

Now, since common salt and certain other salts are well known to stimulate the growth of Agarics, and since the spawn of this powerful plant is so cheap and moreover so active in its operation, would it not be worth while to put these two ideas together and set them to work upon some very poor upland pasture, just to till the land a little where the Grass has scarcely the power to subdue the stubborn materials? A heap of soil and dung fermenting so slightly as scarcely to be perceptibly warm, would in a few days (say 21), if spawned, become so impregnated with the spawn of the common Mushroom that it would not only produce Mushrooms where it lies, but if broken into innumerable pieces, and preserved from drenching wet, would retain its vital powers to an unknown period, and this heap of manure (say 10 tons) could be impregnated with about 1 peck of common brick spawn, the value of which at the ordinary market price from the nurserymen would be about 1s. 3d.

That a field should be spawned, or in other words, planted with Agarics, would only be doing on a large scale what is done every day on a small scale, and although in some cases it might not be desirable to impregnate Grass land with fairy rings on account of the patched and spotty appearance that it would give to it, still there is many a lone hill side and stubborn clay field that would take no harm from such a powerful decomposer as the Agaric passing his fairy ring through it; and should the seasons prove mild, the produce of Mushrooms alone, independent of the Grass, would be no mean recompense for the little outlay at starting; and, once established, the salt and wood ashes would stimulate the plant, not only to send up its Mushroom fruits, but to extend itself more rapidly, and thereby make green the pasture for sheep and horned cattle.

Alexander Forsyth, St. Mary's Church, Torquay.

THE VINE DISEASE IN PORTUGAL.

We have received the following report from Messrs. Forrester & Sons, of Crutched Friars:—

The disease has been general in every part of Portugal, since the year 1853; and during the present year, its ravages have produced almost a total extermination of the fruit. From the river Minho to the Tagus, but especially in the wine districts of the Bairrada, Beccellas, and Lisbon, it may without exaggeration be declared, that scarcely a perfect bunch of Grapes was produced this year; and that at the vintage season, instead of the vineyards being thronged with cheerful people gathering the fruit, in many parts we observed that goats, hogs, and cattle were feeding on the Vines. There is literally no wine for the ordinary consumption of the Portuguese people, neither is there wine in any of these extensive districts for distillation.

The stocks of old Lisbon wines are much reduced, and their value increased, at the lowest calculation, 100 per cent. Of Figuera wines the stocks are altogether exhausted, and the same may be said of the Muscat wines of St. Ubes. South of the Tagus, in the provinces of the Alentejo and Algarve, the Grapes were likewise destroyed. In the port wine districts the disease developed itself in the month of July, and destroyed, between that month and the middle of August, about one half of the fruit, and the heavy rains in the month of September nearly completed the destruction of the remainder; so that according to our senior's calculation, not more than 8000 pipes of wine, and those of most inferior quality, were obtained. The wines accumulated in the Alto-Douro (or Wine-Company's district), consist principally of the vintages of 1854, and may be estimated at 6000 to 8000 pipes. These, without reference to their quality, cost the holders about three times the price paid for the superior wines of the vintage of 1851. The total stock of wines on the 1st of October last, for exportation in Villa Nova, hardly amounted to the one year's production of the port wine vintage of 1847. Of this stock a very large proportion consists of wines of the vintages 1850, 1852, and 1854, which, notwithstanding their very doubtful quality, cost the holders more than double the price at which far better wines were shipped from Oporto four or five years ago.

Choice old wines in general stock may be estimated at about 10,000 pipes, the average value of which in the Oporto market runs from 50*l.* to 80*l.* per pipe. This peculiar and limited stock of old ports, it is perhaps unnecessary to remark, can never be increased in quantity, but must daily increase in value, such wines being from 5 to 20 years old. Of vintage wines, for shipment as such (and these are principally of the year 1853), the quantity cannot be estimated at more than 15,000 pipes. The stock of brandy in Villa Nova on the 1st of October last, was reduced to one-fourth of an average quantity, and its value increased four-fold. As Alto-Douro wine growers, our own individual stock (with the exception of our choice wines of vintage 1853), is almost reduced to our reserves of former years. We, therefore, for the present, limit ourselves to the shipment of our ports of vintage 1853, and to the sale of our assorted stock of wines in bond.

