

I am in receipt of a letter from the director of the botanic garden at Odessa, in which he states that "the industrial vine culture of the Crimea is principally of well known European kinds, while there are to be found also some varieties which are native to the country, and some obtained from the Trans-Caucasian provinces, from China, Persia, and the river Amoor. Of such, however, it would be impossible to obtain five thousand cuttings in the space of one season. The culture of the olive is very limited in Southern Russia. For some time the demand for young plants has been only from the Trans-Caucasian provinces. That demand has now nearly ceased, and the nurseries have so small a stock on hand, that they could not furnish this year more than four hundred or five hundred plants. The remaining four thousand five hundred can be supplied in the autumn of 1861."

This state of things renders useless any visit to the Crimea, and I wrote him that I should not wish the vines of western Europe, as they are already abundant with us, but that he might send as large a part of the five thousand cuttings as can be obtained this year, and the remainder another season, all to consist of sorts from the Trans-Caucasian provinces, from Chiva, Persia, and the river Amoor. I requested him also to send one hundred scions of each Crimean variety of apples, pear, cherry, currant and quince. I wrote him that I wished the novoli of the olive. He wrote only of plants, and I have therefore requested him to send five hundred now, and I would write him this winter whether the remaining four thousand five hundred would be desired another year.

WINE-MAKING IN NEW YORK.

ITHACA, TOMPKINS COUNTY, NEW YORK,
January 18, 1860.

SIR: I received from the Patent Office, about a year ago, a tin case, with two grape-vines inclosed in moss, marked "grapes from Hungary." These I set in a pot, in the latter part of February, 1859, and early in May took them out, and set the younger and most thrifty of the two in a favored spot on the south side of my house. By cold weather last fall it had grown two main vines, one four feet seven inches, and the other five feet two inches ripe wood. This vine is short-jointed; eyes, or buds, prominent; leaf cleft, and resembles most foreign grapes in appearance; have cut away two-thirds of the ripe wood, and distributed the cuttings to my neighbors. So far it has stood out of doors, borne 3° Fahrenheit below zero, and appears hardy, and uninjured by the frosts of this winter. The other vine was old wood—at least two or three years old; appears like the other; grew badly, (only some sixteen or eighteen inches;) ripened the wood badly. Transplanted at the same time, (May,) but to a richer soil, in a less sunny spot.

As to wine-making, let me add that this valley, three hundred to eight hundred feet deep, at the head of Cayuga Lake, has always been noted for its fruit. The vintage of this town, in 1858, was about 1,000

gallons, of which over 600 gallons were made by my press. The result has been some 700 to 800 gallons of wine that will compare very favorably with any of Europe or America. Especially do the still Catawba and Isabella mixed compare with the bland German and French wines brought home by travelers in their trunks; that is, a sweet, mild, spiritous, bland wine, suited to the sick chamber, sacramental, and table use. If asked, as a chemist and manufacturer, from my experience now of fifteen years in wines here, how can wine be made in Central New York? I should reply, that the variety made of the same grapes can be very great, and by the *mere manipulation* you can produce variety in color and roughness and quantity of spirit. As the Catawba usually ripens poorly, a fine wine is made here by one-third half-ripened Catawba, and two-thirds ripe Isabella, and if the manipulation has been correctly made, cannot easily be told from the best Catawba.

Again, the manipulation can vary the quality to suit the time of sale and use. I speak all the while of no additions of any substance whatever, except *sugar* or *refined syrup*. The wines soonest ripened will not keep the best or longest.

A fine wine, ripe for use in six months, may be made by crushing half a bushel of grapes at a time in a butter (Orange county package) firkin, with a handle (broom or hoe handle) inserted into a round block of hard wood, sawed off square at both ends, a style I prefer, and putting thirty gallons so crushed in a forty-five gallon alcohol barrel for a fermenting tun. Add two pounds of sugar to the gallon, and ferment as long as the color deepens. The moment the color ceases to deepen, put to press, transfer the pure juice immediately to a close cask, and let the fermentation go on as rapidly as possible. Keep the room so hot that it shall not be over twenty days before the fermentation ceases spontaneously. Then put into a cool cellar, and when clear, a *strong red wine* will result. If you have succeeded in the manipulation, this wine can be used at once, and will give good satisfaction to the palate. It is much admired for its rich, splendid colors, like Bohemian red-stained glass, clear and pure. But it will not keep well.

