

ute and "keeps cool." Of course there is a great consumption of fuel. In 180 miles 12,000 pounds of coal are used up. The water tank contains 3,000 gallons, 400 more than is usually carried. Everything else is on a proportionately large scale. Only the delay in getting boilers sufficiently large has prevented the completion of two others of nearly the same pattern.

NOVEL CANDLESTICK.

The engraving shows a candlestick which has a candle receptacle formed of elastic fingers capable of fitting can-



NOVEL CANDLESTICK.

dles of different diameters, and it has a case for matches contained within a hollow pillar supporting the candle receptacle.

The hollow pillar bearing the candle receptacle is permanently fixed to a base plate, and the match case, which is entirely separate from the other parts, is introduced into the pillar through an opening in the base plate, and kept there by spring catches. It is readily removed to expose the matches.

This invention has been patented by Mr. M. Brassill, of Hartford, Conn.

NEW TELEPHONE TRANSMITTER.

We give an engraving of a new transmitting telephone, patented by Mr. E. Berliner, of Boston, Mass., and owned and made by the American Bell Telephone Company, of that city. Fig. 1 is a front view and Fig. 2 a perspective view showing internal parts.

The instrument is very simple and compact, and has the all important advantage of not being liable to disarrangement.

The principal feature of the invention is the disposition of the carbon contact surfaces, one being attached to the diaphragm, the other being supported by a metal socket attached to a hinged plate secured to an arm that projects from the back of the mouthpiece downward over the diaphragm. This arm serves the double purpose of supporting the free carbon electrode and clamping the diaphragm in its place against the back of the iron mouthpiece. The diaphragm is bound around the edges with soft rubber, and is separated from the mouthpiece by a ring of pasteboard. The iron mouthpiece is hinged to a casting fastened to the circular box which contains the induction coil and supports the binding screws for the battery, line, and ground wires. To the front of the induction coil is attached a plate connected with the battery wire, and carrying a spring having in its free end a screw which bears against a spring connected with the center of the diaphragm and acts as a dampener as well as a conductor, through which the current passes to the carbon electrode at the center of the diaphragm. The battery current enters at one of the binding screws, passes through the primary wire of the induction coil, through the

spring and carbon electrode at the center of the diaphragm, through the hinged electrode, metallic mouthpiece and its hinge, and back through a binding screw to the battery.

The variation of the current in the primary circuit occurs at the contact of the two carbon electrodes, the contact being varied by the vibration of the electrode attached to the diaphragm.

When the transmitter is used for long distance telephony, the pendent carbon electrode is made heavier, to reduce resistance in the local current and to amplify the electrical undulations.

The terminals of the secondary wire of the induction coil are connected with the two remaining binding screws, which are connected, one with the ground and the other with the line, in the usual way.

The accessory devices connected with this transmitter may be of the usual character. It will operate well with any of the well known forms of receiver, and is easily managed and thoroughly efficient. This transmitter has been well introduced, and large numbers of them are being used in Europe. They have been adopted on several of the leading German railways, and are extensively used in the German postal service.

