

Remarkable Electrical Experiments.

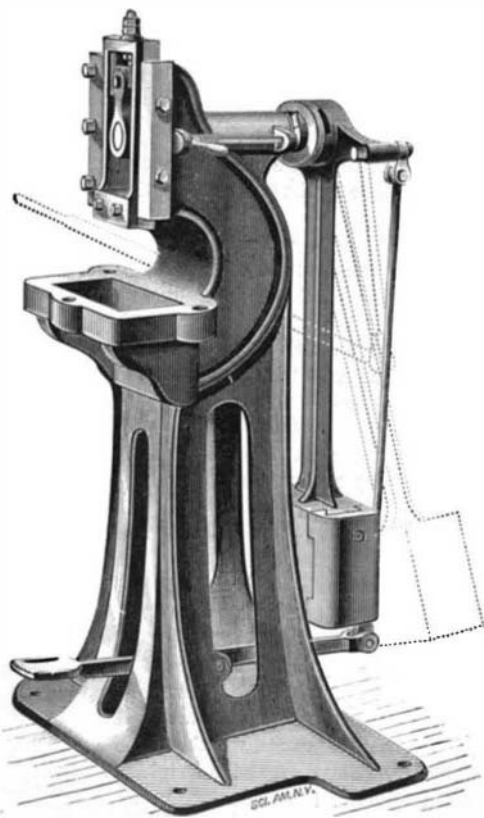
Some twenty years ago, says a writer in *Inter-Ocean*, Mr. Andrew Crosse, of Bloomfield, England, stood foremost in the grandeur of his experiments and investigations in electrical science, and his achievements ranked among the most splendid of his day, while his skill entitled him to high rank among the devoted investigators of scientific truth. Mr. Crosse collected the electricity from the atmosphere by means of a wire with points, supported on poles, fixed to the tallest of the magnificent trees which adorned his grounds. This conducting wire was carried into a room, where it terminated in a large brass ball. Near this was another similar ball, which was connected with a neighboring pond, down in the water, by means of a metal rod, and by means of an adjusting screw and large glass handle the electric discharge was easily directed into the earth by bringing the two balls together when not experimenting, or the charge was not too strong. Mr. Crosse had a Leyden battery, consisting of fifty-one gallon jars, containing seventy-three square feet of coated surface on each side, and with about 1,600 feet of his lightning rod wire, he has frequently collected sufficient lightning to charge and discharge this battery twenty times a minute, with reports as loud as a musket. The battery, when fully charged, would perfectly fuse into red hot drops thirty feet of iron wire in one length, the wire being 1-270 of an inch in diameter. When the battery was connected with 3,000 feet of rod during a thunderstorm, a constant stream of discharges took place between these balls. And if the center of a cloud was vertical over the points, the bursts of thunder and the crash of the accumulated fluid conspired to produce an appalling effect.

A NEW PRESS.

The press shown in the annexed engraving is quite novel in principle, and although a recent invention it is rapidly coming into notice. It is adapted to a great number of uses, such as the punching and shearing of metals and other materials, stamping, embossing, etc., by foot or hand. It accomplishes work that has heretofore been done only by power presses. It performs some astonishing feats; for example, a press like that shown in the engraving will easily shear one-half by two-inch wrought iron, and punch a 3/4 inch hole through 5-16 inch iron by foot power alone, and it can do more when operated by hand.

This astonishing result is obtained by the employment of a weighted pendulum, swinging back and forth or describing a complete circle if necessary. The pendulum is used in connection with an automatic clutch, a shaft, and a slide. The pendulum is easily set in motion by the pressure of the foot upon the treadle; this revolves the shaft with the same results and performs the work with the same speed as in ordinary power presses.