As there were no Grapes in 1854 and 1855 worth our making into wine (either on account of their inferior quality or their high price), of course we did not venture to purchase wines made of such Grapes by others; preferring to continue to limit our business in ports, to wines exclusively of our own making. The distress in the wine districts of Portugal may be more easily imagined than described; and more especially so in the rugged and rocky mountains of the port wine demarcation, which being an exceptional territory—adapted almost exclusively to the cultivation of the Vine and the Olive, is incapable of producing corn. From this narration of facts the wine merchants of this country will be able to form their own opinion as to what may be the probable future state of the port wine trade.

We learn that a Silver Medal of the First Class has been awarded to Messrs. Forrester for their port wines exhibited in the Universal Exhibition at Paris.

Home Correspondence.

Effect of Salt-water on the Germination of Seeds.—As you have published notices by Mr. Berkeley and myself on the length of time seeds can withstand immersion in sea-water, you may perhaps like to hear, without minute details, the final results of my experiments. The seed of Capsicum, after 137 days' immersion, came up well, for 30 out of 56 planted germinated, and I think more would have grown with time. Of Celery only 6 out of some hundreds came up after the same period of immersion. One single Canary seed grew after 120 days, and some Oats half germinated after 20; both Oats and Canary seed came up pretty well after only 100 days. Spinach

germinated well after 120 days. Seed of Onions, Vegetable Marrow, Beet, Orache and Potatoes, and one seed of Ageratum mexicanum grew after 100 days. A few and but very few, seed of Lettuce, Carrot, Cress, and Radish came up after 85 days' immersion. It is remarkable how differently varieties of the same species have withstood the ill effects of the salt water; thus, seed of the "Mammoth White Broccoli" came up excellently after 11 days, but was killed by 22 days' immersion; "early Cauliflower" survived this period, but was killed by 36 days; "Cattell's Cabbage" survived the 36 days, but was killed by 50 days; and now I have seed of the wild Cabbage from Tenby growing so vigorously after 50 days, that I am sure that it will survive a considerably longer period. But the seed of the wild Cabbage was fresh, and some facts show me that quite fresh seed withstands the salt water better than old, though very good seed. With respect to an important point in my former communication of May 26th, permit me to cry *peccavi*; having often heard of plants and bushes having been seen floating some little distance from land, I assumed—and in doing this I committed a scientific sin—that plants with ripe seed or fruit would float at least for some weeks. I always meant to try this, and I have now done so with sorrowful result; for having put in salt-water between 30 and 40 herbaceous plants and branches with ripe seed of various orders, I have found that all (with the exception of the fruit of evergreens) sink within a month, and most of them within 14 days. So that, as far as I can see, my experiments are of little or no use (excepting perhaps as negative evidence) in regard to the distribution of plants by the drifting of their seeds across the sea. Can any of your readers explain the following sentence by Linnæus, pointed out to me by Dr. Hooker, "*Fundus maris semina non destruit*"? Why does Linnæus say that the bottom of the sea does not destroy seeds? The seeds which are often washed by the Gulf Stream to the shores of Norway, with which Linnæus was well acquainted, float, as I have lately tried. Did he imagine that seeds were drifted along the bottom of the ocean? This does not seem probable, from the currents of the sea, at least many of them being superficial. *Charles Darwin, Down, Nov. 21.*—P.S. In my communication on Charlock seed lately printed by you, there is a misprint of "6 plants" for "6 plots of ground," which makes nonsense of the sentence.