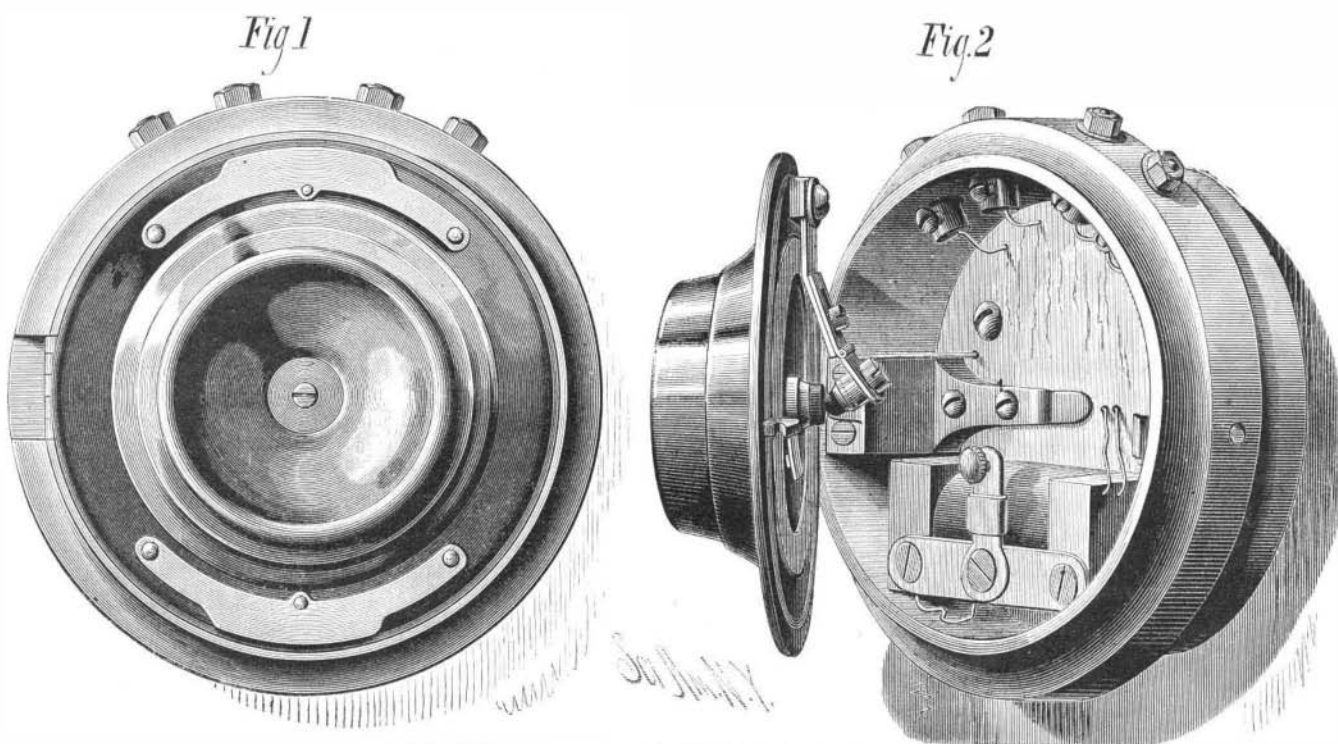
100,000 Buffalo Killed Last Winter.

It is estimated by competent authorities that 100,000 buffalo hides will be shipped out of the Yellowstone country this season. Two firms alone, says the *Sioux City Journal*, are negotiating for the transportation of 25,000 hides each. When to this is added the immense amount of skins and furs of other kinds—deer, elk, antelope, bear, beaver, etc.—some idea may be formed of the extent of the Yellowstone pelt and fur trade.

Most of our citizens saw the big load of buffalo hides that the C. K. Peck brought down last season, a load that hid everything about the boat below the hurricane deck roof. There were 10,000 hides in that load, and they were all brought out of the Yellowstone on one trip, and transferred to the C. K. Peck. How such a load could have been piled on the little Terry not even the men on the boat appear to know. It hid every part of the boat, barring only the pilot house and the smokestacks. But such a load will not be attempted again. For such boats as ply the Yellowstone there are at least fifteen full loads of buffalo hides and other pelts. Reckoning 1,000 hides to three car loads, and adding to this fifty cars for the other pelts, it will take at least three hundred and fifty box cars to carry this stupendous bulk of peltry East to market. These figures are not guesses, but estimates made by men whose business it is to know about the amount of hides and furs awaiting shipment.

Nothing like it has ever been known in the history of the fur trade. Last season the output of buffalo hides was above the average, and last year only about 30,000 hides came out of the Yellowstone country, or less than a third of what is there now awaiting shipment.

