that the rain may sink in when it is desirable that it should do so. It should be just enough to allow the water to run off by any covering that may be put over the surface, when the absorption of cold rains would prove injurious.

Some that have a good command of drainage may object to the formation of a terrace, on the ground that with a drain as low as three feet below the surface level of the adjoining ground all superfluous moisture would be thereby carried off as effectually as if the soil had been raised to that height. It must be admitted that such drainage will prevent stagnant water in the soil, whilst the drainage remains perfect. But drains are liable to be stopped from various causes. The roots of plants are not easily kept out; even those of the Vines are apt to insinuate themselves by such crevices as are necessary for the water to pass into the drains, and once a root gets in, a mass of fibres commences to be formed, which ultimately chokes the drain. Nothing of this sort can possibly happen if the terrace system be adopted. Moreover, the soil of a terrace is comparatively free from the mechanical effects of temporary saturation to which the soil of a border is liable. The latter is in contact with other soil, which prevents it from expanding horizontally when pressure from saturation takes place; and this on a height of 3 feet is very considerable. Suppose a certain level area were enclosed with a wall extending to the depth of 3 feet. Let the soil be filled in close to the wall inside, but entirely removed from the outside, so that externally it may have no support. When the soil inside is only moist it will almost rest on its own base, and consequently the wall will have but little pressure to resist; but the moment complete saturation takes place the enclosing wall has the pressure due to 3 feet of water, that is 62½ lbs. per square foot for every foot in height. On a portion of the wall 1 foot by 3 deep, the average pressure in round numbers, omitting the fractional ½ lb., will be as follows:—

			lbs.
On the 1st foot,	reckoning from the top	$\frac{0+62}{2}=$	31
On the 2nd	do.	do. $\frac{62+124}{2}=$	93
On the 3rd	do.	do. $\frac{124+186}{2}=$	155
		Total pressure on 1 foot run of wall=	279

That in front of a border, 24 feet long, would be about 3 tons.

This outward pressure being resisted by the wall, if precautions have been taken to build it strong enough, it is evident there must be an equal amount of compression on the mass inside. On every particle of substance of which it is composed, the pressure in proportion to the bulk of the particle and the depth it is from the surface, is the same as that against the wall. The roots of the Vines must of course bear their share of it. If there had been no wall, still the adjoining ground, equally saturated, would have offered a similar resistance, and the soil of the border would have been subjected to the same degree of pressure. But the sides of a terrace offer no resistance, and consequently no horizontal pressure can take place, even if the soil should at any time become saturated, which indeed, is not likely to occur. The soil of the terrace being at liberty to swell outwards, it is always more open than the same kind of soil would be if confined. If soil is so stiff that when level Turnips will scarcely succeed, yet if the same soil is put up in ridges, which are easily pressed outwards, good crops of these roots are obtained. The soil in ridges or raised drills is not compressed horizontally, and is consequently much more easily penetrated by the roots of plants; and so it is with the soil in a terrace.

From what has been stated it will be seen that the terrace should not be enclosed by a wall, however desirable that might be in some cases; at all events if a wall is built it should be formed of perforated bricks. Nothing is perhaps so good as turf for the sides of the terrace, which may be sloped at an angle of 45°.

With regard to the construction of the house, the width being 12 feet, the back wall may be raised 7 feet above the front. The pitch of the roof will then be a little more than 30°. If the back wall is 8 feet higher than the front the angle of elevation will be 33° 41′, and the length of the rafter about 14 feet 5 inches. The front wall, in order to save materials, may be formed on arches; or it will be still more economical to build piers, one under the end of each rafter, for the support of the wall-plate.

It must be admitted that the terrace system occasions more outlay in brickwork, as the whole basement has to be raised 3 feet higher than would otherwise be the case. This elevation however has many permanent advantages, as already pointed out. In confined situations it is more especially important. For example, a small Vinery might be erected where a boundary wall 9 feet high is only 30 feet distant; then by raising the front wall of the Vinery 3 feet the same effect is produced with regard to exposure to light as if the boundary wall in front had been lowered to 6 feet.

Having thus stated the essential points which should be attended to in the construction of small Vineries, it will be seen that such structures may be erected at small expense; and if the principles which have been explained are properly carried out, it may be safely affirmed that the results will be satisfactory, as regards the quantity as well as the quality of the produce, provided a rational course of management be adopted for the Vines themselves. ||

HITCHAM LABOURERS' AND MECHANICS' HORTICULTURAL SOCIETY.

