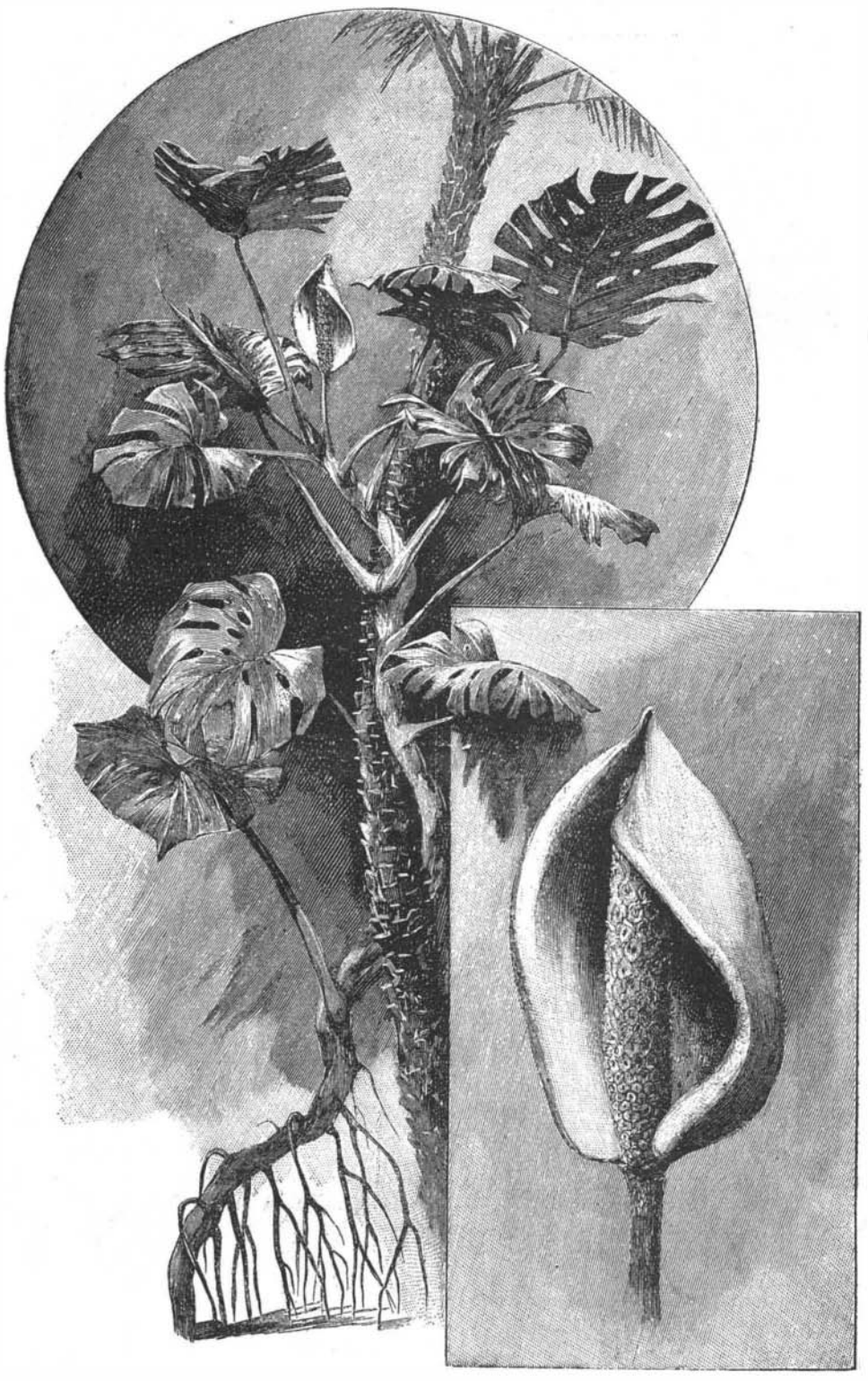
FLOWER AND FRUIT OF THE MONSTERA DELICIOSA.

(Philodendron pertusum).