The past severe winter caused the buffalo to bunch themselves in a few valleys where there was pasturage, and there the slaughter went on all winter. There was no sport about it, simply shooting down the famine-tamed animals as cattle might be shot down in a barnyard.



BERLINER'S TRANSMITTING TELEPHONE.

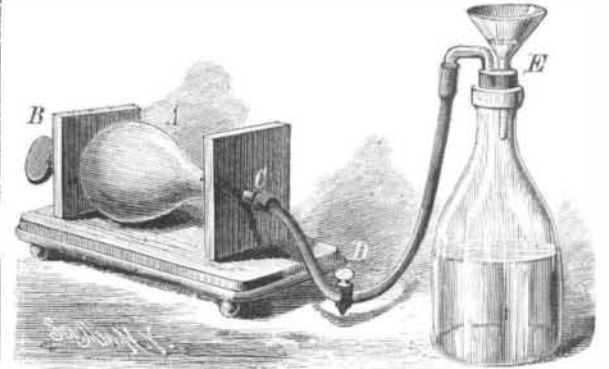
To the credit of the Indians it can be said that they killed no more than they could save the meat from. The greater part of the slaughter was done by white hunters, or butchers, rather, who followed the business of killing and skinning buffalo by the month, leaving the carcasses to rot. When the buffalo are all killed off, as they bid fair to be in a very few years at this rate, then everybody will wonder that the government did not do something to preserve this, the noblest of animal game, or at least prevent the killing of the buffalo for the hides alone.

A SIMPLE FILTER PUMP.

BY JOHN EITEL.

The engraving shows a simple device for accelerating the operation of filtering. It is intended to replace the Bunsen filter pump in many instances, and it consists of a collapsible rubber bulb, A, mounted between two standards and capable of being compressed by the thumbscrew, B. The mouth of the rubber bulb is connected with the filtering bottle by means of a flexible tube provided with a pinch cock, D. The filtering funnel is provided with a small platinum cone which prevents the filtering paper from being drawn downward with such force as to rupture it.

The exhaustion is effected by first expelling the air by turning the screw, B; the flexible tube is then connected and the screw retracted, to produce a partial vacuum. To ren-



A SIMPLE FILTER PUMP.

der the operation continuous the cock, D, is closed when it becomes necessary to again expel the air from the bulb.

The Uses of Mica.

The *Tradesman*, referring to the mica beds which have been recently discovered in East Tennessee, adds:

The mica chiefly met with in commerce is of that variety which is proof against acids and intense heat. Its toughness, elasticity, and close approach to transparency naturally led, at first, to its use for windows, and especially to its employment in lanterns. It is found in large quantities in North Carolina, where there are unmistakable evidences that some of the beds were worked a great many years ago. The finer sheets of tough mica are now used for such purposes as the dials of compasses, the lettering of fancy signs, covering photographs, constructing lamp shades, reflectors, etc. Of late, mica has been used in the soles of boots and shoes, as a protection against dampness. The invention consists of a sheet of mica embedded in thin coatings of cement and placed in the boot or shoe between the outer and inner sole, the upper leather lapping over its edges, and covering the upper space from the toe to the instep.

There are many other uses to which mica is put, and it is becoming more and more valuable as the arts and trades progress.

A Monster Cylinder.

There was cast at the Morgan Iron Works, in this city, the other day, what is said to be the largest steam cylinder ever cast. It is 16 feet 1½ inches long, 110 inches in diameter, and required for its casting 45 tons, or 90,000 pounds, of gun metal. It is intended to accommodate a piston stroke of 14 feet. The metal in the thinnest part is 1¾ inches thick, and the flanges at the top and bottom are 2½ inches thick by 5¾ inches wide. Under the top flange the cylinder has a belt 16 inches wide, another 6 inches wide above the bottom flange, and between these two, three more belts, each 6 inches in width. The thickness of the metal at the belts is 2½ inches. A nozzle for the upper steam chest is cast on the

cylinder, with an opening 14½ by 63 inches, the metal on the top of this nozzle being 1¾ inches in thickness, and on the sides and bottom 1½ inches.

