Girdling the Grape Vine.

The girdling of a grape vine has a very marked influence on the fruit: it causes it to grow much larger, to ripen sooner, and makes it of better flavor. Girdling consists in taking a rim of bark about one fourth or one sixth of an inch wide from the trunk or branches of the vine. Some recommend taking this rim of bark from the main stem, others from the side canes. As many may not understand the operation or the effect it has upon the vine, it may save the life of many a vine if we examine and see how it grows. A vine does not grow, as may appear at first sight, from the bottom upward, but from the top downward. The roots take from the soil what moisture the plant needs; also the mineral matter. This food cannot be used by the plant unless there is water in the soil to hold it in solution, as it must be in a liquid form to be taken up by the roots. This crude or undigested food or sap is carried to the leaves, not through the bark, but through the entire wood of the vine. When it reaches the leaves, it comes in contact with the carbon absorbed from the atmosphere by the leaves; here it is digested, and is now ready to be used by the vine in making new growth in what is called the cambium region, and is deposited in the form of cells just beneath the bark, so that all growth is made from the downward flowing sap, and not from the upward.

If a vine is girdled by taking away a rim of bark, a break is made, so that the sap as it descends cannot pass over this gap, and all growth must take place above where the bark has been removed. If the main trunk is girdled, that portion below the girdle must go without receiving any support from the rest of the vine until this wound can be healed over and complete circulation renewed. All this time the roots have furnished crude sap for the part of the vine above the girdle, and have received nothing in return. This cannot help weakening the roots, and if followed up it must entirely kill the vine. This gap may heal over (as it probably will if not done too late), when the circulation will be restored once more; but there has been a strain on the roots, and they must be somewhat exhausted. If only girdled once the vine may not be permanently injured: but if followed up it must be weakened, and the moment its vital forces begin to lag will disease of some form step in and hasten the work of destruction. If instead of girdling the main trunk a side shoot is taken (taking care to leave some untouched), the injury may not be enough to be felt by the roots, and the vine will not be injured to any extent. After a vine is girdled, the crude sap is taken up the same as before and is digested by the leaves. This prepared sap descends as far as the place where the rim of bark has been removed, and can go no farther. The result is, the branch is crowded with food that must be made use of, the fruit has more than the usual amount of nourishment supplied it, which causes it to develop faster, grow larger, and makes it of better flavor. If a single branch be tried, the effect of girdling can be distinctly seen; the cane girdled will show ripe fruit, while that on the remainder of the vine will hardly have begun coloring. I think the best results from girdling will be obtained if done in the following manner: As soon as the fruit is half grown, take a rim of bark from the side canes (leaving part ungirdled to supply nourishment to the roots, and to keep the vine in a healthy condition) near the main trunk. The rim of bark should not be over one fourth of an inch wide. This will make the fruit grow nearly as fast again as on canes that have not been girdled. The vine at this season is growing very vigorously, and will heal over the wound made by taking away this rim of bark in a short time. As soon as the natural circulation is restored, the fruit will seem to have stopped growing, and that on the rest of the vine will partly catch up with it; but if as soon as the circulation is restored another break is made by taking away another rim of bark, just above where the first one was taken, the fruit will ripen fully two or three weeks earlier than that on the rest of the vine. Last season I tried this method on a Concord vine. The first girdling caused the fruit to increase in size nearly as fast again as it did on the canes that had not been girdled. The wound healed over in a few weeks, and the berries seemed to come to a stand still. I removed another rim of bark just above where the first one was taken, and it was astonishing how quickly the berries began coloring. They were larger than those on canes not girdled, of better flavor, and ripened fully fifteen days sooner. If any one will take the pains to grow new canes each year to girdle the next, and cut away the canes girdled the year before as soon as they have produced one crop of fruit, I see no reason why girdling should not be practiced, and would even recommend it, as the fruit will ripen so much earlier that it will be in no danger of injury from early frosts, which in this latitude often destroy the crop. But do not girdle the main trunk, only the side branches, and grow new canes each year to girdle the next. If instead of this the main trunk is girdled, the vine will become weakened, and in a short time will be ruined.—*J. W. C., in Scientific Farmer.*

Cotton Mills for China.