The Late Winter in South Devon.—I have not given my experience of the past winter until now, because it seemed doubtful what plants would ultimately recover or yield to the effects of the cold. Among the latter is a magnificent Eucalyptus glabra, which was the pride of my shrubbery; it was more than 50 feet high, with a trunk upwards of 3 feet in circumference. It never lost a leaf from frost before, and was covered with flower buds, but must, I fear, be numbered with the dead, for though it has thrown out numerous weak shoots from the main stem, they are all withered. Eucalyptus radiata, a few yards off, about 30 feet high, is unscathed, as is a fine Acacia dealbata, still taller, which braved the frost and bloomed beautifully; it is now a mass of flower buds, and is one of the most graceful trees I ever beheld. A smaller plant of this species has also survived, yet Acacia moesta, against a south wall, is all but dead. The Indian Rhododendrons and hybrids did well, and flowered finely, especially Arboreum roseum, and a fine variety of Cinnamomeum. A large plant of Dracaena indivisa appeared unaffected by the winter, but declined during the summer, and is now quite dead. The Chusan Palm is evidently quite hardy. One plant of Phillipodendron regium, in a shrubbery border sheltered from the east, is unhurt; while another trained against an east wall was much injured. On a south wall the Chinese Clerodendron foetidum has proved perfectly hardy, and bloomed freely, but though interesting it does not merit the eulogy of M. Van Houtte, at least in my opinion. Habrothamnus fascicularis on a south wall has also stood well, and Mitraria coccinea has existed. My numerous Orange, Lemon, and Citron trees on south walls, protected by wooden or straw frames, stood the winter well, a few unripened shoots only being hurt, and they have all grown luxuriantly this summer; one rather rare species, the Egg Orange, was injured, but is recovering. Among the few new Pines that I possess, P. Russelliana is dead, and in a very high part of the grounds, open to the east; insignis became very brown, but all the plants have now recovered their verdure. Cupressus macrocarpa is certainly an unrivalled species, being alike indifferent to wind and frost; and on a high exposed terrace my plants, which were raised from the seed imported by the Horticultural Society, are strikingly beautiful. Tasmania aromatica and Garrya macrophylla are both safe, while plants of Phormium tenax are much injured. Many things that we deemed as hardy as our Snowdrops and Primroses have manifested their exotic character by disappearing altogether from our borders; among them may be specified a large collection of Gladioli, Lobelias, &c. This can scarcely excite surprise when our common shrubs, such as the Arbutus and Buddlea were injured, and whole tracts of Furze were killed to the ground. *A Devonian.*

Vitality of Seeds.—Observing in several recent numbers of your Paper speculations on this subject, I beg to offer you the following facts, which came under my own observation, and for the truth of which I can vouch. Our parish church, which is a very ancient structure, was, previous to the year 1830, in a sadly dilapidated state, and the earth of the surrounding graveyard had accumulated against its south wall to a depth averaging rather more than 2 feet. Such had

been its state for generations. At the above date it was taken in hand and thoroughly repaired, and it fell to my lot to superintend and direct the repairs of the graveyard, one part of which was to remove the accumulated earth from the wall of the church to the depth already mentioned, and to lower the adjoining ground to a corresponding natural-looking condition. Afterwards I was surprised to see on the surface of the ground, after the removal of the superabundant earth, that an immense number of plants made their appearance, which at first I mistook for common Tobacco: when they had time to develop themselves a little further, however, they turned out to be the common Henbane (*Hyoscyamus niger*). Now, from whence came these seeds, or how long had they been buried? They had doubtless been below ground, for generations, no plant of the kind growing in the locality. Again, immediately outside this same graveyard, near its north-west corner, some five or six years since, a large old Oak was uprooted by the wind, and raised an immense mass of earth with its roots when the tree was removed, and the hole levelled in. It is also produced a crop of Henbane. Now the seeds must have been there before the tree, at least it seems so, for how else could the circumstance be accounted for? As to the many instances mentioned of Charlock making its appearance, I would beg to remark that Charlock is, I believe, an oil-producing seed, and all seeds containing oil, if buried away from the air, will retain vitality a long time. I have myself raised Melons from seeds which I had kept for ten years. *Quercus.*

Larches.—The distance at which Larch of about 45 years' growth should be left apart to grow to the greatest profit per acre must be decided by the situation and present state of the plantation. If the locality is high and exposed the trees may not have attained the dimensions that would have resulted from more favourable circumstances, and therefore they would require to be left nearer each other than those of greater size. My system of thinning is to regulate the distance apart by the height of the trees, leaving a space between each, varying, according to situation, of from one-fourth to one-third, or little more, of the height of the trees. The distance at which Larches may be left apart at 45 years' growth may vary from 12 to 20 feet. "R. G. C." also asks if it would be advisable to have the trees "primed up." If pruning be what he means, it is decidedly objectionable to do more than clean off thoroughly all the dead branches. The quality of the wood is much improved by removing all branches as soon as they become deadened, and they should be attended to during all the stages of the growth of the plantation. *A. Patterson, Maristown.*