Probably the best wine we can make in this valley of Cayuga Lake is by the following manipulation. Use the hoe, or broom-handled block, round, with square ends—say a piece of locust, five inches in diameter and six inches long; crush just hard enough in your butter firkin to mash the pulp and lacerate the skins of the grapes, but not crush the seeds, half a bushel at a time, putting, as before, 30 gallons into an alcohol cask, with one head out for a fermenting tun. To every gallon add one pound of sugar, or equivalent of clarified syrup. If sugar is used, boil in sufficient water or wine to dissolve it—the longer the better, before you add to the mashed grapes—making 30 or 35 gallons in your 40 or 45-gallon fermenting tun. Ferment rapidly, by maintaining such heat that you can hear the bubbling and a hissing sound from the tun all over the room. The color will deepen, and then fade, when the supernatant skins and pulp have become dingy and muddy, and the must or liquor pale reddish amber color, put to press, and pour the must or grape-juice into the cask, where it is to ripen. Ferment again rapidly, so that not over twenty-five days shall elapse before the fermentation shall cease spontaneously—that is,

twenty-five days from the time of crushing the grapes. Put in a cold, dry cellar, and bung up tight. Rack in February and again in April, or just before the "sweating in" commences. Complete the "sweating in," or the second fermentation, in fifteen days if you can—that is, so regulate the heat that it will be over *spontaneously* in that time. Allow it to clear by standing two months; rack and let it stand one month, and rack again, adding at this last racking as much sugar as will suit your taste—say one to one a half pounds to the gallon. I you have succeeded in the rackings just named, no further fermentation will take place; and if the fermentation has been good, the wine will be sweet enough to suit any one, at a pound and a half to the gallon. You can pass it off to any one as the most delicious, bland, foreign wine that can be named. In color, it is amber, or reddish amber; mild and bland in taste, high in its aroma, sets quietly on the stomach, produces no flatulency, and is a wine every way worthy of the name. Of the vintage of 1858, I treated twelve casks on this principle, and failed only in three of them. One became vinegar, the other two somewhat acid; the grapes were from five or six different graperies. The vinegar cask was unripe Isabellas; the other two mixed, unripe Catawba and unripe Isabella.

The New York State Agricultural Society, in 1858, took strong ground against the addition of sugar. The committee on wines call sugared wines "cordials," and not wines. I simply add, that I have a dozen samples made without sugar in various ways, of careful, unadulterated manipulation. A flat, tart, insipid, high-colored (red or straw-colored) fluid is thus made. This wine can be remedied by the addition of "acetic ether" and "ethereal oil of wine." If these gentlemen say they add no sugar, but do add the gluten of wheat and starch, they are probably not aware that they use sugar in disguise.

In judging of wines, and to suit the common taste, it must be remembered that we are not a wine-drinking people. The mass of the nation form their ideas of wine by that used at the sacramental tables of our churches. And in these a factitious mixture of wine, brandy, or alcohol, drugs, and especially "acetic ether" and "ethereal oil of wine"—an oil made from the distillation of alcohol—is the main element that reaches the taste, and then only when excessively sweetened. Hence, if a rare and choice bottle of foreign wine is carefully brought home by a traveler, and tasted by an American, it is condemned. So, too, of a choice native wine in most cases. The drugs that make the decided taste on the tongue are not there; neither is the excess of sugar. I have known the choicest wine of Palestine condemned as no wine at all, and the Hock of Germany pronounced as without character, because of this false opinion thus formed.

Henceforth, wine-making will assume more and more importance. Lastly, I would add, that a market is the main demand of our valley. Of the wines of 1858, we probably have in town over 600 gallons ripe and for sale. With unreasonable suspicion we can find no ready sale, but in time this will be overcome.

I would say to the novice in wine-making, avoid putting the unfermented wine in casks in a cold cellar, and thus avoid the slow fer-

mentation in the cask for from three to six months. Such wines never ripen; we have them, thus treated, of 1854, 1856, and 1857, yet unripened and acid. All our wines tend to a claret. I am inclined to the belief that the best "stumping" of casks is to fill them with weak lime water, and let them stand two or three weeks; the addition of pulverized lime stone to the mash would be useful to prevent acidity. In my experiment it fell in crystals to the bottom of the cask in a year to a year and a half.