The weight of the pendulum may be varied to suit the work in hand, a supplemental weight being fitted to each side of the pendulum, to be attached or removed as occasion may require. The press is provided with a foot pedal, which yields to upward pressure, preventing accidents to the feet of the workman, and also avoiding breakage in case an unyielding body should accidentally get under the pedal. When required the press is furnished with a hand lever, as indicated in dotted lines. It is thus capable of rapidly



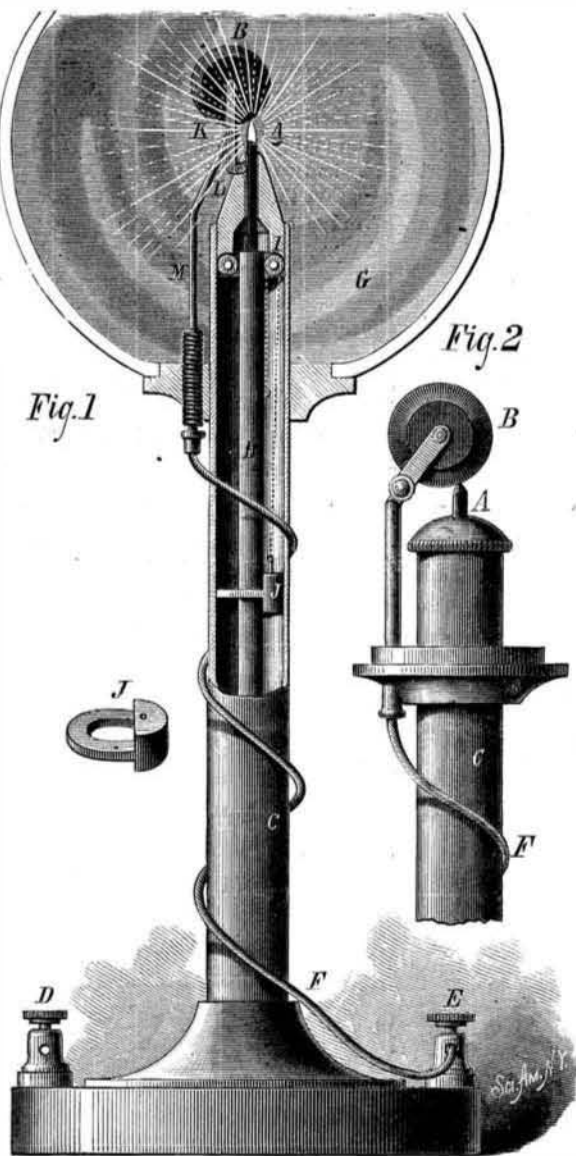
PEERLESS PUNCH AND SHEAR PRESS.

punching 1 inch holes through 5-16 iron. An ingenious stop is shown at the side of the press by which the punch may be brought into action at every oscillation of the pendulum or whenever required.

This press, and other styles on the same plan which we may hereafter describe, are made by the Peerless Punch and Shear Company, of 52 Dey street, New York city.

NEW FORM OF ELECTRIC LAMP.

The accompanying engraving represents an electric lamp (Reynier's system) designed by G. Cromé for domestic use. It is said that this lamp gives very good results when operated by six Bunsen elements. When a series of lamps is used the current should be supplied by a dynamo-electric machine. The carbons are inclosed either by a simple globe



IMPROVED ELECTRIC LAMP.

or by a bell filled with nitrogen or rarefied air, and the lamp may be used with safety in powder mills, in mines, and under water.

The carbon pencil, A, is a little less than 1/8 inch in diameter. It is guided by the tube, H, and is pressed upward against the edge of the disk, B, by the weight, J, attached to a cord passing over the pulley, I. The carbon is in electrical communication with the binding post, D, and the carbon disk, B, is connected with the other binding post, E, by means of the wire, F.

The globe, G, rests upon the collar attached to the main standard of the lamp, and is entire throughout, except at the bottom. This globe may be replaced by a glass bell filled with nitrogen, which will retard the combustion of the carbons.

The disk, B, is supported by a lever, K, that is pivoted in the insulated standard, M. The lower end of this lever is bent at right angles, and is made to exert a slight lateral pressure on the carbon when the point of the carbon presses against the disk, B. The upward movement of the carbon causes the disk, B, to turn slightly, thus presenting a new surface to the action of the current.

The device shown in Fig. 2 is similar to that already described, the difference being that the regulating lever is omitted.

A Steam Rammer for Paving Streets.