The Berlin correspondent of the London *Morning Post* recently made the following statement in a communication to that journal: "The Chinese government has purchased machinery and engaged experienced engineers and spinners in Germany to go out to China and establish mills there. The government hopes by this means to make its country independent of Russian and English manufacturers, and to supply the home market with home produce. The mills are to be constructed and worked on the European principle." "Is this statement correct?" it has been asked. We know that it is, for the design of the government of the Celestial Empire has been heard of in Lancashire, and negotiations have been opened here having the above object in view. Here, then, we have the prospect of another competitor of a formidable character springing up to confront us. Doubtlessly, also, the new industry will be founded, cherished, and developed under a system of protection as rigid and uncompromising as the government may deem it safe to inaugurate. The result of this experiment, presuming that it will be made, can hardly be predicted. We shall have to wait patiently, and observe if the ingrained conservatism of Chinese nature will permit at home such a startling innovation upon the methods of spinning and manufacturing, immemorially old, that are in vogue in the country, as would be the planting of cotton spinning and weaving establishments upon the English system. Should this, however, take place, it will need no prevision to safely affirm that the industry of the West in another thirty or forty years will have to stand face to face to a competitor whose formidable character will dwarf all previous ones into insignificance. The personal qualities of John Chinaman, as shown abroad, where he has latterly begun to appear more frequently, reveal the fact that he is patient, docile, sober, industrious, and possesses great power of adapting himself to and mastering the details of any new occupation to which he may be put. Should he, therefore, in his own home take kindly to western methods of labor, the industrial and commercial states of the world would speedily be revolutionized. This is a possibility of the future.

Noumeite.

At the recent World's Fair in Paris, noumeite—a massive form of garnierite or hydrated silicate of nickel and magnesia—was exhibited in large quantities.

In a recent number of *Dingler's Journal* Prof. Rudolph van Wagner states that the largest nickel works in France make all their nickel, its alloys, and the salts used for nickel plating, from this New Caledonia ore alone. The ore, as it reaches the factories, has the following average composition:

Oxide of nickel	18
Oxide of iron	7
Magnesia	15
Silica	38
Water	22
	100

It occurs in serpentine, and possesses a beautiful green color, similar to, but not easily mistaken for, malachite. Its color, together with its variegated and clouded appearance has led to selecting the finest specimens and polishing them for use as setting in breastpins, earrings, and other ornaments. It is more especially to these selected and polished specimens that the name of noumeite is applied. Being massive and dense it cannot equal the fibrous malachite with its beautiful satin luster, but may yet find extensive use along with lapis lazuli in mosaics and the like.

The methods employed in extracting the nickel from the New Caledonian ores are quite different from those in use for other nickel ores, and much simpler. In the so-called mixed process the ore is treated with hydrochloric acid and the solution precipitated by oxalic acid. The nickel being now combined with an organic acid is readily reduced by simply heating it in a crucible with lime and charcoal to a high temperature. The metal thus obtained contains 99·5 per cent of nickel. In the other method, known as the wet process, the ores are likewise treated with hydrochloric acid, the iron and alumina precipitated with carbonate of lime, and every trace of sulphuric acid removed with chloride of barium. The nickel is afterward precipitated as oxide by means of chloride of lime and lime water. The metal obtained by reducing this oxide is of excellent quality, and can be beaten out under the hammer, which is not the case with either the English granular or the German cubical nickel. Riche's analysis gave the following results:

	Ni in the wet way.	Ni in the mixed way.
Nickel	97·75	98·00
Silicon	0·54	0·50
Carbon	1·25	0·13
Manganese	0·36	1·63
	100·00	100·00

Chloral a Poison Antidote.

According to the *Lancet*, Professor Huseman, of Göttingen, has been engaged in a long series of observations on the antagonistic and antidotal actions of drugs, and, among these, investigations relating especially to chloral.

Chloral hydrate is known to act as an antidote to strychnine, lessening the spasm, and even preventing death. It has a similar action in the case of the mixture of strychnine bases sold under the name of brucin, and also against the opium alkaloid, thebaia, which simultaneously tetanizes and lessens sensibility. The spasms produced by chloride of ammonium diminish under the employment of non-fatal doses of chloral hydrate, and can indeed be completely stopped. Nevertheless death occurs, probably from the paralyzing effect of both substances on the respiratory center. The antidotal effect of chloral on the action of the poisons which cause convulsions by their action on the brain, is not the same for all these substances. The quantity of the poison which can be counteracted by the antidote appears to be considerably greater in the case of picrotoxin than in the case of codeia. Of the latter, indeed, the fatal dose, and even a quantity half as much greater, can be rendered harmless, but twice the fatal dose cannot be counteracted, and is still fatal. Calabrin is counteracted by chloral hydrate in about the same degree as codeia. The symptoms produced in rabbits by poisoning with baryta are not materially altered by the action of chloral, which does not appear to prolong life. So, also, with carbolic acid; the spasms produced by it are not arrested by chloral, and the minimum dose fatal to rabbits still produces death. The combination of a fatal dose of carbolic acid with a non-fatal dose of chloral hydrate causes in rabbits a remarkable fall of temperature, which is not produced by the action of either of these alone. As a rule, when chloral antagonizes the action of these cerebral poisons, the respiration sinks in frequency much more than in the case of the analogous action of chloral on the tetanizing poison. The depression of temperature caused by the chloral is also independent of any peripheral loss of heat. The elevation of temperature due to division of the spinal cord is hindered by chloral hydrate.

