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THE
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FOR

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for several hours, we should say it is superior to the British Queen; it is large, oblong, or rather conical, with the same colour as that variety, but sweeter and richer. It is said by Mr. Sanders to be an excellent bearer, and to force well; in addition to which it is reported to be much harder than the British Queen, nearly all which perished last winter round Tedworth, while this Nimrod suffered in no degree whatever."

Effects of the Winter about Newark.—In this immediate district the frost of the winter has done more mischief than was done by the frost of last year. The common Laurels are killed by hundreds, at least cut quite down to the ground. Last year they suffered very little. The *Cupressus macrocarpa*, I fear, is killed. The *Pinus insignis*, which was untouched last year, has its spines turned brown half way through. The variegated Golden Holly has the white or golden leaves generally turned brown. The large *Araucarias* have their leaves tinged with brown many feet higher from the ground than last year. The *Cryptomeria* has not suffered much. *Pinus Russeliana* is killed. In several places the common Yew is burnt on one side, and the Cedar of Lebanon also. Altogether these two last winters have cut very short the catalogue of hardy shrubs. D.

Early Rhubarb (see p. 208).—Your correspondent who says his gardener last October covered over some Rhubarb with cement casks and fold-yard manure, which was added several times in order to force the growth, and again some four months afterwards covered over, in a precisely similar way, other roots on the same soil, which though last covered were ready first, should remember that he covered up at a time when Rhubarb was wholly at rest, and when it would require double the time and heat to start it that it would when he covered his second lot, growth at that time having already commenced. Besides, starting to force before midwinter does not ensure his cutting so much earlier, more especially if the Rhubarb had not been forced before; if, however, it has once been started early it will start about the same time ever after, with little trouble; but to begin too soon, as your correspondent states, would require something more than merely adding manure "several times," for every gardener knows too well the uncertainty of dung heat in hard weather. If, on the other hand, your correspondent should begin to force after midwinter, and continue the heat till he gets a supply of Rhubarb, and the next year commence a week or two earlier, he might not then fail. It must be remembered, however, that different sorts of Rhubarb naturally vary very much as regards earliness. J. Divers, *Worcester*.

Does Sea-water Kill Seeds?—I have begun making some few experiments on the effects of immersion in sea-water on the germinating powers of seeds, in the hope of being able to throw a very little light on the distribution of plants, more especially in regard to the same species being found in many cases in far outlying islands and on the mainland. Will any of your readers be so kind as to inform me whether such experiments have already been tried? And, secondly, what class of seeds, or particular species, they have any reason to suppose would be eminently liable to be killed by sea-water? The results at which I have already arrived are too few and unimportant to be worth mentioning. Charles Darwin, *Down, Farnborough, Kent, April 11*.

Foreign Correspondence.

LEAVES FROM MY CHINESE NOTE-BOOK: No. 8.—*A Journey in search of a new Cedar or Larch, called Abies Kempteri.*—I have been acquainted with this interesting tree for several years in China, but only in gardens, and as a pot plant in a dwarfed state. The Chinese, by their favourite system of dwarfing, contrive to make it, when only a foot and a half or two feet high, have all the characters of an aged Cedar of Lebanon. It is called by them the *Kin-leung*, or Golden Pine, probably from the rich yellow appearance which the ripened leaves and cones assume in the autumn. Although I have often made inquiries after it, and endeavoured to get the natives to bring me some cones, or to take me to a place where such cones could be procured, I met with no success until last autumn. Then, however, I happened to visit a part of the country where I had not been before, and quite unexpectedly came upon some fine specimens of full grown trees covered with ripe cones. They were growing in the vicinity of a Buddhist monastery in the western part of the province of Chekiang, at an elevation of 1000 or 1500 feet above the level of the sea. Their stems, which measured fully 5 feet in circumference 2 feet from the ground, carried this size, with a slight diminution, to a height of 50 feet, that being the height of the lower branches. The total height I estimated about 120 or 130 feet. The stems were perfectly straight throughout, the branches symmetrical, slightly inclined to the horizontal form, and having the appearance of something between the Cedar and Larch. The long branchless stems were, no doubt, the result of their growing close together and thickly surrounded with other trees, for I have since seen a single specimen growing by itself on a mountain side at a much higher elevation, whose lower branches almost touched the ground.

I need scarcely say how pleased I was with the discovery I had made, or with what delight, with the permission and assistance of the good priests, I procured a large supply of those curious cones sent to England last winter. It was with great regret I read in this paper, and in a letter from Mr. Giendinning, that so few of these seeds had vegetated, and in order to increase

the number by procuring another supply, I paid a visit this autumn to the place where I had been so successful last year, with what results I shall proceed to relate. Having arrived at the Monastery of Tsan-ting—for that is the name of the place—I lost no time in visiting the spot of my last year's discovery. The trees were there as beautiful and symmetrical as ever, but after straining my eyes for half an hour I could not detect a single cone. I returned to the temple and mentioned my disappointment to the priests, and asked them whether it was possible to procure cones from any other part of the country. They told me of various places where there were trees, but whether these had seed upon them or not they could not say. They further consoled me with a piece of information, which, although I was most unwilling to believe it, I knew to be most likely too true, namely, that this tree rarely bore cones two years successively, that last year was its bearing year, that this one it was barren. A respectable looking man, who was on a visit to the temple, now came up to me and said that he knew a place where a large number of trees were growing, and that if I would visit the temple to which he belonged he would take me to this spot, and that there I would probably find what I wanted. I immediately took down the name of his residence, which he told me was Quan-ting, a place about 20 li distant from the temple in which I was domiciled, and at a much higher elevation on the mountains. Having made an appointment for next day he took his leave of me with great politeness, and returned to his home.

