

They regard a good harvest as the confession." Further particulars are supplied in an extract from Mr. Macbride's Meteorological Diary sent to me, in which it is observed: "The remarkable and extraordinary cold and wet weather in June, 1857, has no parallel in the records of any former period. The quantity of rain which fell was more than the total amount which fell more than in any other year. Last winter and destructive thunderstorm occurred on the evening of the 12th, which continued for two hours. The hailstones, or rather pieces of ice, were of an immoderate size, singular in shape, with sharp edges, and destroyed every tender plant within their range. Several Vineyards were cut down, and the stems were liberally stripped bare of their leaves. The crops in general were much injured, and the fruit, being confined to one district. Those species who doubt the truth, as recorded, in the book of Joshua, chap. x., should have witnessed this storm. The more credulous of the natives had been for some time in a state of great excitement and alarm, in consequence of a prevailing rumor that a comet, containing a great quantity of fire, was to appear on the 12th June. When about 10 o'clock on the morning of the 12th, the southern sky became dark, lowering, and threatening, the more timid became terrified, and their consternation reached its zenith when the first loud peal of thunder burst over the city. Peal after peal, louder and louder, followed in rapid succession, while an mingled with loud fell in showers, accompanied by a terrific lightning, which continued to flash and hiss in brilliant arcs, streams amidst the descending elements. The scene was, in truth, terrific and impressive, and no doubt existed in the minds of the terrified people that the awesome visitor had actually arrived, bearing in its train the advent to the consummation of all things. True panic gave place to despair, and the following period of the stormily rushed on, and they were then in the greatest commotion. The crowd of people who gathered to witness the appearance of the first rainbow, seems to have been unknown or disregarded by those fearful worshippers."

To these details may be added a notice of the usual state of the weather, and of the customary rural operations in Cádiz in the month of June: "The corn and barley begins to ripen and ends with the month, and the garden's laborer commences. Everything in the vegetable line requires irrigation, and when the water has to be brought from a distance the work is tedious and laborious, and considerably reduces his profit. Tobacco and flax are now transplanted. The sky is pure and serene, and the barometer seldom varies four-tenths. Although the heat is great, the sun remains nearly clear. It falls above the horizon, yet there is sufficient moisture in the atmosphere to render the ground moist and greenish, and to good constitutions it is one of the healthiest months in the year." Mr. Macbride has made careful daily observations during the last 10 years. *George Lawson, Ph. D., Edinburgh, Oct. 12.*

while covered with masses during the winter, the cold often descending to 5° Fahr.

In North America, at least in the United States, the *Vitis vinifera* has wholly failed. It was first attempted by Swiss on the banks of the Ohio, lat. 39°, but the wine was poor, did not keep, and did not pay its expenses, and the Vineyards have since given place to corn fields. Vitis but limited crops of Grapes are said to have been obtained near Cincinnati, but other attempts have failed of these the most remarkable is that of Louisiana, who resorted to various expedients in several of the States, changing the localities, plants, &c. Agria, a Mr. Longworth, of Ohio, pursued his attempts for 30 years with remarkable success, and it has been found necessary to use the Catawba (the original wild Grape of America, of which 1500 acres are cultivated in Ohio, 300 to 400 in Cincinnati, and about 1000 in Missouri, Indiana, and Ohio. These Vineyards are increasing and profitable.

In New Mexico and California the climate is more favorable, and the European Vine is cultivated, but it has not been introduced into the more recent settlements, and it is impossible to say what the future limits may be in Oregon.

In the southern hemisphere the Vine thrives in Chili, and excellent wine is made to the east of the chain of the Andes at Mendoza, Saint Juan, and La Rioja, but its southern limit is not known. Shows resembles the Vine at Concepcion under the 37th degree. Wine of the best quality is sometimes produced at the Cape of Good Hope; that of New South Wales resembles the wine of the banks of the Loire; and in general the dry climate and light soils of Australia are well adapted to Vine cultivation. That of Tasmania is too humid.

[In the above account of the extensive Vine cultivation of the North Western Himalayas, Afghanistan, and Persia is not mentioned. The reported cultivation at Lhasa is open to doubt; Huc and Gabet, the only Europeans who have visited Lhasa, make no allusion to it; and the testimony of recent Himalayan travellers who have questioned the Tibetans upon the subject seems to prove that the climate is much too rigorous and arid.]

Home Correspondence.

Wood found by the descending sap.—The accompanying drawing was made in the churchyard of Kirk Bradden, in the life of Man, a few days ago, and represents an Ash tree which, growing in contact with a tombstone, accidentally afforded a good example of the diffusion of wood by the descending sap. The flow according to the central portion of the tree had not yet begun to stagnate in its course, but, during the last few years of the growth of the Ash, the latter has come into contact with the edge of the tombstone, and the flow of the descending current has been impeded, so that wood has been deposited in a rounded mass upon the upper surface of the flat slab.

most, the plant would probably at that time have been cut down or mutilated. John Evelyn, *Walworthampton, Sept. 21.*