The Philadelphia papers contain descriptions of a new and successful invention in use in that city for laying street pavements. According to the statements of our contemporaries it pounds granite blocks and cobble stones into place, making the surface, one paper says, as smooth as a billiard table, and promises to do away with the old style of paving the streets. The rammer, which looks like a locomotive at a distance, is operated on the same principle as a trip hammer, and can be so regulated as to make a stroke of one pound weight or 1,500 lb. This enables the operator to produce a level surface on every portion of the street it passes over, while the most expert man power cannot strike over two hundred pounds. Durability and solidity are the important features of paved streets, and while hand power can only force the stone into the earth three inches, the steam rammer sends them six inches with ease; thus making the stones compact and solid. It is claimed that the streets paved with this new invention will last until the stone is worn out. The machine weighs six and a half tons, and even that makes no rut or impression on the street which it has rammed. In repaving streets paved with cobble stones under the old system it is necessary to relay them, while,

with the steam rammer, they can be driven to a level with perfect ease. It requires the services only of an engineer and a man to guide the rammer to work the machine. It consumes one fourth of a ton of coal per day. A number of streets in West Philadelphia bear splendid specimens of its work.

The Melodiograph.

Several contrivances have been invented to record the notes of melodies played on a piano, organ, or other key instrument, but were all more or less useless on account of their complexity, imperfectness, or expense.

Zigliani's melodiograph is very simple, usable, and cheap. A double flat spring placed under each key is connected with a battery and with a recording apparatus, which consists of a comb provided with insulated teeth gently resting on a copper cylinder. A strip of ruled and chemically prepared paper is drawn over this roller by a clock work, and receives the impressions or marks of the teeth of the comb. This clockwork can be regulated so as to cause the paper to move in conformity with the time kept by a person playing the instrument. Every time a key is depressed the circuit is closed, and the electricity, passing through one of the teeth of the comb, makes a mark corresponding to the key that has been depressed.

The Phosphorescence of the Sea.

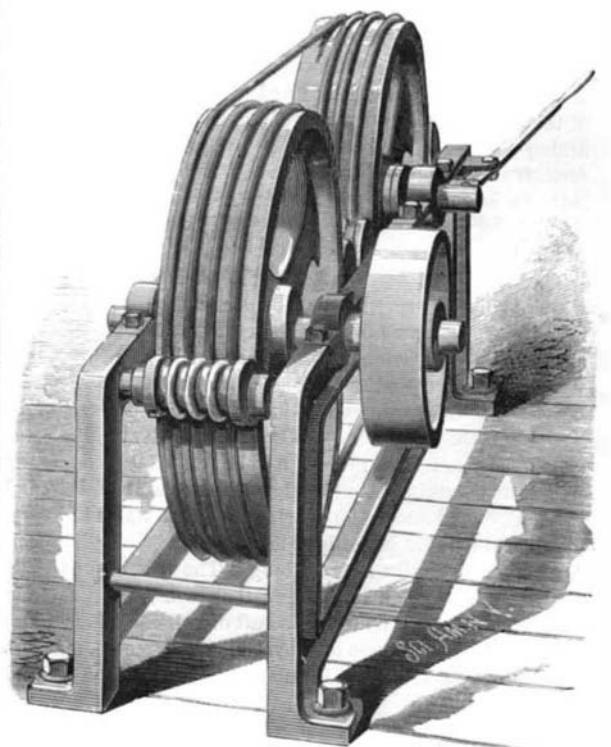
The illumination or phosphorescence of sea water at night, observable in this latitude in the summer, and at all times in tropical regions, is largely due to *Noctiluca miliaris*. It is a gelatinous little speck of a fellow, in shape like a peach, but only 1/10 of an inch in diameter. The light, which is of a greenish hue, arises from scores of minute points. A glass of water taken where these creatures are present may contain myriads of them. Nets and ropes drawn through the sea pick up millions of Noctiluca; and the ropes and meshes are made luminous by them until they become dry.

NOVEL DEVICE FOR TRANSMITTING MOTION.

We give herewith an engraving of a new device for transmitting motion, invented by Messrs. Dennis, Samper & Valenzuela, of Bogota, United States of Colombia, South America. This device is intended for the transmission of power from one shaft to another, and it may be employed in transmitting continuous rotary motion or a reciprocating rotary motion.