Having procured a guide for Quan-ting, I set out early next day to visit my new acquaintance. Leaving the temple of Tsan-ting, our way led up a steep pass, paved with granite stones. On each side of the road were forests of fine Bamboos—the variety called by the Chinese *Maou*, the finest I ever saw. The forests are very valuable, not only on account of the demand for the full-grown Bamboos, but also for the young shoots, which are dug up and sold in the markets in the early part of the season. Here, too, were dense woods of *Cryptomeria*, *Cunninghamia lanceolata*, Oaks, Chestnuts, and such like representatives of a cold or temperate climate. The Chinese Chestnut appears to differ slightly from the Spanish, but it is superior to that variety. A very pretty small one, about the size and form of the Hazel Nut, is much esteemed; both, I think, worth introduction to Europe. I have sent them both to India, and I am happy to hear that both are now doing well on the Himalayan mountains. Chestnuts have long been a desideratum in India; many fruitless attempts have been made to introduce them, but with Ward's cages we now work wonders.

Our road was long and rugged, and we were gradually attaining a higher elevation. We reached the temple of Quan-ting at last, and had no difficulty in finding our acquaintance of the preceding day, Mr. Wang-a-nok, as he called himself. It now appeared he was a celebrated cook—the *Soyer* of the district—and had been engaged on this day to prepare a large dinner for a number of visitors who had come to worship at the temple. He told me he would be ready to accompany me as soon as the dinner was over, and invited me to be seated in the priest's room until that time. This little temple has no pretensions as regards size, and was in a most dilapidated condition. In one of the principal halls I observed a table spread and covered with many good things, which were an offering to Buddha, and before which the visitors, as they arrived, prostrated themselves. As the valley in which the temple is placed is fully 3000 feet above the sea, I felt the air most piercingly cold, although it was only the middle of October, and hot enough in the plains in the day time. So cold was it that at last I was obliged to take refuge in the kitchen, where Mr. Wang was busy with his preparations for the dinner, and where several fires were burning. This place had no chimney, so the smoke had to find its way out through the doors, windows, or broken roof, or, in fact, any way it could. My position here was, therefore, far from being an enviable one, although I got a little warmth from the fires. I was therefore glad when dinner was announced, as there was then some prospect of being able to get the services of Mr. Wang. The priests and some of the visitors now came and invited me to dine with them, and, although I was unwilling, they almost dragged me to the table. In the dining-room, which was the same, by-the-by, in which they were worshipping on my arrival, I found four tables placed, at one of which I was to sit down, and was evidently considered the lion of the party. They pressed me to eat and to drink, and although I could not comply with their wishes to the fullest extent, I did the best I could to merit such kindness and politeness. But I shall not attempt a description of a Chinese dinner which, like the dinner itself, would be necessarily a long one, and will only say that, like all good things, it came to an end at last, and Mr. Wang having finished his in the kitchen and taken a supply in his pockets, declared himself ready for my service.

Our road led us up to the head of the valley in which the temple stands, and then it seemed as if all further passage was stopped by high mountain barriers. As we got nearer, however, I observed a path winding up round the mountain, and by this road we reached the top of a range of mountains fully a thousand feet higher than any we had passed, or 4000 feet above the sea. When we reached the top the view that met our eyes on all sides rewarded us richly for all the toil of the morning. I had seen nothing so grand as this since my journey across the Bohai mountains. On all sides,

in whichever direction I looked, nothing was seen but mountains of various heights and forms, reminding one of the waves of a stormy sea. Far below us in various directions appeared richly cultivated and well wooded valleys; but they seemed so far off, and in some places the hills were so precipitous, that it made me giddy to look down. On the top where we were there was nothing but stunted brushwood, but, here and there, where the slopes were gentle, I observed a thickets of some *Lycopods*, *Gentians*, and other plants not observed at a lower elevation. I also found a *Hydrangea* in a leafless state, which may turn out a new species, and which I hope to introduce to Europe. If it proves to be an ornamental species it will probably prove quite hardy in England.