The casting of this massive piece of work was done in a mould constructed of brick, and lined with loam, the outside being covered with heavy iron plates to prevent the matrix from bursting when the molten metal was poured in. The mould is constructed of one cylinder of brick and loam within another, the space between them being the required thickness of the casting, the flanges, belts, and other parts

of the work being accurately delineated in the matrix. Over half the mould was sunk in the solid earth which forms the flooring of the iron works. It required the metal three hours and twenty minutes to melt, and the 90,000 pounds were then transferred by the labor of 100 men to two huge tank ladles, each having a capacity of about 15 tons, and two large crane ladles. The tanks were connected with the mould by pipes, and the crane ladles were attached to huge cranes.

At 1 o'clock John Roach, who personally supervised the casting, gave the order to begin the pouring. The molten metal was turned into the mould from the two tanks on either side, and at the same time the two crane ladles were swung over, and from all four a red stream of liquid metal began to flow into the matrix. It took precisely two and a half minutes to complete the pouring and fill the mould. The operation was watched very attentively by Mr. Roach and his foreman, and when it was completed both pronounced the casting to have been successful.

The cylinder is intended for a new iron side-wheel steamer building for the Old Colony Steamboat Company, for the Long Island Sound.

THE LEMUR VARI.

Lemur is the name applied to many animals of the order *Quadrumania*, or monkeys, of the families *Galeopithecidae* and *Lemuridae*.

The fingers are not all provided with flat nails, some of

It is known that the Romans believed that lemurs were malevolent spirits who returned at night to the earth to torment the living, and that they instituted special ceremonies with the design of removing them. "Lemurs, gods of the infernal regions, come out of this abode." But one has never been tempted to address this objurgation to the lemur vari, notwithstanding his name and astonishing appearance, because he is gentle, sociable, fawning, and attaches himself quickly to persons who care for him and treat him well.—*L'Illustration*.

A New Species of Aphis Affecting the Pine.

Among our native forest trees, none, unless it is the oak, suffer more from the depredations of insect enemies than the pine. Distributed as it is—from the Arctic to the tropics—climatologically speaking, it becomes a prey to every conceivable form of insect life.