ASA PACKER.

Judge Asa Packer, President of the Lehigh Valley Railroad Company and founder of the Lehigh University, died at Philadelphia Saturday, May 17. He was born in New London county, Conn., December 29, 1805, and at the age of seventeen, with no inheritance save a sound frame, an earnest purpose, and sterling character, set out to make his way in the world. He journeyed on foot to Susquehanna county, Pa., where he apprenticed himself to a carpenter. When master of his trade he married, and spent a number of years farming a piece of land owned by his wife's father. Tiring of that occupation, the young couple removed to Mauch Chunk, where Mr. Parker took command of a canal boat, and engaged in the business of transporting coal. In a couple of years he was able to build himself a boat and to enter into a profitable partnership with his brother. In 1840–43, he and his brother were building boats at Pottsville to carry coals to New York by the Schuylkill navigation system. Later, Mr. Parker took up the double enterprise of mining as well as transporting coal.

In 1852 he began the gigantic undertaking of building the Lehigh Valley Railroad, which was finished in 1855, and, with its branches, opened up the entire anthracite region of Pennsylvania. As Mr. Packer had foreseen, the railway at once gave an enormous impetus to the coal mining business, and developed other interests and industries proportionally, adding greatly to the prosperity and wealth of the State.

While carrying on these vast material undertakings Mr. Packer found time to carry on constantly the studies which he began in the evenings while learning his trade, and to render excellent service to his State and the nation in judicial and legislative capacity. His judicial title was acquired by service as county judge. In 1844 he was elected to the State Legislature, and in 1852 was sent to Congress, where he served two terms.

In his business career Mr. Packer acquired great wealth and used it most creditably. He gave munificently and steadily to charitable, religious, and educational objects, crowning his life-work by the establishment and liberal endowment of the Lehigh University, an institution designed with special reference to the needs of young men preparing to undertake the great mining, manufacturing, and other material interests of the country. In its course of studies the chief places are assigned to civil, mining, and mechanical engineering and other departments of practical and industrial science. To the endowment of this institution Mr. Packer gave in all upwards of $2,000,000.

Mr. Packer's personal life was marked by exceptional gentleness, kindliness, simplicity, and sincerity. He made many friends and retained them to the end. His entire career exemplified not only the highest type of success in personal and practical affairs, but paid the highest tribute to the institutions under which he lived, which made it possible for one, without wealth or family influence to begin with, to gain great wealth by honorable means, to benefit his age and country, and to leave behind him monuments that must make his life grandly productive through many generations.

Some years ago, at a meeting of eminent Pennsylvanians, Colonel J. W. Forney pronounced an eloquent tribute to Mr. Packer's life and character, worthy of recalling at this time. In it he said:

"Here is a character for youth and manhood to study. Here is a lesson to the one to move on in the path of improvement, and a stimulant to the other never to despair in the darkest hour of disaster and misfortune. We pick out Asa Packer as the miner picks out a piece of coal to show the value of the precious deposit from which it is taken; we pick him out to show what can be won by personal honesty, industry, and kindness to men; by courage in the midst of bad luck, by confidence in the midst of gloomy prophecy, by modesty in prosperity, and by princely generosity when fortune comes with both hands full to realize a just ambition. Mr. Packer's whole career exemplifies the truth that in the United States there is no distinction to which any young man may not aspire, and with energy, diligence, intelligence, and virtue attain. When he set out from Mystic, Conn., to make the journey to Pennsylvania on foot it is not probable that his entire worldly possessions amounted to $20. These possessions are estimated at $20,000,000, all of which has been accumulated, so far as known, without wronging a single individual."