We had left the highest point of the mountain ridge, and were gradually descending, when on rounding a point I observed at a distance a sloping hill covered with the beautiful object of our search—the *Abies Kempteri*. Many of the trees were young, and all had apparently been planted by man; at least so far as I could observe they had nothing of a natural forest character about them. One tree in particular seemed the queen of the forest, from its great size and beauty, and to that we bent our steps. It was standing all alone, measured 8 feet in circumference, was fully 130 feet high, and its lower branches were nearly touching the ground. The lower branches had assumed a flat and horizontal form, and came out almost at right angles with the stem, the upper part of the tree was of a conical shape, resembling more a Larch than a Cedar of Lebanon. Near there were no cones even on this or on any of the others, although the natives informed us they had been loaded with them on the previous year. I had therefore to content myself with digging up a few self-sown young plants which grew near it, and which I shall endeavour to introduce to England.

I now parted from my friend Mr. Wang, who returned to his mountain home at Quan-ting, while I and my guide pursued our journey towards the temple at which I was staying by a different route from that by which we had come. The road led us through the same kind of scenery which I have endeavoured to describe—mountains; nothing but mountains, deep valleys, and granite and clay-slate rocks—now barren and barren, and now richly covered with forests chiefly consisting of Oaks and Pines. We arrived at the monastery just as it was getting dark. My friends, the priests, were waiting at the entrance, and anxiously inquired what success had attended us during the day. I told them the trees at Quan-ting were just like their own—destitute of cones. "Ah!" said they, for my consolation, "next year there will be plenty."

I cannot agree with Dr. Lindley in calling this an *Abies*, unless Cedars and Larches are also referred to the same genus. It is apparently a plant exactly intermediate between the Cedar and Larch; that is, it has deciduous scales like the Cedar and deciduous leaves like the Larch, and a habit somewhat of the one and somewhat of the other. However, it is a noble tree; it produces excellent timber, will be very ornamental in park scenery, and I have no doubt will prove perfectly hardy in England. R. F.

Societies.

ENTOMOLOGICAL: April 2.—J. Curtis, Esq., President, in the chair. Donations of books from the Royal Society, the Society of Arts, the Entomological Society of Stettin, Berwickshire Naturalists' Club, &c., were announced, as well as an extensive collection of specimens of aphides preserved in Canada Balsam presented by Mr. F. Walker, and a number of rare British Lepidoptera by Mr. H. Doubleday. Mr. Stainton read with reference to the discussion respecting the correctness of the pins with which insects are stuck, that he had only observed this to occur in one species of *Neophasia* (N. *Acetosa*), and from the acid nature of the substance upon which it fed it might be considered that the corrosion was attributable to the nature of the food of the larva; the transformations of the species in question had been observed last year by Mr. Stield, of Dublin. Mr. Foxcroft exhibited specimens of 17 rare species of Lepidoptera which he had reared from larvae taken last year in Fifehire; he also exhibited specimens of *Papilio Machaon* reared from two very different varieties of larvae. Mr. Bond exhibited a variety of *Spiloptera* *Menthastri*. Mr. Edward Shepherd exhibited specimens of *Donacina*, some stuck with the common pins and others with electro-plated pins; the former were not, after a few months, infected with veridigis, whilst the latter remained uninjured. Mr. Samuel Stevens exhibited specimens of the very rare *Echinurus longimanus*, male and female, brought to England by Madame Follen from the Eastern Archipelago; also specimens of *Stachyris* *MacLeayii*. A note was read from Mr. Wallace concerning a description of a magnificent new species of butterfly belonging to the genus *Ornithoptera* from Borneo, which he proposed to name after the Rajah Brooke. Mr. Curtis read a note on the species of Galls, recently figured by himself in the *Gardeners' Chronicle*, suggesting that some of them might prove varieties. A memoir by Mr. Deane, which was read on the natural history of the honey bee, being a continuation of his observations on the vatory hive, which had gained the prize recently given by the Society on that subject. The secretary gave notice that the Council had resolved to offer the appropriate insects in their collection for distribution among the

food, especially Wheat. This tradition is the more remarkable because several naturalists have made the observation that corn does not grow wild in any part of the world. I do not know whether by a process of improvement our garden fruits can be derived from wild fruit; it is well known, however, that the noble *Vine Grapes* grow wild in Colchis. Whence, then, does corn come? My opinion is that God made direct provision for man; something was given to all, real Wheat to the Asiatics, and Maize to the Americans."

Can any scholar among our readers throw light upon the sentences printed in italics? They well deserve a commentary.

New Plants.

126. *ZEBRINA PENDULA*. Decade in *Revue Horticole*, 4 ser., vol. 4, p. 141, t. 8.

This is the common trailing *Tradescantia*-like plant so much cultivated in our greenhouses for the sake of its foliage, stained with purple beneath and striped with broad bands of white on the upper side. It was described in the *Journal of the Horticultural Society* in 1850, under the name of *Cyanotis vittata*, from which genus we see no sufficient reason for excluding it.

127. *TAXUS ADPRESSA*. *Carrière in Revue Horticole*, ser. 4, vol. 18, p. 96, t. 6. *alia Cephalotaxus adpressa* of *Gardens*.