Protection of Frames, &c., from Frost.—Among other protecting materials one of your correspondents has lately accorded the preference to a covering of boards; but I am, however, inclined to think that there is a more effective material than any he has referred to, and to which the covering of boards itself in some degree, perhaps, owed its efficiency, as well as to its own non-conducting properties. The material I mean, is an enclosed stratum of still air, between the glass and the external covering; and if the stratum of air be 6 or more inches in depth, I doubt whether a more effective and desirable means of excluding frost is to be found. In the practical employment of this medium, it is requisite that the external covering should be close and impermeable by the surrounding air, in order to prevent any current or motion being introduced into the enclosed air, through crevices or other communications with the external atmosphere, by which its temperature would be speedily reduced to that of the latter. The covering material might be either wood or glass according to choice or circumstances; but apart from the question of expense, the latter would certainly be preferable, as the glass covering might be kept on night and day throughout the entire winter, by which a great deal of labour would be saved, and the plants would never be deprived of the natural light of day, as they must be during periods of hard frost if a boarded covering be adopted. *J. H. H.*

Star of the West Cucumber.—Mr. Ayres speaks of this variety in terms of disapprobation. Being the raiser of it and having successfully competed for three years against other good sorts, at the horticultural show at Plymouth, I am led to suppose that some difference in the treatment of the plant must be the cause of Mr. Ayres not having more success. Being, like himself, much interested in the culture of Cucumbers, it would give me pleasure to compete with him at any show in London, Plymouth, or elsewhere, as it is only by comparing ourselves with others that we can discover where we excel, and where we fail. I have within the last week cut fruit 27 inches long, of uniform thickness, with flower attached, young, crisp, and well flavoured; but such fruit as described, 20 inches long, if uniform, and only 1 inch in diameter, I should very much like to see. *Richard Lynch, Port Eliot.*

Dioscorea Batatas.—After what I formerly stated concerning this Yam, I think it no more than right to send you the result. It may be remembered that I had but one plant, a tuber about the size of a finger or nearly so. It was started in the spring in a very moderate heat, and when pushed a considerable length it was turned out (I have forgot the date, but not early). To give it depth of soil, which I understood to be a requisite, I raised a sort of flatish hillock on a garden border, and turned the plant out on the top of it. The stems were tied to a 3½ feet stick, but had no other care except on two occasions, when a soaking of water was given to

the value of one of these becomes a matter regulated by a skilful investigation. Nevertheless, it is necessary to state that these characters are much more prominent in the more recently improved sorts, and are, therefore, more easily recognised and placed beyond doubt.

An experienced practitioner finds the first indications of a promising seedling in the seed leaves. If these have long petioles, and are themselves long, narrow, of a delicate green, and deeply serrated at the margin, with the surface finely and delicately reticulated, there is a good prospect; if, on the contrary, the petiole is short and thick, the leaf round, thick, without serratures, white or cottony, without distinct reticulations on the surface, there is not much chance of the seedling proving good. If the plumule, on becoming a stem, is short jointed and forms wood buds of a conical shape, at one foot above the soil, it is a good sign. If on a grey, hazel, or pale greenish brown-coloured bark, grey ash-coloured specks are here and there visible, it is a still better sign. If, on the contrary, the seedling has a stem which does not bear itself erect, and has distorted irregular branches at unequal distances, no confidence can be placed in it. These marks rarely occur at the present time among seedlings raised from the more recently improved varieties of the Pear. A smooth shining bark, soft to the touch, of a brown, hazel, lead colour, fawn, or reddish, the whole sprinkled more or less closely with pale specks, or lenticular glands, is also considered to be a favourable indication; so it is likewise when the mature wood of the one year old shoots breaks clean. It is not, however, in the first or second year that one can judge of a seedling by its characters; for these are more distinctly marked in the second year after transplanting. The best time for making comparative observations is at the fall of leaf. It will then be seen that promising seedlings have leaves possessing the good characters above described, and a moderately thick stem, furnished with large prominent well swelled wood-buds.