Respectfully,

S. J. PARKER, M. D.

Hon. WILLIAM D. BISHOP,
Commissioner of Patents.

From the UNION HORTICULTURAL SOCIETY, Penn Yan, Yates county, New York.

The grape commands the attention of our horticulturists, many of whom have already advanced far in its cultivation. In this vicinity there have been not less than one 1,636 gallons of wine made. The amount of grapes sold at distant markets is 10,960 pounds, and probably as much more consumed or kept for home consumption. Over 20,000 vines will be set out during the coming season in this county, and an equal number in the neighboring country. Wine has been made from nearly all our varieties of grapes, with varying success, as may be expected when inexperienced men engage in a new enterprise. The business is extending, and is destined to become important.

The native grape has been converted into wine with good results. The vine is hardy and thrives well, and the fruit is dark-colored, rich, and pulpy. It is tart in a high degree. For heavy wine, it seems admirably adapted, and its rich pulp will admit sugar without rendering it light and insipid. It will, no doubt, be sought for to color and flavor wine of other varieties.

In our latitude, 42° 40', with our variety of soils and climate; in the vicinity of the Seneca Lake, which is about 450 feet above tide-water, and never freezes; also of the Crooked Lake, 720 feet above tide-water; with our slopes and highlands, 800 feet above the lakes, and with our valleys and exposures to all points of the compass, we have natural facilities to become acquainted with the habits, properties, and modes of cultivation of every kind of grape. Such varied circumstances will make the study pleasing and the result profitable. We have in our vicinity the climate of the lake country and its breezes, and the climate of the river countries, with their sunshine, frost, fogs, and mist. Near the lakes, it is true, are places effected by fog and mist in autumn, where the rot or mildew will be a most certain destroyer; but at others, only a few miles distant, fog is seldom seen, and the autumn frost is slow to appear.

SILK CULTURE.

By L. CONSTANT, of Cat Springs, Austin County, Texas.

Familiar with the climate of Southern Europe, and for twelve years a resident of Texas, I had my attention directed long ago to silk culture. Several attempts to import eggs, *via* Bordeaux, proved unsuccessful, the worms having already left their eggs, when I came into possession. At a later period I ordered from Bolzani, a silk-raiser in Berlin, and received them in a perfect state, though transported in winter. They were well packed in linen. Without paying them any special attention, I kept the eggs, still so packed, in a drawer; from the 1st of January to the 10th of May, without injury. At an average temperature of 74° F. I soaked the eggs for some six hours in a mixture of brandy and water, wiped them well with a piece of smooth linen, and put them into a small, flat, wooden box, exposing it to the rays of the sun, covered slightly with a few mulberry leaves, which, as they withered, were constantly substituted by fresh ones. During the nights, I kept the box warm by putting some cotton loosely around it. By this method, differing altogether from that used in Europe—where the eggs are hatched either in rooms of an equal temperature, or on the bosom of females—I succeeded very well. After six days all the vigorous worms had left their eggs, appeared very lively, and partook freely of the young leaves of *Morus multicaulis*. The feeding was done on the usual wicker-work, placed in my room, which was kept open by day and shut at night. When a warm and equal temperature began, which lasted during the whole month of June, it was a very favorable period to the worms; yet I was surprised at the extraordinary facility displayed by them in completing their four changes, and pleased to find that, on the twenty-eighth day after their birth, the transformation into the chrysalis had already begun. On the sixth day after their birth I transferred part of the worms into the open air, removing them from the wicker-work to the mulberry trees, by fixing there the branches of those leaves already occupied, from which they soon spread. They continued in good health, appeared lively, and became more vigorous than those kept in the room. I did not supply the former with any huts, in which to go through the process of changing into the chrysalis; but those kept in the room were furnished with shocks made of fine straw, and similar to small brooms, without a handle. On the thirty-second day after their birth they had already involved themselves, or begun their spinning. I possessed one fourth of an ounce of grains, the fourth part of which was hatched, and the rest I threw away, so as not to raise worms of different ages. They produced somewhat over a pound of cocoons, which, either together with their huts or collected from the trees, were put into a box lined with coarse linen, and placed in a dark corner of the room. After ten days the insects crept out, and within four days laid seven eighths of an ounce of eggs, which kept very well until next spring; but, on the occasion of a heavy rain, they became

wet and unfit for use, simply because the mischief done had not been noticed until too late. From the close attention I devoted to them, I found that not a single worm became sick or died in the course of their development; and almost without an exception they went through the changing process with ease and rapidity. They were fond of the leaves of the *Morus multicaulis*, eating them with avidity; but refused those of the wild mulberry of this region. The worms raised in the open air were vigorous, and their cocoons beyond all objection. The silk was equal to the best obtained from Turin, the thread of the cocoon being some 500 to 700 yards in length. It is my intention to continue these experiments.