M. Carrière has shown that this beautiful hardy plant is a true Yew, and by no means a *Cephalotaxus*, as has been supposed. It has long been known that the species before us will not stand when worked upon the latter genus, although it does perfectly well on the common Yew, and it now appears that its fruit is precisely that of a *Taxus*.

VEGETABLE PATHOLOGY.—No. LXXIII.

316. *CHLOROSIS 7. (Accidental and Functional.)*
YELLOWNESS.—The form of Chlorosis which now comes under consideration is that to which the name of *Icterus* has been given by some authors, from the dull yellow green which is assumed by a large portion of the plant. It arises from various causes, or rather from conditions unfavourable to health, as from stagnant water, depressed temperature, especially when accompanied by deficiency of light, from deficiency of light itself, or from want of proper nutritious matter in the soil. The vital powers of the plant are depressed, but more especially those of the particular parts affected, inasmuch that more favourable circumstances seldom produce a more healthy tint in the older plants, but only enable the plant to produce more healthy organs, by which the general end for which it is cultivated may be at length effected. Where there is mere absence of colour, as in bleaching, without any derangement of general health, exposure to light, if it be not too abrupt or accompanied by unfavourable conditions of dryness, whether of the soil or surrounding air, will soon remedy the evil, but in Chlorosis the tissues of the organs already formed are so affected that they are seldom in a condition to assume fresh energy. One of the most familiar examples is that of yellowness in Wheat crops, which in some seasons is so prevalent, and unless it be alleviated in good time is so prejudicial to the general produce. Other things being equal, want of strength in the soil, whether original or from defect of manure, is a most important circumstance in connection with the disease. A season like the present, of unusual cold and dryness, has afforded many opportunities of examining the circumstances under which the plant has suffered most, and it has been impossible to glance over two or three contiguous crops without observing that its intensity is in direct proportion to the natural deficiency of the soil or the negligence of the cultivator.* In wet seasons, accompanied by a constant prevalence of north-east winds, the effect is still more striking and more universal. In every case the only hope of a good harvest depends upon an amendment of the conditions which have induced the malady. If the soil is really in good heart, warm showers or an increase of temperature will ultimately remedy the evil, but if the sickly tint has arisen from poverty of soil, it can scarcely be expected that better weather will entirely mend the evil. In such cases the only practicable remedy is to apply some top-dressing, as soot or pigeon-dung properly mixed, which may be rapidly absorbed by the foliage itself or by the roots. Even where the plant has grown well at first and looked healthy, in consequence of no unfavourable conditions of climate, if the staple of the land is not good or there has been a deficiency of proper manure, the crop is sure to fall off just before the flower stem is produced, even under the most favourable external conditions.

317. Where plants are cultivated in pots it is often very difficult to secure a proper drainage, and much more frequently no due attention is paid to the subject. The surface of the soil, too, becomes compressed, so that the air does not penetrate into the pores, its original texture is not good, or algae grow upon the surface,

* Close to the place where I am writing are three contiguous fields, the first of which has not been fallowed for nine years, nor was the ground manured for Wheat; the second of inferior staple, with a Wheat crop following Oats; the third of much the same quality as the second, but manured with the refuse of skins used by hat-makers, with an intermediate patch under common cultivation. The difference is very striking. The manured crop is most luxuriant, the unfallowing land of rich staple covered with an excellent plant of a very healthy aspect; the patch under ordinary cultivation is yellow, and that succeeding Oats on poor land extremely yellow with little hope of recovery.

which are inconsistent with health; where the pots are very bibulous, evaporation is going on rapidly from the surface of the pot, and the temperature in consequence of that part which is in contact with the most active roots is depressed, where the pot is not sunk into the soil. Under such conditions many plants, as *Calceolarias*, *Pelargoniums*, *Fuchsias*, &c., are very apt to acquire a yellow hue, which is sometimes very difficult to remedy, and which renders such plants very unfit for propagation. The first point towards their recovery is to repot them with greater care as regards drainage and the texture of the soil; and if there is reason to believe that the evil has at all arisen from poverty, guano can be administered cautiously, or a little old and very rotted cow-dung may be mixed with the soil. The very best effect is also produced in some cases by the insertion of two or three small crystals of sulphate of iron in the soil, which gradually dissolve, and act probably as a tonic. *Fuchsias* which were apparently past all hope of recovery will sometimes revive rapidly under this treatment. M. J. B.

BEDDING PLANTS AND BOTTOM-HEAT.