It consists, as will be seen, by reference to the engraving, of two pulleys placed, one upon the driving shaft, the other upon the driven shaft, and connected by a belt, rope, or chain which passes several times around each pulley. When a continuous rotary motion is to be communicated from one shaft to the other the belt is endless, but when the motion is alternating the belt need not be endless; it may be wound several times upon the pulleys and have its ends attached to the pulley rims.

The belt is prevented from moving along laterally on the pulleys by the small grooved rollers journaled on diametrically opposite sides of the pulleys, and embracing the several convolutions of the belt. It is stated that the slight side pressure required to keep the coils of the belt in position on the pulleys amounts to nothing compared with the saving of power by avoiding the slipping of the belt.



DEVICE FOR TRANSMITTING MOTION.

The applications of this device are numerous. It may be used in transmitting power in place of the ordinary belt, and in most cases in place of cog gearing. It may be applied to hoisting machinery and to the transmission of power by wire ropes.

Further particulars may be obtained from Mr. Silvestre Samper, 262 President St., Brooklyn, N. Y.

Poisoned by Revenue Stamps.

Ex-Mayor Butler, Binghamton, N. Y., has been seriously poisoned about his face and hands by handling government revenue stamps used on cigar boxes. While the weather was very hot and he was perspiring freely, he stamped and canceled the stamps on a large number of cigar boxes. Green dust flew from the stamps and covered his hands and wrists, and a handkerchief used by him for wiping his face and neck also became filled with the dust. The result was a severe and deep poisoning wherever the dust touched. There was evidence of poison breaking out on one ankle, showing that it was spreading through his system. Ex-Alderman Jackson, of the revenue office in Binghamton, has been troubled for about a year with a skin disease resembling closely the poisoned surface of Mr. Butler.

THE GREENLAND WHALE AND THE GRAMPUS.

The annexed engraving represents a combat between the Greenland whale (*Balaena mysticus*) and the grampus (*Delphinus grampus*), the most voracious of the inhabitants of the ocean. It does not devour one third of the animals it kills. It is the greatest enemy of the whale, and dead bodies of whales have frequently been found having large pieces of flesh torn from the body, and the lips mutilated or destroyed. As soon as the whale opens its mouth to defend itself the grampus darts at its large soft tongue, tears it off, and causes the death of the animal.

It is said that the grampuses are fond of amusing themselves by mobbing the Greenland whale, and that they persecute it by leaping out of the water and striking it sharply with their tails as they descend. In consequence of this it has been called the thrasher or killer. The swordfish is reported to join the thrasher in this amusement, and to attack the whale from below to prevent it from diving. Whatever may be said of the latter part of the story, the former is certainly true, and is corroborated by Capt. Scott, who has often seen this strange sight.

The grampus is from twenty to thirty feet in length and from ten to twelve feet in girth. It has forty-four conical, strongly made, and slightly curved teeth. Its color is black on the upper part of the body, suddenly changing to white on the abdomen and part of the sides, and there is generally a white patch of considerable size behind the eyelid.

Although it sometimes wanders to more southern regions, its favored home is in the northern seas that wash the coast of Greenland and Spitzbergen, where it congregates in small herds.

The Greenland whale, northern whale, or right whale, as it is indifferently termed, is an inhabitant of the northern seas. It is, when full grown, about sixty or seventy feet in length, and its girth about thirty or forty feet. Its color is velvety black upon the upper part of the body, the fins, and the tail; gray upon the junction of the tail with the body and at the base of the fins, and white upon the abdomen and fore part of the lower jaw. The velvety aspect of the body is caused by the oil which exudes from the epidermis, and aids in destroying the friction of the water. The jaw opens very far back, and in a large whale is about sixteen feet in length, seven feet wide, and ten or twelve feet in height. The most curious part of the jaw and its structure is the remarkable substance that is popularly known as whalebone, which is found in a series of plates, thick and solid at the insertion into the jaw, and splitting at the extremity into a multitude of hair-like fringes. On each side of the jaw there are more than three hundred of these plates, which, in a fine specimen, are about ten or twelve feet long and eleven inches wide at the base. A large whale furnishes about one ton of whalebone. These masses of whalebone are placed along the sides of the mouth for the purpose of aiding the whale in procuring food and separating it from the water.

The Human Voice a Corner Stone Memento.