It will also be observed that some of the seedlings have produced shoots forming wide angles, or are spreading; others spurs; some slender fruit-bearing twigs; others short spines on the stem and on the branches, which are furnished with four or five prominent wood-buds. Two or three well formed leaves, and a large plump terminal bud will be perceived at the extremity of each of the shoots. A disposition to bear spines is, in general, the surest sign of the beauty, delicacy, and long-keeping of the fruit. The contrary opinion is generally maintained; but it can only be considered as an old-fashioned prejudice. In fact, at the present day it is generally admitted that fine, smooth, spineless wood betoken a summer fruit. Spineless wood with thick downy leaves is the sign either of a musky summer Pear, or of a winter stewing Pear. I know of only one exception to what has been stated respecting downy leaves, and that is those of the variety called the Comte de Flandres; but this variety, on the other hand, possesses all the other characters of a good winter fruit. In this case it may be said there is no rule without exception. Fine spines along the branches and young shoots, the latter weak and twisted, form an assemblage of characters of bad omen, especially when these characters continue to be reproduced in the upper part of the tree. But the worst character of all is a bad habit of growth, either as regards the stem or the branches, and when at the same time, the latter are straggling, short, weak, and crooked. Luckily these characters do not occur in seedlings from good varieties.

Besides the favourable signs already enumerated, the following are found in seedlings of five years old:— 1st, A straight stem sufficiently strong to maintain itself in an upright position without support. 2d, Lateral branches and shoots of moderate vigour, without being either too slender or too thick, and of moderate length, with their extremities pointing upwards. 3d, Spines regularly distributed on the stem as well as on the lateral branches—these spines are long or short according to where they are produced and furnished with prominent wood buds throughout their length; they are placed perpendicularly, are well fixed on the surface of the branch, and wrinkled at their bases. 4th, The leaves, either of a light or dark green, are finely shaped, rather long than round, not folded, either perfectly flat or with the margins slightly elevated, and the apex recurved, the finest leaves on the current year's shoot being furnished with stipulary leaves. The tissue of the leaves is compact, the skin thin, the incisions regular and deep. The nerves are prominent, the midrib strong and straight, extends from the petiole to the apex of the leaf. The petiole is long and slender. 5th, The wood buds, which are reddish, brown, or gray, are neither too much nor too little developed, neither too much compressed nor too long, and not placed on the surface, but based on projecting supports. 6th, The internodes between the wood buds are not long; but those between the fruit buds are shorter than those others by half, that is about half an inch in length or even less. The above are all characters of good presage, and even of a fine and long-keeping fruit; indeed, it has been established, by repeated experiments made by the late Van Mons, that the longer the sowing of seeds of the best of every successive generation of Pears is continued, the greater is the tendency of the fruit produced to keep long, to improve in form, and to increase in delicacy. These spines should not extend on the stem and branches higher than 5 or 6 feet from the ground, and especially if the seedling appears naturally inclined to take the form of a dwarf pyramid. The higher the

tree the more rare the spines, and ultimately they entirely disappear. These observations may guide the cultivator in the selection of seedlings before the third transplanting. It is in the second year after the third transplantation that the indications of the future worth of the tree, are displayed to the close observer in the most striking manner. In a promising seedling the whole habit of the tree is pleasing to the eye, and clearly indicates that the period of full growth and of fructification is at hand. *J. de Jonghe, Brussels.*