THE remark recently made by the writer of the *Calendar* relative to the propriety of planting out strong plants in June rather than weak plants in May is very judicious in a season like the present, when the ground temperature is excessively low, and when, too, in many instances from the losses of the winter, plants are not so strong as they are wont to be in more favourable seasons. I have frequently, both privately and publicly, pointed out the impropriety of early planting, that is before the 20th of May, and, except in very rare situations and in the case of unusually forward springs, I am quite convinced that there is not a day gained by planting before the first week in June. I have had several thousands of *Geraniums* and other plants bedded out since the middle of April, but they are standing on sheltered south and west borders, and have been nightly, and sometimes during the day too, covered with Spruce branches and mats, to protect them from the severity of the weather. These plants look well, are making root, have healthy green foliage, and have quite recovered the check they experienced at the time of putting out; but had they been planted in the flower garden at the same time, their safe protection would have been far more difficult, and the nuisance of the protecting material in a dressed garden quite intolerable. The advantages of this system of bedding out all established plants are very great; for you not only get a plant with an improved constitution, but one-third of the pots necessary under other circumstances will be found quite sufficient. The trouble of planting and transplanting will of course be urged as an argument against the plan by the advocates of the old system; and though I admit there is a good bit of trouble and time occupied, the saving in watering more than counterbalances it, while the rapid progress the plants make is another decided advantage. Cold as the weather has been, these plants I find are making root into an inch or two of leafy dung which was placed under them, and I have no doubt that they will remove to the flower-beds almost without sustaining any check, and will be in bloom in a week or two without presenting any of that rusty appearance so general in newly-planted things.

But independently of the risk we run in planting out before we have settled mild-growing weather, it is also of great import in a season like the present, that the ground should attain its natural heat before tender plants are committed to its fostering care. A week or two back we were told that Nettle seed would not vegetate at the same temperature as Groundsel, and that the generality of exotic seeds would not vegetate in a temperature below 46°. I have just been testing the temperature of the soil in the flower garden here, and I find it range from 44° to 46° at from 9 to 12 inches deep, according to the exposure and the time the beds were last digged, the highest temperature, that of 46°, only being found in a bed that was dug on a sunny day a fortnight back. Now, the mean temperature of the earth at 1 foot deep, as explained by an important table in Dr. Lindley's "Theory of Horticulture" just published, is April 46°, May 53°, and June 60°. The lowest temperature for May was in 1845, viz., 50°, the highest for the same month in 1848 56°; the lowest temperature for June is 56° in 1852, the highest 64° in 1846. Thus it will be seen that the ground at the present time is 4° colder than it has been known since 1844, and 10° below the highest temperature during the same period. Need we then be surprised if plants make slow progress? It is physically impossible that they could do otherwise until the earth attains something like its natural temperature, and the more plants are watered under such circumstances, except with water very considerably warmer than the soil in which they are growing, the greater the injury they must receive. To drench plants with cold water at the present time is labour worse than lost. But what is to be done? To plant even now until the earth has attained a temperature of 55° will not be a wise proceeding, yet plant we must. Fifteen years back, in my treatise on Cucumbers in pots, I recommended the "digging in" of solar heat for ridge Cucumbers, and I should now advise the same process to be observed with all flower-beds that are not stocked with plants. By forking the beds over after 4 o'clock every sunny afternoon for a few days, making or raking the surface of the ground tolerably fine, its temperature may be raised from 6° to 10° in a very short time, and it is I think quite unnecessary for me to explain that an

increase of bottom-heat at the time of planting to that amount is a matter of much greater importance than hurrying the roots of plants into the ground the first fine day, just because the sun is shining or the air overhead is a little genial. What I am recommending is just what I have practised for many years, and if those who do not happen to think on this matter as I do will please to make the experiment, I know they will be satisfied with the result. Let them get heat into the soil, then plant and give a sufficient watering with warm water, and when it has soaked in leave the surface of the soil loose, fine, and smooth, and little after-watering, unless the weather is very dry, will be found necessary. Daily dribblings of water may be all very well to occupy the leisure hours of amateurs "who have nothing else to do;" but gardeners, and those under them, may spend their time far more profitably. W. P. Ayres, *Whittlebury Lodge, May 22.*

DOES SEA-WATER KILL SEEDS!

As you have done me the honour to notice favourably my wish to ascertain experimentally the power of resistance in seeds to the injurious action of sea-water, you may perhaps like to have a report. As such experiments might naturally appear childish to many, I may be permitted to premise that they have a direct bearing on a very interesting problem, which has lately, especially in America, attracted much attention, namely, whether the same organic being has been created at one point or on several on the face of our globe. As geologist I feel a special interest on the possibility of plants being transported by sea to distant islands, owing to the great influence which it is very obvious the views of the late ever-lamented Edward Forbes have had on the subsequent writings of botanists and zoologists. Forbes, as is well known, boldly supposed that the north coast of Spain had formerly been directly continuous with Ireland, and he extended the continent of Europe as far as and beyond the Azores. To imagine such enormous geological changes within the period of the existence of now living beings, on no other ground but to account for their distribution, seems to me, in our present state of ignorance on the means of transportal, an almost retrograde step in science—it cuts the knot instead of untying it. Weighty objections might, I think, be urged against Forbes' hypothesis as applied in the above and many other cases, but this is not the proper place to discuss such a question. As I had not the least notion when I began, whether or not the seeds would be all killed by a single week's immersion, I at first took only a few, selecting them almost by chance from the different great natural families; but I am now trying a set chosen on philosophical principles by the kindness of Dr. Hooker.