True and Fertile of Kidney Beans.—Mr. Swayne in the 5th volume of the Horticultural Transactions incidentally speaks of the advantages of artificially fertilizing the early Beans. One class he has not yet sorted of Beans to raise? [We propose to the Early Mangel; but we have no special information.] and who has followed this plan, and how has it been effected? My object for asking is as follows: every one who has looked at the flower of the Kidney Bean must have noticed in how curious a manner the pistil with its tubular keel-pistil curls into a French horn, to the left side the flower looks like a French Horn. The ovary is at the end of which the petals can reach the ovary under from the left side, invariably stand on the left wing petal; their weight and the effect of sucking deposits this petal, which, for its attachment to the keel-petal, causes the pistil to protrude. On the pistil beneath the stigma there is a break of fine hairs, which look like the pistil is used backwards and forwards, except the pollen already shut out of the tubular and curled keel-petal, and gradually pushes it on to the stigma. I have repeatedly tried this by gently moving the wing petals of a lately expanded flower. Hence the movement of the pistil indirectly caused by the bees would appear to aid in the fertilisation of the flower by its own pollen, but besides this, pollen from the male flower which has the pistil is used backwards and forwards to the right side of the head and body of the bees, and this can scarcely fall occasionally to be left on the left stigma, quite close to which, on the left side, the bees invariably insert their proboscis. Believing that the brush on the pistil, its backward and forward curling movement, its protrusion on the left side, and the constant slighting of this stigma by the bees, which is not only an indirect cause, but also was connected with, perhaps necessary to, the fertilisation of the flower, I examined the flowers just before their expansion. The pollen is then already shut; but from its position just beneath the stigma, and from its coherence, I doubt whether it could get on the stigma, without some movement of the wing petals; and I imagine that when the wing petals are moved, when the wind might cause, would suffice. I may add that all which I have here described occurs in a lesser degree with *Lathyrus grandilobus*. To test the agency of the bees, I put on three occasions a few flowers within bottles and under gauze; half of these I left quite undisturbed; of the other half I daily moved the left wing-petal, exactly as a bee would do, and the result was that the former were disturbed flowers set a pod, whereas the greater number (but not all) of these which I moved, and which were treated in no other respect differently, set five pods with good seeds. I am aware that this little experiment ought to have been repeated many times; and I may be greatly mistaken, but my belief at present is, that if every bee in Britain were destroyed, the season would be ruined, and the loss to the farmer. Those facts make me anxious to know the meaning of Mr. Swayne's allusion to the good arising from the artificial fertilisation of early Beans. I am also astonished that the varieties of the Kidney Bean can be raised here when grown near each other. I should have expected that they would have crossed, and the result being a mixture of the varieties; and I should be infinitely obliged for any information on this head from any of your correspondents. As I have mentioned here, a little fact which surprised me may be worth giving.—One day I saw for the first time several large humble-bees visiting my rows of the tall several Kidney Beans; they were not sucking the pollen, but were taking the pollen from the varieties, and I should be infinitely obliged for any information on this head from any of your correspondents. As I have mentioned here, a little fact which surprised me may be worth giving.—One day I saw for the first time several large humble-bees visiting my rows of the tall several Kidney Beans; they were not sucking the pollen, but were taking the pollen from the varieties, and I should be infinitely obliged for any information on this head from any of your correspondents. As I have mentioned here, a little fact which surprised me may be worth giving.—One day I saw for the first time several large humble-bees visiting my rows of the tall several Kidney Beans; they were not sucking the pollen, but were taking the pollen from the varieties, and I should be infinitely obliged for any information on this head from any of your correspondents. As I have mentioned here, a little fact which surprised me may be worth giving.—One day I saw for the first time several large humble-bees visiting my rows of the tall several Kidney Beans; they were not sucking the pollen, but were taking the pollen from the varieties, and I should be infinitely obliged for any information on this head from any of your correspondents.

ON THE NORTHERN LIMITS OF VINE CULTIVATION.

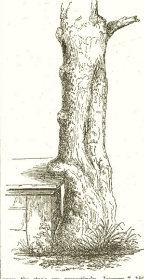
(From A. De Candolle's *Observations Botaniques*.)

AMALGAMATE facts regarding the retrogression of limits of Vine cultivation are presented in the north-west of Germany. Meyen states that in the 14th century the Vine was introduced into Prussia, and that it was cultivated there long since that epoch. M. J. G. Engelm has presided in a Nuremberg journal in which the ancient Vine culture in Prussia is traced to the country under the Teutons. The wine made was acid, and now-a-days would be unpalatable compared with more southern wines. The climate of the shores of the Baltic between Danzig and Königsberg is not very unfavorable to the Vine, and we find that even now it is sometimes cultivated there. Lastly M. Struher assumes that times are not given here now Caspar, though there are localities named after the Vineyards which once grew there.

To return to the present limits of the Vine, there are extensive Vineyards in Bohemia (notwithstanding the elevation of that country), in Moravia, and more still in Hungary. The chain of mountains called successively *Hersgebirge* and *Carpathians* define its limits in these parts of Europe, and it does not extend beyond these except occasionally under the 48th degree. Thence it passes to the province of Belovna where there are Vineyards in favorable localities, but there are none in Galicia. At Kiev Grapes ripen badly and in gardens only, no wine being made. Descending the Danister, the first Vineyard met with at Mohlow under the 48th degree, on the Tiberus under the 43rd degree, the ancient Vine culture in Prussia is traced to the Don the culture of the Vine is extensive from Azov to Tcherbank. On the Volga it is cultivated at Sarapta, lat. 49°, and probably as far north as 50°.

In southern Russia it is customary to bury the Vines during winter to protect them against the great cold, and the frosts of September sometimes destroy the crop.

In central Asia Vines are grown here and there in low populous valleys. Humboldt mentions their being found at Hissar (lat. 48°), and at Kokand (lat. 41°). The height and extent of the mountain chains in the course of that continent are an evident obstacle to this culture. Bunge informs me that Vines are grown in North China, in the eastern of Pekin, and in great abundance, even as far north as Goo-goo-goo, beyond which he saw no Vineyards; but the plants were easy-



upon the stone are respectively—January 7, 1808; November 21, 1811; January 3, 1836; from which it is evident that when the last tenant was added to the tomb the tree could not have begun to encroach upon its surface; and had it done so to any extent, growing as it does within the thin rulling of the glass of iron-