THE RADISH, AND FRUITS OF JAPAN.

By TOWNSEND HARRIS, United States Consul, Simoda.

The statements in the "World in Miniature," concerning the Japan radish, are much exaggerated. It is true, that radishes are grown in every part of Japan, but nowhere are they a principal article of food; they are merely an adjunct to rice, wheat, and barley, which are the great staples of the country.

I ordered the best specimens of the long radish to be brought to me when I first visited Yedo; the longest were less than thirty inches, and about one inch in diameter. This radish, when dried, loses more than three-fourths of its bulk, and looks very like a whip-thong. Specimens of another kind were also brought to me. These were shaped like our parsnip; the largest measured eighteen inches in the length, and fifteen in circumference, and weighed four pounds and five ounces, *avoirdupois*.

All the radishes of Japan, when used as a salad, are inferior to the garden radish of the West, being tough, and not of an agreeable flavor. When boiled they are quite insipid, having nothing of the flavor of the white turnip or rutabaga.

Only trifling attention is paid to the cultivation of fruit in this country; cherry and plum trees produce magnificent blossoms, but bear very little fruit, and that little worthless. Peaches are far inferior to those of China, being quite bitter; and the same remark will apply to the apricot.

I have seen only one variety of pears; they resemble in shape and color a russet apple, but are unfit to eat raw, and when cooked are quite insipid. The best grapes of Japan are like the Catawba in appearance, but inferior to that variety.

The only fruit that I have seen in Japan that particularly merits notice, is the Kaki, a variety of *Diospyros*, and belonging to the order *Ebenaceæ*. It is really worthy of being introduced into the United States. Many kinds have been brought to me. One has a skin as

thin as tissue paper, and the pulp resembles in flavor the Egyptian fig. Another variety has a thick rind and a finer pulp, while the taste strongly reminds me of the delicious mango of Siam and Bombay. The tree is very ornamental, and of rapid growth; it would, no doubt, succeed in any part of the United States south of 37° of latitude. Unlike the persimmon of the United States, there is very little astringency in the skin of the fruit, and frost, which matures the persimmon, greatly injures the kaki. This fruit varies in size, but is always larger than its American relative, and some are seven inches in diameter; it is in season nearly three months. The Japanese dry it, when it will keep for some four months, and has a taste like that of the dried Smyrna fig.

From BEVERLY L. CLARKE, *United States Minister Resident to Guatemala.*

VEGETABLE TALLOW,

Known to botanists by the name of *myristica sebacea*, comes from a nut about the size of a nutmeg, full of meat, which, being melted, produces a yellowish tallow, excellent for candles, but until now very little used or known even here. I have no doubt this article might be collected and exported with considerable profit. It is grown upon a bush or shrub, in its wild or uncultivated state, in immense quantities, in the southern departments and in Vera Paz. It is susceptible of such high purification as to resemble the finest sperm, is solid, and quite as transparent. A sample of this production in the nuts, in the form of tallow, is forwarded with this report.

ORCHARD-HOUSE CULTURE.

By DR. GEORGE PEPPER NORRIS, *near Wilmington, Delaware.*

Orchard-house culture, recently introduced into the United States, bids fair to give great satisfaction. Many varieties of fruits cannot be grown in the open air, on account of insect pests, and this plan, by the construction of proper houses, will, in the course of a few years, effect a great change in the manner of growing fruits. No work on this subject has yet appeared in our country, but horticulturists are much indebted to the editor of a prominent journal on horticulture, for republishing Mr. Rivers's book relating to it.

This mode of culture has been successfully tried in England, and a number of houses have been constructed adjoining our large cities. One in Philadelphia, that of Mr. Lovering, is two hundred feet long, and although but a short time in operation, has already produced the most satisfactory results.