The sea-water has been made artificially with salt procured from Mr. Bolton, 146, Holborn Bars, which has been tested by better chemists than men, namely, by numerous sea animals and algae having lived in it for more than a year. The seeds were placed in separate bottles, holding from 2 to 4 oz. each, out of doors in the shade: the mean temperature has during the period been about 44°, rising during one week to a mean of nearly 48°. Most of the seeds swelled in the water, and some of them slightly coloured it, and each kind gave to it its own peculiar and strong odour. The water in which the Cabbage and Radish seeds were placed became putrid, and smelt offensively in a quite extraordinary degree; and it is surprising that any seeds, as was the case with the Radish, could have resisted so contaminating an influence; as the water became putrid before I had thought of this contingency, it was not, and has never been, renewed. I also placed seeds in a quart bottle in a tank filled with snow and water, to ascertain whether the seeds kept at the temperature of 32° would better resist the salt water; this water, like that in the small bottles, to my surprise became turbid and smelt rather offensively. In the following list I have no reason to suppose, except in the cases where so stated, that the seeds have endured their full time.

(1) Seeds of common Cress (*Lepidium sativum*) have germinated well after 42 days' immersion; they give out a surprising quantity of slime so as to cohere in a mass. (2) Radishes have germinated less well after the same period. (3) Cabbage seed: after 14 days' immersion only one seed out of many came up; I think this is rather strange considering that the Cabbage is a sea-side plant; in the ice-cold salt water, however, several have come up after 30 days' immersion. (4) Lettuce seed has grown well after 42 days; (5) of Onion seed only a few have germinated after the same period; (6) Carrot and (7) Celery seed well after the 42 days; (8) Borago officinalis, (9) Capsicum, (10) *Cucurbita ovifera*, have germinated well after 28 days' immersion; the two latter, rather tender kinds, were also tried in the ice-cold water, and have germinated after 30 days' immersion. (11) Savory, or *Satureja*, has grown somewhat less well after 28 days. (12) *Linum usitatissimum*: only one seed out of a mass of seeds (which gave out much slime) came up after the 28 days, and the same thing happened after the first 14 days; and only three seeds came up after the seven days' immersion, yet the seed was very good. (13) Rhuubarb, (14) Beet, (15) Oracle, or *Atriplex*, (16) Oats, (17) Barley, (18) *Phalaris canariensis*, have all germinated excellently after 28 days; likewise these six latter after 30 days in the ice-cold water. (19) Beans and (20) Furze, or *Ulex*: of these a few survived with difficulty 14 days; the Beans were all killed by 30 days in the ice-cold water. (21) Peas germinated after seven

days, but were all dead after 14 days' immersion out of doors, and likewise after 30 days in the ice-cold water. (23) *Trifolium incarnatum* is the only plant of which every seed has been killed by seven days' immersion; nor did it withstand 30 days in the ice-cold salt water. (23) Kidney Beans have been tried only in the latter water, and all were dead after the 30 days.

As out of these 23 kinds of seed, selected almost at hap-hazard, the five Leguminosae alone have as yet been killed (with the exception of the Cabbage seed, and these have survived in the ice-cold water), one is tempted to infer that the seeds of this family must generally withstand salt water much worse than the seeds of the other great natural families; yet from remarks in botanical works, I had expected that these would have survived longest. It has been really curious to observe how uniform, even to a day, the germination has been in almost every kind of seed, when taken week after week out of the salt water, and likewise when compared with the same seeds not salted—all of course having been grown under the same circumstances, namely, in glasses on my chimney-piece, so that the seeds from the day of being planted have been always under my eye. The germination of the Rhubarb and Celery alone has been in a marked degree altered, having been accelerated. With respect to *Convolvulus tricolor*, not included in the above list, I may mention that many of the seeds germinated and came out of their husks, whilst still in the salt water, after six or seven days' immersion.

To return to the subject of transportal, I may state that in "Johnston's Physical Atlas" the rates of 10 distinct currents in the Atlantic (excluding drift currents) are given, and the average of them is 33 nautical miles per diem; hence in 42 days, which length of immersion seven out of the eight kinds of seed as yet tested have already stood, a seed might be readily carried between 1300 and 1400 miles.

I will conclude this too lengthy communication by observing that all the 40-50 seeds which I have as yet tried sink in sea-water: this seems at first a fatal obstacle to the dissemination of plants by sea currents; but it may be doubted whether most seeds (with the exception of the winged kinds), when once shed, are so likely to get washed into the sea as are whole or nearly whole plants with their fruit by being carried down rivers during floods, by water-spouts, whirlwinds, slips of river-cliffs, &c., continued during the long lapse of geologically modern ages. It should

be borne in mind how beautifully pods, capsules, &c., and even the fully expanded heads of the Compositee close when wetted, as if for the very purpose of carrying the seed safe to land. When landed high up by the tides and waves, and perhaps driven a little inland by the first inshore gale, the pods, &c., will dry, and opening will shed their seed; and these will then be ready for all the many means of dispersal by which Nature sows her broad fields, and which have excited the admiration of every observer. But when the seed is sown in its new home then, as I believe, comes the ordeal; will the old occupants in the great struggle for life allow the new and solitary immigrant room and sustenance! Charles Darwin, *Down, Farnborough, Kent, May 21.*

COMMON THINGS.