Home Correspondence

The Osborne Shell Shower.—I should not have troubled you again on this subject until I had had something new or more definite to communicate, had the tone of Mr. Bree's letter (see p. 758) been less objectionable and more satisfactory to my own mind. I am as great a lover of truth as Mr. Bree himself, and should at all times feel grateful to that gentleman for correcting any error into which I may inadvertently have fallen; but to do so in a manner in which it requires no very great discrimination to discern the spirit of ridicule is anything but creditable or praiseworthy. As a naturalist Mr. Bree stands deservedly high, and I would treat his opinions with all deference. In this particular instance, however, I must beg to differ from him, and adhere to my original conviction, until I am so far convinced of its fallacy as to see its absurdity. Possessing a strong predilection for the study of natural history, I am not altogether unacquainted with, or an inattentive observer of nature. Nature has peculiar charms for me. I have wooed her not only in those grand and magnificent moods in which she astonishes the mind by her sublimity, but also in those more humble and unobtrusive forms in which she excites its wonder by her minuteness. I did not, as Mr. Bree seems to think, in the short space of "half an hour," jump at the conclusion that the shells at my feet had fallen from the clouds. It was not until I sought to elucidate what appeared so singular and interesting a phenomenon, that I ventured to give an opinion on the subject, which opinion, according to Mr. Bree, is now "blown to the winds." Of this, however, I am not quite so certain as that gentleman; nor are his arguments sufficiently cogent and conclusive to induce me at present to give up the point in dispute. His communication does not meet all the details of the case. There are some points yet to be cleared up, and I cannot but regard Mr. Bree's letter as somewhat premature. In accounting for the sudden appearance of so large a number of mollusks, Mr. Bree overlooks the fact of the dead shells. His remarks apply only to the living ones, and as far as my experience goes the proportion of the former to the latter was as two to one. These dead shells surely could not have been out on a foraging excursion. Neither had their inmates forsaken them on the spot where they were, as in no instance could I discover one of the missing tenants among the many thousands around me. This in my opinion is an important point, and one which remains to be cleared up. I would remind Mr. Bree that the whole extent of surface over which they were scattered had been swept and cleaned daily for months previous to the "memorable day," on which they were first observed, and had likewise, to prevent the growth of vegetation, been subjected to frequent washings with a poisonous acid; and, further, that there are neither stones, moss, or even crevices under and in which they could possibly find a refuge from the attacks of their natural enemies. If, indeed, they had left their rocky or mossy retreat in quest of food, and had wandered to this particular spot, they had certainly left the land of Canaan behind them to roam over what to them would be but a foodless waste. Instinct in this instance appears to have been at fault. Again it was but a short time (about half an hour) previous to that on which they were first observed, that not one shell living or dead was to be seen. If then they had come from some neighbouring rocky or mossy retreat, and in so short a time had scaled walls 4 or 5 feet high, and scattered themselves over so large a space, they must have possessed a power of locomotion, a quality of which I know no antecedent in the snail kind. This is another important particular, and one, too, which remains to be investigated. In conclusion I beg to assure Mr. Bree that I have frequently sought for the Zua in the neighbourhood of Osborne, but without success, and that whatever may be the result of "C. D.'s" inquiries I shall in no wise be astonished thereat. *C. Winchester.*

The Osborne Shell Shower.—The editor of the Banbury Guardian takes the same view of this case as Mr. Bree; and he illustrates it by the following statement:—"We had on our premises some years since a shed abutting on a tall warehouse, which was on the south side of it, while on the east there was another building; the two keeping off the sun's rays, excepting late in a summer's evening. The position was therefore cool and usually moist. The shed was roofed with Stonesfield slates, a heavy covering—in fact, a stone which by exposure in the winter splits into laminae. On more than one occasion after a shower, we found the roof of this shed, which was about 10 yards in length, covered with the Zua lubrica; there were thousands of them, and to an ordinary observer they would appear to have fallen with the rain, but there were none upon the ground. We entertained no doubt as to their origin; and the opinion we formed was, shortly afterwards fully confirmed. Being compelled to increase our office buildings the shed

had to be removed; and when the slates were taken from the roof, we found between them where they overlapped, heaps of these mollusks, then in an inert state, but which would after a warm shower probably crawl out to feed upon the tufts of Moss with which the roof was sprinkled over. The occasions on which we saw them out of their retreat were not numerous; if we had taken a light on a moist warm night and examined the shed, we should in all probability have seen them much oftener. So the Zua lubrica has been seen in Banbury as well as at Osborne."