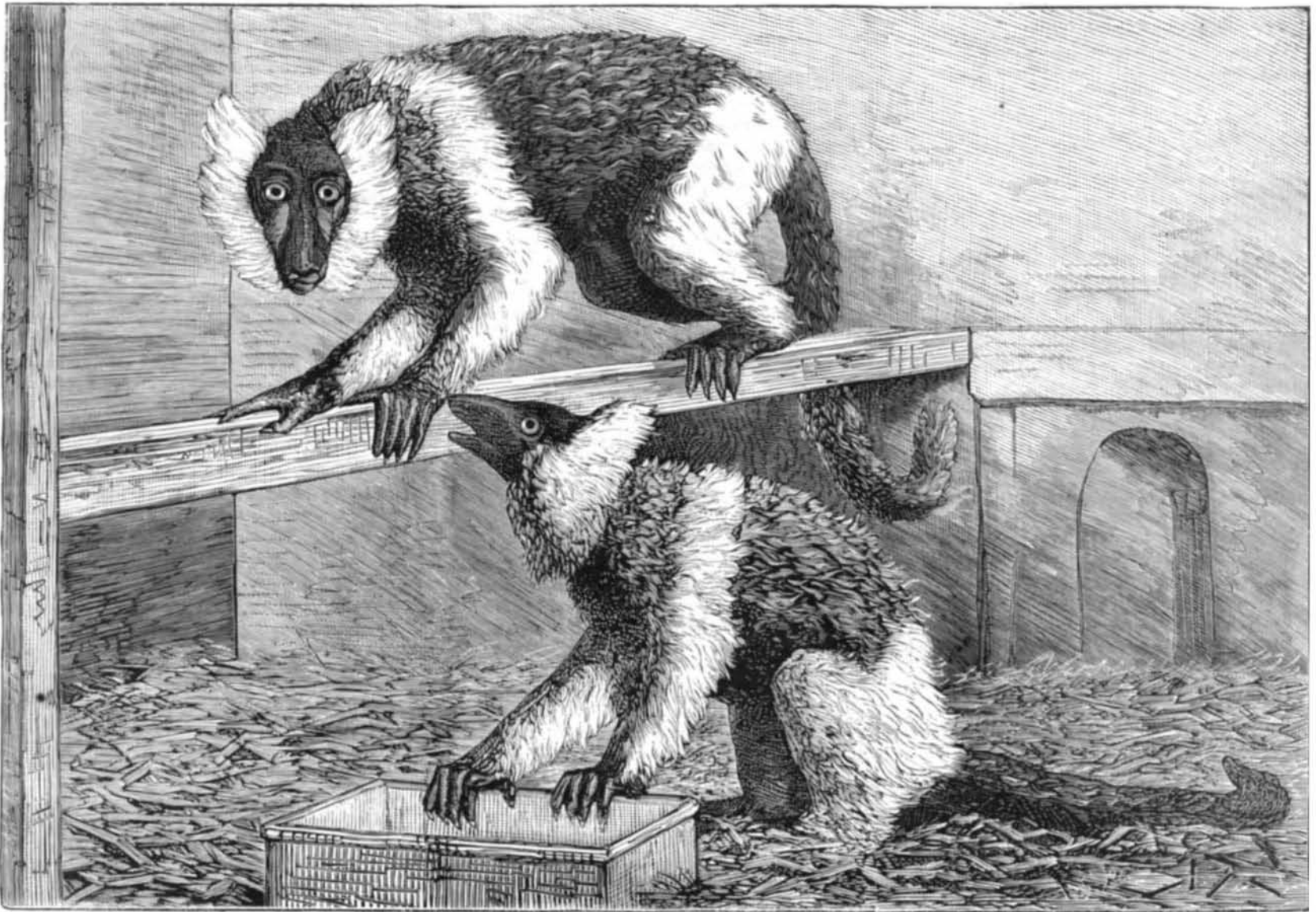
Already its enemies may be reckoned by hundreds; but notwithstanding this, hardly a year goes by without some careful investigator adding others to the list. It is not the intention of the writer to enter into full details or enumerate all of its foes, but to call the attention of entomologists to a new aphis affecting a pine in Florida, that has evidently been overlooked by others.

For the past two years we have detected numerous large brown plant lice upon the common pine of this region (*Pinus australis*), which for want of time we have left unmolested. They cluster together upon the new and tender

which represents a fortune to its owner. Over in Astoria one floriculturist has over two acres of ground under glass, and there are several others like him and many less extensive, but still very large growers. These raisers have each their special varieties and graftings of plants, and in addition to their New York trade, ship all over the country. San Francisco, Montreal, and Savannah are profitable markets to them, and in every town and city of the United States they have customers. In addition to these extensive culturists, who raise the rarest and costliest exotic plants, as well as the commonplace market flowers, there are many smaller ones, who raise flowers for the spring trade and the winter supply of the bouquet makers almost exclusively.

In addition to the big flower and plant farms at Flatbush, Astoria, Union Hill, and Orange, there are many minor ones scattered all over the suburbs, and even in the city itself. One popular one is in Fourteenth street near Third avenue, and another occupies the corner of Houston and Hudson streets. Within a radius of thirty miles from the City Hall, there is at least \$10,000,000 invested in the business.