The Monstera deliciosa occupies a prominent place among the larger plants that are oftenest seen in the parlor and living room, and it is difficult to imagine any foliage decoration that is more beautiful and ornamental than that afforded by this plant. For this reason and because the stately liana requires comparatively little care and attention, it has found many friends and admirers, who are richly rewarded by its abundant and luxurious growth for the little trouble they expend upon it. But, although this child of the tropics is so well known, very few have had the satisfaction of seeing a blossom or even a picture of a blossom of this plant, and, therefore, when, by a happy accident, I had this rare pleasure, I determined to publish a little study of the plant with a good, clear illustration of the flower.

In the first place, it should be stated that the plant of which we are speaking is the Monstera deliciosa, and it is only through error that it is called philodendron. Philodendron pertusum, that is, perforated, referring to the holes in the beautifully formed leaves. The home of the liana is southern Mexico and Central America, where it grows in great abundance, especially on the western slopes of the mountain ranges. Even in our rooms it presents an imposing appearance, but how much more beautiful must it be there, where it winds its slender, flexible stem around the supporting tree until it reaches its crown, and then spreads out its shining leaves. I have not been able to learn the name given to the plant in its native land, but as far as its scientific name is concerned philodendron is certainly much more significant than monstera, for the former means "loving trees," seeming to refer appropriately to its habit of clinging to strong trees. But, on the other hand, the word used to indicate the species (deliciosa) is a truly characteristic epithet, for the fruit of the monstera is not only edible, but delicious. In Guatemala and Mexico this fruit is carried with others to market, where a young friend of mine saw it. Its flavor is similar to that of the pineapple.

The Monstera deliciosa does not blossom when growing in a pot or tub in a room, and it seldom blossoms even in a hothouse, because it has not sufficient earth, nor does it, as a rule, reach the requisite age. The specimen that furnished the blossom for our illustration stood in the great aviary in the Berlin Zoological Garden, and was about twelve years old. It was about 26 feet high and had plenty of room both above and below ground for perfect development. The diameter of its stem was from 1 to 1½ inches and from it hung many "air roots." The blossom was at the top in the center of a crown of leaves. At first, before it opened, it was shaped like a spindle or a thick cigar; later the spathe unrolled and formed a canoe-like or shell-like envelope standing parallel to the spadix, which bore the flowers and later the fruit. When ripe the spathe fell off. This whole blossom was cream colored, the spadix being a little darker. The latter is given a pleasing spiral effect by the little flowers, which remind one of the little cells in honeycomb.



FLOWER AND FRUIT OF THE MONSTERA DELICIOSA.

The perforations in the leaves are caused, as is well known, by the uneven growth of the web between the veins, and if the delicate edge happens to be torn here and there, these tears are liable to run into the perforations, giving the leaf a ragged appearance.

The plants most closely related to the monstera or philodendron are the reed mace (typha), the sweet flag (acorus), the arum and the calla, or more correctly the richardia, which are readily recognized by the similarity of their blossoms.—*Dr. J. Mueller-Lieberwalde, in the Illustrirte Zeitung.*

How One Feels with the Grip.

The *Insurance Journal* describes in an amusing way the misery of a person having an attack of the grip, and still the picture is not very greatly overdrawn.

Ever had the grip? I will give you a few pointers. You will imagine you have a bad cold and you can wear it out, but you need not try it. The grip has fastened his fangs on you and will not let go. You have got to give up, go home, and go to bed. In a short time you will feel like the Chicago drummer who took the Keeley cure at Dwight, Ill.

You will feel like an anarchist and want to bomb. You will realize Beecher's dream of hell. You will think your head has been removed, and an old beehive with the empty comb left in its place. Your mouth will taste like a pail of sonrkrout. You have the grip.

The doctor comes, looks you over, puts his thermometer in your mouth, finds your temperature 104° in the shade, your pulse going at the rate of two miles and three laps to the second. He orders you to stay in bed and gives you medicine that is so strong and sour that simply setting the bottle on the clock shelf stopped the clock.

He will tell your wife that she may give you warm drink and try and get you to sweat, and takes his leave. Now all wives are family doctors by right of their position in the house, and as you have gone to sleep, delirious and exhausted, she begins her treatment by putting a belladonna plaster across your lungs, a flaxseed poultice on one side and a mustard poultice on the other, a hot flatiron and a jug of hot water to your feet, and a sack of boiled corn in the ear, piping hot, to your back.