Did you ever see this in perfection? At Killarney, the year before last, I found its fronds 7 feet high—more picturesque than any Palm: I wonder the Irish Roman Catholics do not use them dried on Palm Sunday. It has, however, one peculiarity—all the finest plants grow in situations flooded in winter, and 1 to 3 feet above water in summer, so that their roots are always in water. It has all the characteristics of a tree Fern, its caudex often being 2 feet deep in the ground; and in large specimens 5 or 6 inches in diameter it is extremely difficult to get up. I succeeded in bringing home five or six, but was obliged to be content with small specimens not above 2 inches in diameter, and these I could only get out of the bank of a stream where I could tear down the soil, a very sandy alluvial loam. It gave me some idea of the difficulty of procuring and importing tree Ferns. *R.*

Whitethorn.—Can any means be adopted to cause all Whitethorn berries to vegetate in the spring after they are gathered? *J. P.* [No. But if they are sown as soon as gathered, and not buried too deep, the greater part will germinate the first year.]

Effect of Salt Water on the Germination of Seeds.—In my communication of last week, it is printed by mistake that the fruit of "evergreens," instead of the fruit of the Eucalyptus, did not sink after immersion in salt water during a month. I may add that I think that the experiments on immersion of seeds in sea water have some little interest, as showing that we cannot infer from seeds of certain orders long retaining their power of germination in a dry condition, that these same seeds will retain it under different conditions. Thus the Solanaceæ and Leguminosæ are believed to keep longest when preserved in the ordinary way in a dry state, and the Solanaceæ seem generally to resist well the salt water, whereas most Leguminosæ resist much worse, as I have shown in your number of the 26th May, than other orders. I have lately tested this conclusion with quite fresh seeds of Trifolium incarnatum and Kidney Beans. Indeed with respect to some Leguminosæ, I have reason to believe that a short immersion in plain water will kill them. So with respect to the subject lately discussed in your column, namely how long seeds will remain alive when buried in damp earth, I do not see that any safe conclusion can be drawn from the length of time during which the same seeds can retain their vitality whilst dry. *C. Darwin, Down, Bromley, Kent.*

Oak Galls.—I believe that it was only last year that the attention of the Entomological Society of London was called to the existence of the hard Oak gall, *Cynips Quercus-petoli*, Linn., in this country, though previously noticed by Mr. Westwood. But surely it must have been of rare occurrence in this country until of late years, or it would have been observed before; and even now I believe it is confined to the southern counties of England. At all events I have never seen it in the midland counties, or indeed north of Somersetshire, and I should much wish to know if any one has hitherto seen this gall-nut further inland than I have mentioned. This may be important to know, as I believe the range of the gall-nut is extending, and with obvious injury to young Oak plantations, so that the gall-fly that produces the nut is becoming an absolute pest in Devonshire and Somersetshire, and I am led to inquire if anything can be done to arrest its progress. It is very different from the innocuous soft galls upon the leaves, seldom very numerous, and dropping off with the foliage in the autumn. But these gall-nuts of *C. Quercus-petoli* are mostly persistent upon the tree, and continue there for a long time hard as bullets. They seize upon the young shoots of the year, often the leading shoot in young trees, and cluster at its termination, thus stopping the expansion of the buds by taking up their nutriment, and keeping the trees in a dwarf state. I have now before me young shoots that are terminated by eight or nine of these hard brown galls clustered together; and I recently noticed in the Oak plantations on Worle Hill, near Weston-super-Mare, that many young Oaks had been quite ruined by their leading shoots being thus loaded, and some were absolutely dead. Now I have reason to believe that this attack upon the Oaks, at least in this plantation, is of recent origin. Four years ago I first observed a few on two or three trees, and looked upon them as a curiosity; last year I was surprised to observe many more, and the present autumn in walking through one portion of the plantations only, and without going out of the path I counted 91 trees that were more or less subjected to this scourge—for thus it has become. Some, it is true, had only about a score of galls or so upon them, but many had hundreds clustered upon their branches thick as Grapes, and the smaller trees were evidently drooping and checked in their growth by the absorbing villainous galls. Some of the trees were actually withered and dead, and others had their leading shoots killed, with the evident cause burdened upon them. It is clear to me that fresh trees are attacked every year by the increasing insect that produces the galls, and what can be done to stay their assaults? Though I only