Second Show for 1860, Postponed from Sept. 19 to Oct. 3, on account of the lateness of the Harvest.

8 to 10 A.M. Specimens received on the Rectory lawn.

12. Marquee museum ready for inspection. Lectures as opportunity offers later in the day. Among additions since the July Show, observe:—

1. Photographs of highly magnified objects of natural history; among which are a fly's tongue and eye, parasites (lice) of man and ox, spider's claws, saws of a saw fly, fossil Foraminifera. N.B. The chalk (in round numbers, 1000 miles in length, 500 in breadth, and 1000 feet thick), has been mainly produced by these microscopic creatures! Section of Pinewood with circular disks on the cells. 2. Magnified representations of 151 forms of snow crystals. 3. Case containing living specimens of our smallest British mammal, the harvest mouse. 4. Pearls from four British mollusks, viz. oyster, periwinkle, pearl-muscle, freshwater clam. 5. For the sake of children, young and old: A case containing a "heap" of shells and corals; also, under a glass shade, a new device from the last horticultural show in "Fairy-land."

1 P.M. Show booth ready for inspection.

Prizes to village botanists of the first class, for (1) Wild fruit posies, (2) Dried Grass posies. N.B. The species to be named in each case. (3) Herbarium specimens. School report. Allotment report. Prizes distributed for (1) Superior culture, (2) Hatcher sweepstakes, (3) Specimens exhibited at this Show. Thanks to the judges, donors of prizes, and all others aiding and abetting our proceedings. Begin to remove specimens from the booth. Not to forget to restore cheque and prize tickets to the stewards. Ready for tea. Ticketless babies (0 to 2 years old), and ticketed ditto (2 to 4 years) admitted as heretofore.

God Save the Queen. Good night. May the occasion prove a blessing, without a single instance of offence against the laws of God or man.

Home Correspondence.

Eucharidiums.—Herewith I take the liberty of sending for your inspection two new varieties that I have raised from "Eucharidium grandiflorum;" they are more profuse bloomers, more compact in habit, and quite distinct in colour from the old variety. I shall esteem it a great favour to have your opinion upon them, also perhaps you would kindly name them. *W. J. H. Dunnett, East House Farm, Dedham, Essex.* [One of them is white, or nearly so; the other is stained with pale rose. They are pretty and distinct; but we cannot undertake to name them.]

Guide to the Isle of Wight.—My attention has been called to a notice of the recently published "Guide to the Isle of Wight" which bears my name, that appeared in your Paper of August 4. While I beg to thank you for the generally favourable opinion you have passed on the work, especially for that portion for which I am indebted to the pen of my able friend Mr. A. G. More, I must request that you will relieve him from the charge of having neglected to mention perhaps the most important member of our Island Flora. The omission of the Arum Italicum by so excellent a botanist, and one so intimately acquainted with the vegetation of the Isle of Wight as Mr. More, would indeed have been a matter of astonishment. But the fact is that it stands recorded no less than three several times; p. 495, and twice on p. 498; once in connection with Steephill, which you mention as the only locality known to you where it is to be found; and once in connection with the cliffs near Niton, "in the shaded recesses of the more wooded parts" of which, Mr. More truly states, that this rare plant so often confounded with Arum maculatum grows. It is to Mr. Albert Hambrough, of Steephill Castle, that this remarkable addition to the Flora of the Isle of Wight is due. *Edmund Venables.* [*Peccavimus.* We had missed the places referred to; but we must add in our justification that the Arum is not mentioned in any of the lists in Mr. Venables' Guide, and we hope to be excused for not having read every sentence in his volume.]

Irritability of Drosera.—In Lindley's Vegetable Kingdom (p. 433) it is stated that the leaves of Drosera lunata "close upon flies and other insects that happen to alight upon them." Can you refer me to any published account of the movement of the viscid hairs or leaves of this Indian Drosera? *C. R. Darwin, Down, Sept.* 15. [Dr. Royle is the authority for the statement in question. In his Illustrations of Himalayan Botany there is the following passage:—"D. lunata occurs in the mountains from Silhet to the Sutlej. This I have found in the small valleys enclosed within the different lateral projections of the Mussooree range, where the ground is rather flat, and the soil moist. In such situations it springs up and flowers in considerable quantities, but only during the rainy season, when the thermometer has a range of not more than 10°, between 60° and 70°, and the hygrometer always indicates a degree of moisture approaching that of saturation. This species, which in my MSS. Catalogue I had named D. muscipula, from the glandular ciliæ of its viscous leaves closing upon flies and other insects which happen to light upon them, is remarkable, as in this respect resembling Dionæa muscipula, which is placed in the same natural family."]

