

the value of one of these becomes a matter regulated by 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 stipular 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.

The spines should not extend on the stem and branches higher than 5 or 6 feet from the ground, 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."

*Osmunda regalis.*—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 Euonymus, 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 Solanaceae and Leguminosae are believed to keep longest when preserved in the ordinary way in a dry state, and the Solanaceae seem generally to resist well the salt water, whereas most Leguminosae 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 Leguminosae 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 columns, 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