibited by Mr. Thomson, there was a small box containing several bunches of new Black Hamburgs from Mr. McKenzie, of Kemp Town, Brighton. These, though not so large either in bunch or berry as Mr. Thomson's, were as black as jet and covered with a dense bloom; a finer "blae" we never saw. But the climate of Brighton is a very different one from that of Dalkeith, and the amount of light in the one place during the winter months is very much greater than in the other, and hence the difference in colour. The flavour of the two was, however, very close; the very black berries of Mr. Thomson's being equally rich in flavour with Mr. McKenzie's.

Three magnificent bunches of Muscat of Alexandria were exhibited by Mr. Tillyard, gardener to John Kelk, Esq., of Stanmore Priory. So large and so beautiful were they that the Committee unanimously awarded Mr. Tillyard a certificate of commendation for meritorious cultivation.

Mr. Tillery also sent a splendid bunch of Trebbiano and some nice bunches of Muscat of Alexandria shrivelled nearly to raisins, which were very rich and sugary in flavour.

Mr. F. W. Pack, gardener to G. H. Vernon, Esq., Grove Hall, East Retford, sent a fine bunch of Black Barbarossa; and Mr. James Fowler, gardener to the Earl of Harewood, sent some very nice specimens of the Charlesworth Tokay, from which it is clear that this variety, if at all different from Muscat of Alexandria, is only a slight variation from it.

Mr. John Cox, of Redleaf, exhibited dishes of a seedling Pear which he has found to be very useful, from its ripening in succession from the beginning of December till now.

Mr. Francis, of Hertford, exhibited a seedling Apple, which, however, did not possess any merit to recommend it.

WALKS.

(Concluded from page 51.)

MATERIALS OCCASIONALLY USED FOR WALKS.—I have seen many miles of excellent walks made of small coals, and nothing forms a more compact one. It is also sufficiently porous to allow the water to pass through, and it is infinitely superior to chalk, which, however, ought not to be used alone. Mortar rubbish has been already spoken of, and the waste of quarries of different kinds, some excellent materials being often found on the top of sandstone. Sand itself mixed with a harder material is not unfrequently used; and where it is sharp and gritty, and of a suitable colour, it makes a good walk for many private places where there are no wheeled carriages and not very many foot passengers. Burnt earths of various kinds are not so good, they get dirty and cling to the feet; but the fact of a new walk being dirty after the first rain is not enough to condemn it, for the after rains will wash many of the earthy particles to the bottom, leaving at top the sharp and gritty portions, which are clean and do not cling to the feet. This remark, I may observe, holds good with all walks, excepting those, perhaps, that are