A great many novel articles have been placed under corner stones of public buildings and other structures about being erected. But the most novel article we have known to be thus deposited was in laying the corner stone of an academy in Massachusetts the other day. It was nothing less than a strip of the human voice imprinted on tin foil by the phonographic process. There is no comprehending the curiosity this bit of tin foil will be to the people of a couple of hundred years hence, when the corner stone shall be opened and the voice taken out, and found to articulate the words and sentiments of one long since dead and forgotten.



ARMCHAIR DESIGNED BY SCHMIDT & SUGG, VIENNA.

Artificial Formation of Felspars—Nepheline and Leucite.

F. Fouqué and A. Michel Levy have recently prepared the minerals above mentioned. Nepheline is formed when a mixture of silicic acid, alumina, and sodium carbonate, in such proportions that the oxygen of protoxide, sesquioxide, and acid are as 1 : 3 : 4, are heated together; white silk-like crystals are obtained which, under the microscope, are seen to be small hexagonal prisms (they are 0.13 min. long and 0.06 min. broad), which accord in every respect with natural crystals of nepheline. If somewhat more silicic acid be

different minerals was obtained: nepheline, pale green spinel, garnet in brown-yellow octahedra, and microlite. Leucite was also found in the fused product, and resembled both in form and optical characters the natural mineral.—*Comptes Rendus.*

Volcanic Oil Well.

An oil well on Kendall Creek, near Tarpport, Cattaraugus county, N. Y., having ceased to yield oil, the operators recently pulled up the tubing, and as no obstruction was found in that, it was decided to torpedo the well. Before arrangements were completed for the operation, a sound like that of steam escaping from a locomotive valve, and then a rumbling noise, were heard in the well, and a trembling of the earth was felt. Presently a shower of stones, ashes, and dry dust, accompanied by a dense cloud of gray smoke, was thrown in the air. The eruption lasted only a few seconds, and then oil began to flow copiously. The well has since been yielding nearly double its former quantity. The stones thrown up from the well were rough and light, like pumice stone. The ashes were red and gray.

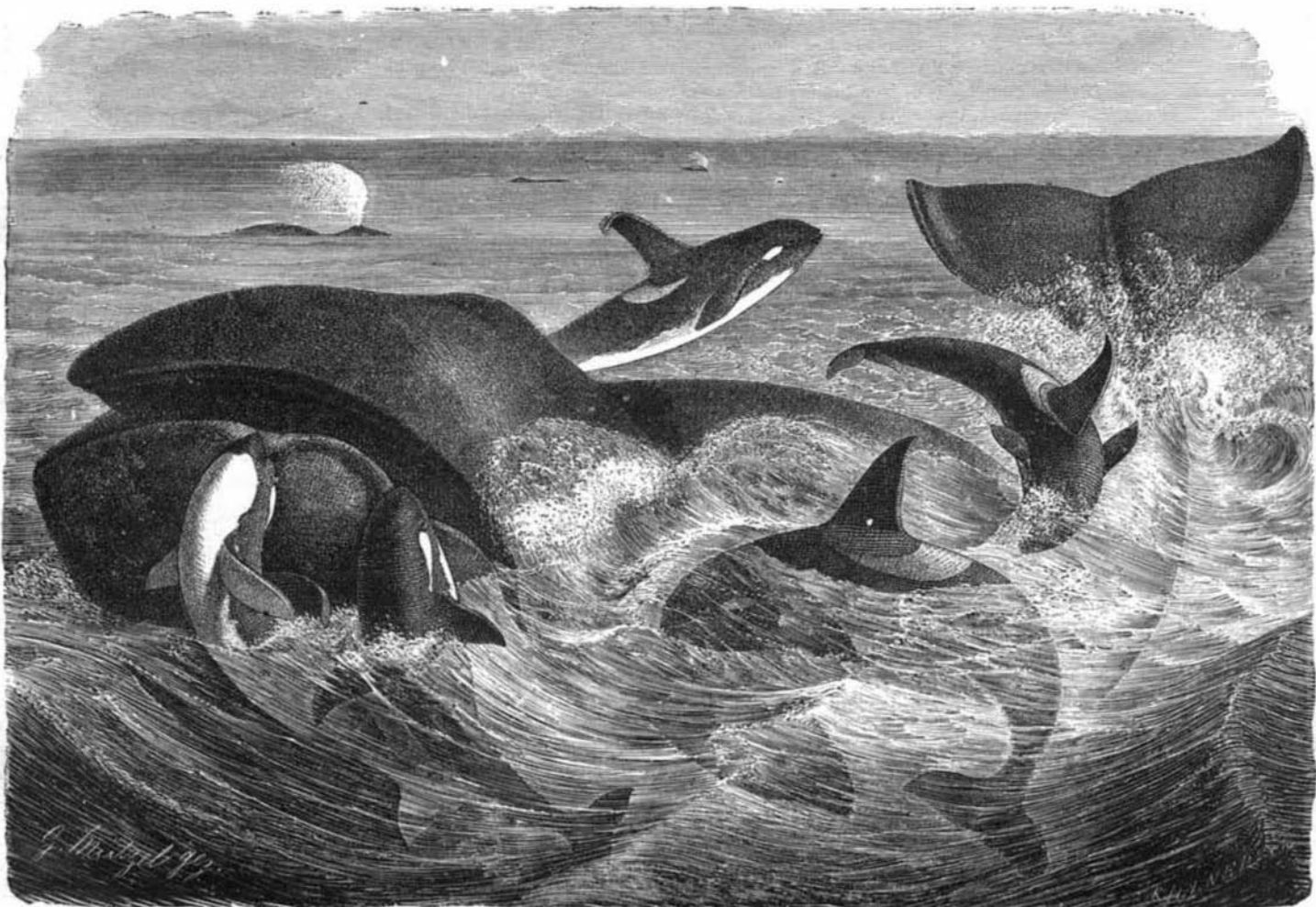
The Grape Rot.