You sleep and dream of being away to the far north in search of the north pole or out in the center of some beautiful sheet of water like Lake Superior, or the lawn tennis skating rink, helpless and alone, with the ice breaking all around you and you slowly sinking. Your finally awake, burnt, blistered, and baked. The doctor calls, finds your temperature about 80° at the north side of the house and your pulse normal, not needing a peacemaker.

He pronounces you better, convalescing. Orders beef tea, chicken soup, gruel, and toast as a diet. You take the big rocking chair exhausted, tired, discouraged, and ugly; you feel like licking your wife, kicking the dog, and breaking up the furniture, but you won't do anything but sit there day after day, weak, helpless, and tired.

Fashion in Fishes.

There are fashions in fishes just as there are in dogs, cats, horses and bonnets. The "fish fad" is in imitation of the Oriental custom of having valuable fishes as household pets, and they bring fancy prices. A trip to Mikado-land has been "all the go" of late years. Now, in Japan, families of moderate means have their jars of fine fishes. In the aquaria of the noble Japanese families are to be found species of odd and curious fishes that have been bred and cultivated for the past five hundred years. Thus, the paradise fish, like the German canary, is a product of cultivation, as there is no place where it is found in a wild state. It is a native of China. There the fish have been cultivated for hundreds of years. The stock is kept pure, and the Chinese raise specimens, perfect in form, fin and color.

At his country seat a well-known New York banker, writes L. J. Vance to the *Pittsburg Leader*, has a fine specimen of the Chinese paradise fish. There is, perhaps, not another specimen of this variety in the new world. The paradise fish is an ornamental fish, cultivated for the aquarium in China. What makes this fish remarkable are its colors, which surpass in brilliancy any fish bred for the purpose. In shape and size its body is not unlike that of the pumpkin-seed sunfish. Here are some of the colors and marking. The side of the body and the crescent-shaped caudal fin are deep crimson, the former having ten or a dozen blue stripes, while the fin has a blue border. The gills are blue, bordered with bright crimson. The head is gray, with dark spots. The remarkable feature of the paradise fish is the under surface of the body. This is continually changing color—at one time it is white, and at another time it is gray or black. The dorsal fins, which are unusually large, are striped, dotted with brown and bordered with blue. The ventral fins are dull colored. The pectorals are transparent and show no color. Altogether the paradise fish is a wonderful product.

Another ornamental fish which is interesting is the Chinese comet goldfish. It attracts attention on account of its immense caudal fins, which spread out like sails when the comet fish is swimming. The scaleless goldfish is common in Germany. As the name would indicate, the peculiarity of this goldfish is that the body is entirely without scales. Here one sees the heart, the vertebral column, and the divided air bladder, by means of which the fish are able to rise or sink at will. The whole internal machinery of the fish is open for inspection. To supply the demand for odd and curious fish, the dealers send for specimens in different parts of the world. They know that if they can obtain a "freak," they can secure a good price from their wealthy customers. On this order is the pair of white axolotl from Mexico, which are to be seen in the aquarium of a New York dealer. These Mexican "freaks" are batrachians with four feet and tails. The brown variety are not uncommon, but the white axolotl live in the dark, and if they are exposed for any length of time to the sunlight they change their color and become brown. The peculiar feature of the white axolotl is that the exterior gills are so transparent that the circulation of the blood corpuscles can be readily seen under a magnifying glass.

Mathematics.

Mathematics should be regarded as a kind of mental shorthand; a ready means for stating a proposition exactly; an instrument for recording thoughts so that they cannot be misconstrued. It is no longer to be associated with things uninteresting and vague; the reverse is undoubtedly the fact; to a mathematician, there is as much delight in the solution of a problem as a musician finds in composing a sonata. Mathematics is not essential to the art of theorizing, but it is essential to the art of theorizing rightly; it is the only economical method of thought. It was Darwin's belief that "no one could be a good observer unless he was an active theorizer." Then, too, a mathematician can generally give points to a logician in a subtile argument, for it implies no trickery stronger than the truth.—*The Electrical Review.*

How to Get Rid of Cutworms.

BY C. V. RILEY.