Orchard-house culture, with us, will probably be confined to the peach, plum, apricot, and nectarine. The three latter fruits are now

almost entirely neglected in this vicinity, on account of the ravages of the curculio. Fruits of the kinds above named are intended to be grown as dwarfs, in pots, and by a proper course of pruning and summer pinching, with liquid manure, will succeed in producing fine crops. A house for this kind of culture may be thus described:

Suppose one to be desired 30 feet long. Stake out the ground, 30 feet by 12 feet 6 inches wide; place 6 cedar or chesnut posts 3 feet deep, leaving 7 feet 6 inches above the surface of the soil. This is for the back row. Plant another row of posts 12 feet 6 inches in front of these back posts, to project above the ground 3 feet. Nail strips along the top of the back and front rows, for the rafters to rest on. The rafters will be 14 feet long, and the roof to be made of glass, permanently fixed, in the manner adopted by all nurserymen for their grape and pruning-houses, with two additional posts at each side, for doors. It is now ready to board up. The front, back, and sides should be finished with well-seasoned 1-inch plowed and grooved plank. This gives us a house 30 feet long by 12 feet 6 inches wide; 7 feet 6 inches high at the back, (probably 7 feet 9 inches with the back plank,) and 3 feet 3 inches high in the front. It is nothing but a lean-to glass-roofed house, made perfectly tight, but capable of being all thrown open, as will presently be described.

Everything will depend on the ventilation. Glass shutters, 3 feet long by 20 inches in width, should alternate in the roof, to be raised up. The boards along the front should be on hinges, to let down. There should be 6 shutters, on grooves, 3 feet by 1 foot 2 inches, near the top, 2 half-way down, and 2 at the bottom. This, with two doors, one at each end, will give the requisite air. It will be understood that a house is desired capable of being made perfectly tight, when necessary; at the same time, we can, by opening all the shutters and doors, give an abundance of air. The walk through the center of the house is made by sinking the path 18 inches below the surface, and planking up the sides. The front row of trees will now be placed in pots directly beneath the glass, and 3 feet apart; the back will require to be raised according to the size of the trees. Pot fruit trees require a strong, hot sun, with plenty of air, and protection from cold spring winds. The cost of such a house as I have described should not be over \$120, and by careful management may be built for considerably less. Mr. Rivers's estimate is under \$80 for these dimensions, but is too low. Pot fruits are now for sale by all the prominent nurserymen, with instructions how to prune and cultivate. Five years will, in all probability, witness very numerous houses of this kind throughout the country. A plan in detail will be found in the *Horticulturist*, for June, 1859 [published by Saxton, New York.]

THE HANG-WORM.

MARYLAND AGRICULTURAL COLLEGE,
Prince George's county, Maryland, December 21, 1859.

SIR: I am sorry I did not receive Mr. Chambers's interesting communication to the Agricultural Division of your office until a few days ago, it having been misdirected.

Mr. C. C. Chambers, of Flemington, East Florida, complains of the ravages committed upon the cotton crop in his neighborhood by a species of caterpillar, unknown to either himself or the planters in his immediate vicinity, but which, from his clear and lucid description, (the specimen inclosed in his letter being unfortunately lost,) I have very little hesitation in pronouncing to be a species of the *Oiketicus coniferum*, commonly known in this State as the hang or drop-worm. This name has been given to it from the peculiar habit the caterpillar has of forming a case, and hanging suspended from the leaves or branches of the trees and shrubs upon which it feeds. As the natural history and instincts of our *Oiketicus*, or hang-worm, are most probably much the same as the Florida species, and may prove interesting to Mr. Chambers, I will endeavor to describe them, in as plain language as possible.