New Fruit and Flower Gatherers.—I send you the following novelties in garden implements:—1. The Flower Gatherer.—This has a hollow tube handle about 2 feet long, by means of which a flower can be gathered on the top shelves of a conservatory without climbing or injuring other plants; after the flower is cut it is held by the spring until it is released by the hand. 2. The Peach Gatherer.—This holds the fruit without disturbing the bloom or injuring it in any way until released by pressing the spring at the bottom of the handle. This handle can be increased in length if required. 3. The Fruit Gatherer, with or without the net.—This is fixed on a long handle, and fruit can be gathered from a tall tree without trouble or injury to the fruits; it is very light; none of them are liable to get out of repair. *William Riddell, 42, De Beauvoir Square, Kingsland.* [These little contrivances are neat, and will probably be acceptable to ladies or the owners of small gardens.]

Sagacity of the Humble Bee.—To be equal to the exigencies of new and trying circumstances is a proof of the possession of capabilities of no common order. If this be conceded in the case of man, endowed with reason, and gifted with a capable and an expanding intellect, we may claim for any manifestation of independent action under novel circumstances in the lower orders of creation, at least singular instinctive sagacity. An instance of the instinctive capability of bees has this year been very noticeable. The cold and wet season we have experienced has retarded the development of flowers out of doors, and in consequence our more choice exotic plants collected in greenhouses have been more than commonly frequented by hungry bees. Humble bees have been unusually pertinacious in their pursuit of food; and in the case of Achimenes longiflora, grandiflora, and others, which presented a difficulty in the lengthened tube of their flowers, the coveted nectar of the flowers being unattainable from the mouth of the flowers, the bees have cleverly taken the Alexandrian way of solving a difficulty, and have cut through the tube of the flower just above its stored riches of sweetness, so that the attainment of their food is easy. I claim then for our English bees the triumph of overcoming a difficulty, for surely the parent bees, a few years back, never saw these bright South American flowers. *W. I., Belvoir.* [Referred to the consideration of Mr. Darwin.]

Yucca Gloriosa.—In May or June 1859 an inquiry was made as to the best means of preventing a Yucca from flowering, so as to save the plant then showing bloom. The advice then was let it alone, as after flowering it would throw out plenty of young plants. The history of a Yucca in my garden may be suggestive of some experiments. When my plant was just approaching full flower, with a spike 9 feet high, and many hundreds of flowers open and others at the top in progress, an unknown enemy cut it down a little above the base of the flower spike, leaving only two small side spikelets with a few blooms on each, thus at once disappointing many visitors who wished to share the delight that hundreds had enjoyed on the preceding days in viewing it. The remaining flowers were of course allowed to be on the plant till they withered, and they were then cut off, together with the base of the flower spike. In the spring of this year I was pleased to see two off-shoots from the base of the old flower spike, one towards the side, the other almost straight up; the former when fit for a cutting was cut off; the centre shoot now remains, and the whole plant is nearly in the same condition as before, except that there are some eight or nine suckers at the base which shall be removed shortly. Now does not this suggest the propriety of cutting down the flower stem just before it had exhausted all its resources? This is a step which doubtless many will be unwilling to take; still, if they would thereby preserve their plant for the sake of its foliage it might be worth the trial. *D. U.* [It is perfectly unnecessary to do so.]

Stocks for Apricots.—On talking with a clever experimental and experienced gardener at Cambridge, about Apricots and the best manner of growing them, he informed me that if it is desired to cultivate the Moor Park successfully, to secure large and good fruit, and to avoid the frequent vexation of seeing dead branches, the tree must be grafted or budded upon the Almond and not upon the Plum Stock. I shall be glad to know whether there be any truth in the assertion, or whether there is really any great good to be gained by going to the expense of changing my trees for those worked upon the Almond stock. *F. R.* [The Almond is a better stock than the Plum, but it will only answer in warm calcareous soils. A better stock still is the Apricot itself (seedling) provided the border is not too cold for it.]

Diagonal Peach Training.—Fear of obtruding on your space will prevent my giving "A Young Gardener" the information he seeks. The diagram at page 36, vol. for 1853, while suggestive, gives but a meagre idea of the system which I am practising, and it is only a representation of the character of the tree at one

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