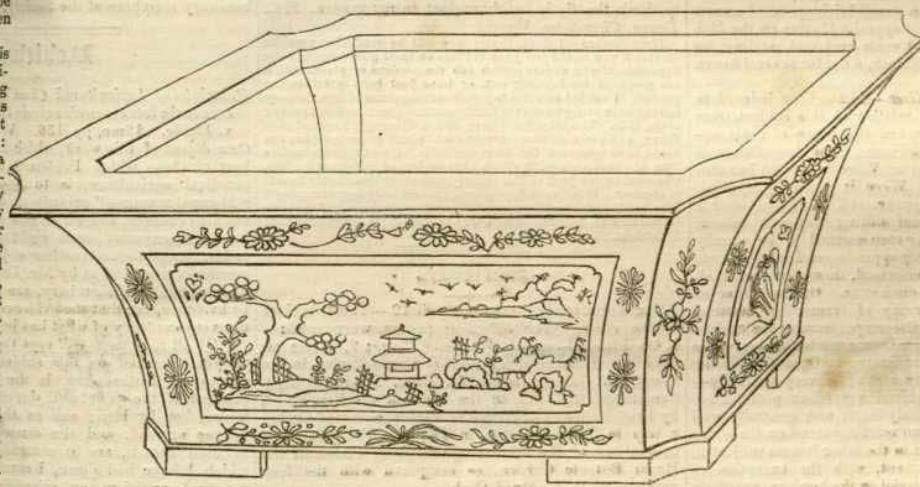
Preparing Scarlet Geraniums for Bedding.—The reason has been so peculiar that the usual routine system of treating bedding plants has been completely upset. Few things have yet been planted out, and therefore considerable care has been required to keep them so long in a thriving state. To give Scarlet Geraniums intended for beds artificial heat after they have been struck and potted off, as is often done, would not answer this year; that would very much frustrate the end every good cultivator ought to have in view, viz., plants sufficiently healthy and hardy to profit by the naturally increasing warmth of the weather at planting out time, instead of, as is too frequently the case, receiving a check from which it takes them a long time to recover. If the plants are kept cool and properly hardened off by exposure to sun and air during the spring months whenever the weather will permit, they will show more flowers in proportion to the size of the plants in June than similar ones which had been subjected to heat would in July. The same remarks are applicable to all other kinds of plants kept over winter for bedding purposes. In short artificial heat in the cutting pots during winter and required shifting in the spring; this can be easily accomplished without forcing them to make premature growths, which never get hardened before planting time. Too much shade, after they are kept in temporary quarters out of

doors where accommodation is limited, also aggravates the evil. The result in both cases is that the plants shed their foliage, and for a long time look shabby.

Scillas.—These should be as common as Snowdrops and Crocuses in every garden where early spring flowers are sought for. They have many recommendations. Growing but a few inches high, and bearing for the most part blue flowers, they form beautiful beds, or margins to beds, in situations where now such plants as Crocuses and Snowdrops are almost exclusively depended on for the earliest bloom. The Snowdrop, as is well known, furnishes white blossoms only, and the Crocus supplies various tints of orange, white, yellow, and purple; but in neither is the pure blue colour to be found. Those, therefore, who desire to render their gardens ornamental at the earliest dawn of spring, should procure and plant Scillas largely; there are several kinds adapted for that purpose. *S. bifolia* grows about 3 or 4 inches high, and when growing freely, throws up several flower spikes, each of which bears from four to eight blue flowers, during April and May. *S. verna* grows about the same size, and bears a roundish head of purplish blue flowers, in May and June. *S. amona* is also about the same stature, and produces largish drooping light blue flowers, in April and May. *S. sibirica*, another of these dwarf species, has drooping blossoms, of a beautiful clear light blue, which are borne in April. Of *S. bifolia* there are at least two very distinct varieties, one having white and another blue blossoms. They are easily cultivated.

CHINESE FLOWER POTS.

We have certainly made wonderful progress in plant culture during these last 25 years, and this may have induced us to cling so stoutly as we have done to the old stereotyped form of flower-pot; another reason why



we have confined ourselves so much to that kind of pot may be the great convenience it affords in shifting plants from small pots into larger ones, and also the facility it furnishes of examining at any time the state of the roots. Besides there may be another reason, the most potent of all, for using almost exclusively our common form of flower pots, and that is their inexpensiveness. For some purposes, however, they may with advantage be dispensed with; cultivate plants in them if you please, but keep them out of the drawing-room, where they are anything but models of taste, and take a lesson from the Chinese. In the accompanying sketch you have a perspective drawing of a common Chinese garden flower-pot, which was sent me by Mr. Fortune embedded in the soil of a Warden case, having some seeds sown in it. When cleaned it appeared to me to be very superior to our common pots. It is very smooth on the surface, and the colour that of a cake of Indian red paint. The ornaments are white and very agreeably relieve the tone of the Indian red; in fact, in point of form and finish it is an exceedingly tasteful article and fit for any drawing-room window. I am aware that attempts have been made to improve our common garden pots, but the forms hitherto recommended, and the offensive colour of the clay of which they were manufactured, rendered them anything but drawing-room ornaments. If something more classical and artistic in design were invented worthy of a place in a lady's sitting room, we should soon see the ugly green baskets with their covering of yellow sickly moss now employed vanish. Besides such huddling of plants together and smothering them in sphagnum is altogether as unnatural as it is at variance with good taste. R. Glendinning.