The eggs are deposited at the lower end of the hard brown envelop, or apparent chrysalis of the female insect, and inside of what Mr. C. terms the "cocoon," which "case" also serves as a protection for the insect when in the soft-bodied, caterpillar state, and is formed of silk, interwoven with pieces of stalk and leaves, upon which the caterpillar feeds. The interior is carefully lined with a fine floss-like silk, to protect the naked skin of the caterpillar from the rough ends of its outer envelop. When the warm weather commences, these eggs, having remained in the case all winter, hidden from the prying eyes of insectivorous birds and protected from the cold, hatch, and the young worms emerge into the case from an aperture in the anterior part of the female chrysalis case, caused by a splitting open of the upper part of the hard and shelly material forming the outer envelop of the female. The young worms then find their way into the outer world through a hole purposely left in the lower end of the leafy case, and beginning to feed upon the tree, immediately form a minute case adapted to their small size, from the gnawed fragments as before stated, and which they gradually enlarge, from time to time, as they grow, until the autumn, when they attain their full and perfect size; in the meantime merely protruding their heads to feed and six fore feet to crawl from place to place. Still, however, they retain their case or movable house, firmly attached to their naked bodies by means of their hinder feet, which grasp, or retain hold of the case with such tenacity as hardly to be capable of being dislodged without tearing the worm to pieces. When the caterpillar of the male is full grown, it casts the caterpillar skin and assumes the form of a pupa, in the same manner as other *Lepidopterous*, or scale-winged insects, and remains in this state a longer or shorter time, according to the state of the weather. It finally pushes itself out of the lower end of the case, through the opening left purposely by the caterpillar, the minute spines on its body facilitating this mode of exit; and the anterior part splitting open, a small black four-winged fly or moth makes its appearance, having the body black and hairy, and wings transparent wherever the down or scales have been accidentally rubbed off. This moth might readily be mistaken for a fly from its singularly fly-like appearance and transparent wings; but, in reality, belongs to the order of *Lepidoptera*, or butterflies and moths, the same as the cotton caterpillar and boll-

worm. The male insect having wings, immediately seeks out, and pairs with the first female he finds, quietly reposing in her case, which she never leaves—this serving, at different times, first as her house, then as her nest, and finally, as her coffin. Pairing being over, the male dies, the female deposits her eggs in the case, as before stated, and likewise dies, leaving the eggs to be hatched by the genial heat of the next season's sun. Late in the fall, and during the winter, many small cases or cocoons may be seen suspended on the leafless branches, each with a black chrysalis case protruding from its lower extremity; these are the cases of the males, that have undergone their transformations, and paired with the females. The larger cocoons are those of the females, and contain the dried up body of the insect, in the posterior part of which may be found from seven hundred to one thousand eggs; embedded in and covered on the upper part with a thick layer of brownish dust, apparently composed of the down of the mother's body. These eggs, if not destroyed, will all hatch, and in a short time defoliate all the trees in the neighborhood, the young worms being so light as to be carried by the wind from tree to tree, with the greatest facility, as I have found them on almost every shade tree in Washington, not even accepting the flat cedar. They do not appear to be very choice in their selection of food.

I wish I could procure from him as many as a dozen cocoons, to hatch the eggs therein contained, and compare the perfect insect with



Male, with chrysalis skin protruding. Female, with head and six fore feet out, crawling.

our own, as I have already figured one *Oiketicus* or hang-worm found on the cotton plant in Georgia, and was satisfied that it was almost, if not absolutely the same as our own *Oiketicus coniferum*, or case-bearing hang-worm, if I may so term it. Last year I found two specimens on pine in Florida, but of a much larger size, and may probably be the same species as that found by Mr. Chambers, as there were cotton fields in the immediate vicinity. As I have spent so much time in describing the insect, I must touch upon the most important part to the agriculturist, the best means of destroying it. As the insect fastens its cocoon securely to a branch

or twig, when about to change, and as in winter, the trees here are entirely defoliated, and these pendant cocoons, also containing the eggs, are plainly visible, they should be torn off and immediately burnt. Each female case, as I have before stated, contains from seven hundred to one thousand embryo worms, and if not destroyed in time, might increase so fast as to do much damage to the crops. I would here remark, that this fall, I found a peculiar small black and yellow banded Ichneumon fly, very busy depositing her eggs in these cocoons. The parent fly deposits one or two eggs in the body of the hang-worm inside, and hatching into pale yellowish white, footless grubs, devour