To enumerate the varieties of plants and flowers sold in the spring trade this year would require a census of the globe in that line. The gardeners are constantly adding foreign varieties to their stocks, and the gardens of India, China, and the Sandwich Islands contribute to the store New Yorkers select from. The heaviest sales are, of course, in the cheaper varieties of plants. The familiar roses, geraniums, fuchsias, heliotropes, pansies, daisies, hydrangeas,



THE LEMUR VARI.

them terminate in claws. They stand with difficulty, and their gait is generally like that of a quadruped. They have no pouches; their nostrils terminate in folded elastic sides, which permits of opening and closing them at pleasure. The incisor teeth are separated by vacant spaces, and the molars provided with sharp conical points adapted to tearing. The lemurs live principally upon fruits and roots, and are fond of insects; if they eat flesh at all it is in very small quantities. If the physical conformation of the lemur is similar to that of the carnivorous animals, their habits place them among the monkeys, and like them they live habitually upon the trees in the midst of the foliage. There, concealed and suspended by their lower members, they watch for their prey. If an insect comes within reach it is the work of an instant to catch and devour it.

The lemurs comprise five principal genera, almost all natives of the island of Madagascar or the adjacent countries. The *indri*, one of the largest species, are tamed by the natives of Madagascar, and being very agile are trained like dogs for the chase. The *loris* have no tails, a characteristic which distinguishes the other species. There are also *galagos*, *tarsiers*, and *makis*; these last are subdivided into many species: the *macoco*, the *mongoux*, and the *vari*. The animals represented in our engraving belong to the species *vari* of the genus *maki*. They are remarkable for their lank forms, their long bushy tails, the ruff around their faces, and their peculiar eyes, large and round, which give them the ghostly appearance to which they owe their name.

branches, which they puncture with their remarkably long beaks, causing the sap to exude and the branch upon which they exist to become gummy and sticky. In their habits they are surprisingly shy and timid. On disturbing them they invariably seek safety by hiding between the needles of the pine; indeed, even on hearing approaching footsteps, we have observed them cling closer to the limb, while a few skelter off where the needles are denser.

In looking up literature on the subject, we find several species of aphides described and mentioned as existing upon pines, but none on *Pinus australis*, nor will any of the descriptions agree with the species under consideration. It belongs to the section *Lachnini*, as defined by Thomas, and we therefore propose for it the name of *Lachnus australis*.

The Spring Flower Trade.

The *Sunday News* has been making inquiries with respect to the spring flower trade of this city, and finds that it opened the second week in April, and will last until the beginning of June. A prominent florist estimates that three hundred wagon loads of flowering plants are brought to the city during the period of the spring trade, and that as much as \$2,000,000 is spent every spring in New York and Brooklyn for plants and flowers.

The flowers come from all around New York. In New Jersey, Staten Island, Long Island, and the adjoining counties of this State are vast flower and plant farms, each of

* By Wm. H. Ashmead, of Jacksonville, Fla., in *Canadian Entomologist*.

laburnums, verbenas, petunias, violets, carnations, and mignonettes are sold by the hundreds of thousands. Ivies, passion flowers, and other vines have an immense sale too. Ferns, native and tropical; strange grasses from the sun-smitten natural gardens of South America, and orchids from the mysterious forests of the Equator swell the list. The catalogues the flower men publish would put those of many a library to shame, for size at least.

A dealer said that the largest profit is made on cheap plants, the number of them sold is so great. The heavier gains are made by the owners of city greenhouses, who raise fine plants, and are able to sell them without the intervention of middlemen.

The trade in flower and vegetable seeds at this season almost rivals that in plants and flowers. The flower seeds are largely imported from France and Germany, a few coming from England and Holland. The vegetable seeds, on the contrary, are grown in the New England States, New York, Canada, and other sections of the continent, and are exported so as to almost balance the imports of flower seeds. American vegetable seeds are much better than those grown in Europe and produce better results. They are popular abroad in consequence.

Silk Culture in Louisiana.

Efforts are being made in Louisiana to attract to that State the silk growers of Provence, whose prospects in France have been blighted by plagues affecting grape vines and silk