Home Correspondence.

Annuals.—A few words respecting this useful class of flowers may probably not be out of place, as I am of opinion that they are not encouraged as their merits deserve, chiefly perhaps from the almost general impression that their blossoms are but short lived. It cannot be denied that such is often the case, but I wish it to be known that this is owing more to mismanagement than to the real deficiencies of the plants. Some

of them may be noticed in the parterres of our nobles, in the small gardens of the citizen amateur, and in the borders surrounding the humble cottage; but owing to carelessness or injudicious management they are rendered of ephemeral duration, although many of them have good recommendations, such as colour, habit, and profusion of bloom. The Zinnias even dazzle the eyes when looking on them beneath a hot summer's sun; the glittering *Portulacaeae*, the dwarf and lovely *Mesembryanthemum bicolor*, the nice *Calandrinia splendens*, the beautifully veined *Salpiglossis*, the rich dark and light blue of *Entola viscidula*, and *Nemophila insignis*, the splendid *Platystemon californicum*, *Phlox Drummondii*, *Campanulas*, *Stocks*, *Lobelias*, *Gilias*, *Asters*, *Indian Pinks*, and a great quantity of others, arise in my memory and claim a notice, but particularly the truly handsome *Sphenogyne speciosa*. When well managed, a bed of this plant cannot be equalled for the richness of its peculiar colour—viz., orange yellow, with a dark eye, each flower being larger than a half-crown piece. Annuals are too often sown so thickly in the open border that the plants choke each other in growing, and are starved into a premature maturity. In this case the real resources of the plants are not developed, and premature decay is the natural result; the blossoms are no sooner partially produced than their career is run. The duration of some annuals, I must acknowledge, is brief, and to have a summer's display constant forethought must be exercised to keep up a succession, but still they are capable of a much greater degree of usefulness than they in general afford; many of them being of easy culture and soon out of bloom, we are careless in recognising the fact that they demand attention to induce them to fully develop their beauties. It often happens that annuals sown early under the protection of frames are kept too warm and thereby

rendered weakly, and they are mostly too thick and in small pots; those placed in the borders or beds are either sown and left to grow without attention, or are transplanted from the frames in weak tangled masses, unable to struggle successfully with their change of circumstances, which renders their brief duration a great deal more limited. As a general rule, annuals should be treated as individual plants, at least this course should be adopted in the early stages of their growth; the greater length of time they flower, size of their blooms, strong and healthy habit are the best recommendations I can offer in favour of such a system.

For some of the later annuals a good plan is to sow their seeds in some convenient situation, in a light shallow soil, well incorporated with fine leaf mould in order to induce an abundance of fibres. It is well to render the natural surface perfectly solid, and add artificially all the soil required. As soon as the plants are of sufficient size, they should be transplanted into a situation similarly prepared to that where the seeds were sown, and at sufficient distances from each other, to allow their removal with as little mutilation of the roots as possible. If a constant succession of plants is provided in this way they can be moved at any time in the summer months, and often without a leaf flagging. As a matter of course a cloudy day is desirable for the operation, but if they are grown as I have suggested, bright weather need be no obstacle to their removal. Leaf-mould is the best soil for growing them in until their final removal, as the fibres ramify so thickly in the decaying leaves, that in the process of shifting to their final destination little or no damage is sustained, and where a few beds or vacancies in the borders have to be filled up, a couple of young men with trowels and hand-barrow will soon accomplish the desired effect. Annuals that are required to remain as long a period as possible in bloom should never be allowed to perfect seeds; it should be remembered, as a physiological fact closely bearing upon practical gardening, that the great end of all organic life is to perpetuate its kind, and that by taking advantage of this principle and retarding such a consummation, a more protracted existence can be procured. By this practice plants naturally annuals are often rendered perennials. John McArdeil, late Gr. to H. Sharples, Esq.

The Vinegar Plant (see p. 336).—If your correspondent will try the undermentioned receipt he will find it answer. To three-quarters of a pound of coarse sugar add half a pound of treacle; put them into a stone or glass pot that will hold about two gallons, and is about 1 foot in diameter; its mouth should not be less than 8 inches in diameter with a rim, for the convenience of tying down. Having prepared the above, pour one gallon of boiling water on the sugar and treacle; stir well to dissolve them, and when cooled down to about blood-heat add your plant, keeping the part that was separated from the parent uppermost. Then get a piece