the interior of the rightful possessor of the case, leaving untouched only the hard shelly covering of the female, in which they change into pupae, and afterward, in the spring, gnaw their way out of the murdered insect, and brood, as perfect four-winged flies, having a slight resemblance to a very small black wasp, marked on the hind body with light yellow bands. I regret that I have no specimens of these flies at hand, in order to be able to describe them in a more intelligible manner. I have also observed other smaller ichneumon flies destroying the hang-worm, in a manner somewhat similar; and merely mention these facts in order to warn Mr. Chambers not to mistake the beneficial parasite for the really noxious insect, should he, or his neighbors, choose to watch their transformations and habits another season, as I hope they will do, and report to the office the results of their experiments. It is generally from practical planters that we learn the true history of the insects destructive to their crops. As to Mr. C.'s theory of the cotton caterpillar, I confess I am unable to judge about their appearance, at stated intervals, like the locust, (*Cicada leptendecim*;) but, from what I have seen, am inclined to think that the seasons have more to do with it than he imagines. A slight frost will kill the chrysalis in its loosely-spun cocoon, and I have been unable to find either eggs or perfect insects in the winter, not having remained the whole year in the South.

I remain with respect, your obedient servant,

TOWNEND GLOVER.

Hon. WILLIAM D. BISHOP,
Commissioner of Patents, Washington.

Letter from N. H. MORAGUE, M. D., of Palatka, Florida.

PALATKA, FLORIDA, *January 10, 1859.*

Mr. Townend Glover, late entomologist of the Agricultural Division of the Patent Office, and myself, commenced last summer a series of experiments upon my orange grove for the purpose of eradicating the insects; "insignificant animalcules" as they appear to the eye unassisted by the microscope, yet they were devastating my trees in such a manner that I had almost resolved to abandon the culture.

After trying various experiments with but little success, such as sulphur and lime, aloes and whisky, coal-tar, soda, syrup, &c., we came to the conclusion to try Peruvian guano, and made a solution according to the following proportions:

To a barrel of soap-suds add a common bucket of guano.

I may here remark that the instrument used in applying these remedies was a tin syringe, with numerous minute holes perforated in the end; a number of which instruments Mr. Glover was kind enough to have made and presented to several persons in this community. We syringed my trees once a week for a month or two, and I am happy to say with complete success. Although my grove was literally covered with the coccus, not one can now be found alive.

If they return, I shall pursue the same plan, satisfied that I shall gain a two-fold object: first, ridding the trees of the insect, at least for a time, and secondly, benefiting the trees very much by the wash and drippings of the guano.

FROST.

BY WILLIAM H. BREWER.

The frosts of June of 1859 were so very disastrous to the crops of this county that I have thought the subject of sufficient interest to record for future reference. They were unsurpassed and even unequaled by any that ever occurred in this country, (so far as I can ascertain,) if we consider the great extent of territory affected, the lateness of the season, and the magnitude of their disastrous results.

The mean temperature of the month of June was several degrees lower than usual in most of the Northern States, and at some places where records have long been kept, (as at Rochester,) several degrees lower than ever before noticed.

The 4th of the month was generally the coldest day, and at the Toronto Observatory, (Canada,) the coldest of any day in June for over twenty years, while similar notes came from other points. The night was still colder, and brought a disastrous freezing frost. Snow fell during the day at Toronto, Niagara, Forbes, Buffalo, Syracuse, &c. In many places in Western New York, as at Avon, the ground was white. Scattering flakes also fell in parts of Ohio.

The mean temperature here for the day was 20° F., the evening observation being 34° in a sheltered place. The night was perfectly clear; how low the thermometer sank I have no means of knowing accurately, but probably to about 25°, or even lower, which is 23° below the lowest temperature for June, 1857. On the morning of the 5th a frost-like snow generally covered the ground, while the bare surface was frozen to the depth of over one fourth of an inch, and ice formed on the water in the most exposed positions over one fourth of an inch in thickness. This was the frost that did the most of the damage here and in the adjoining counties, but in some places it was less disastrous than the succeeding ones. Probably, also, it spread widest, having been felt over a large part of New England, where it did but little injury. Over the most of New York it was very severe, especially in the central and western parts, and did much damage in Ohio and Pennsylvania—these three States suffering particularly. It extended south to Maryland, being further south on the east than on the west side of the mountains, affected also the most of Michigan, much of Illinois and Indiana, Kentucky, (as far south as Lexington,) Missouri, Wisconsin, Canada, and Iowa, probably to the Missouri river. A diminution of temperature was felt as far as North Carolina, and perhaps further south. In some places the frost made its appearance on the night of the 3d, as in Berks county, Pennsylvania; but this was not usual, and even in those cases the day of the 4th was the cold day.