We recently visited the vineyards of Vineland, N. J., to ascertain with what success those were meeting who have been experimenting in protecting their vines as a remedy against the "grape rot," which has been so destructive in Southern New Jersey the past two or three years. In company with E. G. Blaisdell, the courteous and enterprising editor of the *Vineland Weekly*, we made a tour of inspection of several of the vineyards.

In the March 1st issue of the *Farmer* our correspondent from Red Plains, N. C., recommended the use of a board covering over the trellis as a remedy against rot and mildew. The idea was taken up by our Vineland grape growers, and experiments are this year being made in many of the vineyards. The experiments so far are entirely successful.

Some have experimented by using manila paper bags just large enough to hold within it a cluster of grapes. The bag is slipped over the bunch and securely pinned at the opening, and is left on until the grapes are ready for the market. We first visited the vineyard of George Scarborough, Esq., who put on five hundred bags as an experiment. In all cases where we removed the bag we found the cluster perfect, unless where the bag was not put on soon enough. Experiments thus far have shown that they should be put on about ten days after the blossoms appear, for all that were covered at that stage were found perfect. Mr. Scarborough has largely experimented this year with the board covering, and is so well satisfied with the results that next year he will cover all his grapevines with them. In every case where the board protection was used the grapes were found perfect—not a sign of rot could be found, while the next vine, left uncovered, would not be worth picking. Last year, in both his finely cultivated and extensive vineyards but one crate of grapes were picked, when the work was abandoned and given up as not paying for the labor. Last year he found that the "Concord" rotted worse than the "Ives Seedling," and the "Champion" worse than the "Concord."

We next visited the large vineyard of D. Rood, Esq. This gentleman has 30,000 paper bags in use, with results the same as in Mr. Scarborough's vineyard. One man will put on one thousand bags in a day. The extensive vineyards of Colonel Alex. W. Pearson were examined. Here the board covering only has been used, and with gratifying results, as in the other cases. The colonel is pretty well satisfied



COMBAT BETWEEN THE GREENLAND WHALE AND GRAMPUSES.

taken, like that corresponding to the proportion 1 : 3 : 4½, a completely crystalline mass is obtained, which bears in its optical characters the same resemblance to hexagonal nepheline as chalcedony does to quartz. By melting together one tenth pyroxene and nine tenths nepheline a mixture of four

that the board covering is the remedy against "grape rot," and next year will make a wholesale matter of the covering. From our observations we would pronounce in favor of the board covering. It not only affords protection from the disease, but protects from the early frosts. The first cost is