Young corn is often grievously injured by cutworms. The following reply, by Prof. C. V. Riley, to a correspondent who has been more than usually troubled will, therefore, be read with interest at this time:

If specimens of the particular cutworms were sent to the station for identification some preventive measures might be suggested, as much depends on the particular species. In a general way, most of the species have similar habits in the larval state; but to deal directly with them when, as in this case, they are distributed over large areas, is a very serious problem. The most successful means under these conditions is by the distribution of poisonous baits. These may consist of freshly cut clover or other succulent vegetation poisoned with Paris green and made into balls or gathered into masses, so as to prevent their too rapid drying. One mode of accomplishing this last object is by covering the poisoned plants with boards. These poisoned baits, if placed at intervals along the corn rows, will attract a large proportion of the cutworms, which, by feeding upon them, will perish. For smaller areas, or for garden patches, the same method may be followed, or the larvæ may be unearthed from about the base of the plants, where they retire for concealment during the day.

Another method is to take a smooth walking cane and make smooth holes several inches deep at intervals, going over the same ground every day and punching in these holes to destroy the worms which seek them during the day as a place of concealment and tumble in. The patent salts, such as kainit, have proved of the greatest value against many subterranean insects, and undoubtedly will be of value against these cutworms. They have the additional advantage of being good fertilizers, so that their expense as insecticides is more than offset by their value to the crop and to the land. I think with your correspondent that it is too late to accomplish much the present year, but by a combination of the three methods suggested he will be able another year to prevent much of the trouble. It is well, where fields are badly infested with cutworms, to plant thickly, so that two or three young corn plants may be spared from each hill without seriously affecting the crop. It is also wise, on general principles, to keep fields that are to be planted to corn thoroughly clear and clean of weeds and other vegetation during the fall; and in this light fall plowing becomes extremely important, as most of the cutworms are hatched the previous year and hibernate as partly grown larvæ.

Poultry Fattening.

A large party of ladies and gentlemen interested in the poultry industry lately visited the Iville Poultry Farm, at Baynards, near Horsham, Eng., the property of Mr. C. E. Brooke, Master of the Poulterers' Company. The business of rearing and fattening chickens has been carried on for a considerable time in various parts of Sussex and Surrey, and notably in the districts around Heathfield and Uckfield. In some of the largest establishments as many as 6,000 chickens may be undergoing the fattening process at one time; at the other extreme we find small farmers or cottagers who only prepare a few dozen birds at once. The district is scoured by higglers, who buy chickens from the breeders, often giving as much as 3s. 6d. to 4s. in the spring for well grown birds nine or ten weeks old. Quite recently a demand has sprung up for birds of only a month old, at which age they can be served up as great delicacies at table. As seen recently, the establishment was in full working order, and the various processes of rearing, fattening, cramming, killing, shaping, and dressing fowls were illustrated and described. The Indian game and Dorking cross is found to be the best for producing birds for the table, as they readily lay on flesh at the parts where it is most desired. The cramming house is capable of accommodating a total of 632 fowls, and the birds enter upon this, the last stage of their career, at ages ranging from four to seven months. The pens or cages are arranged in horizontal tiers, one above another, all round the house, which is kept scrupulously clean. Each pen holds one bird, an arrangement which prevents any waste of energy in unseemly quarrels. For two weeks before killing the birds are fed solely by cramming. The food consists of a mixture of barley meal, oatmeal, and skim milk, together with the best beef and mutton fat obtainable, the proportion of fat being increased day by day. The cramming machine is a light contrivance which the attendant can wheel along in front of the pens. To feed a bird he takes it out of the pen and places his left hand on the crop, into which with his right hand he guides an India rubber tube from the machine. By pressing a treadle with his foot, he forces food into the bird's crop, the contact of his left hand with which enables him to judge as to the amount which should be allowed. A careless or inexperienced attendant might easily burst the crop by surcharging it, but a smart man will safely feed 100 birds from the machine in the space of 20 minutes. Feeding in the cramming house takes place twice a day, at 7 A. M. and 4:30 P. M. The birds show no aversion to the cramming operation; indeed, the clamor that is raised as soon as the machine appears and the number of hungry fowls to be seen stretching their necks beyond the bars of their pens raise in the mind of the onlooker a suspicion that just once in a generation a bird may lose its meal unless it enters upon an audible remonstrance with the attendant. As soon as the feeding is over the blinds of the skylights are drawn down, and the birds are left in quiet and semi-darkness to digest the meal they have received and to acquire an appetite for the next. The pens are only large enough to permit the birds to turn round, so that the wear and tear of muscle which would be involved in running about are avoided. Besides the plump young birds which are thus fed up, old and quarrelsome fowls are fatted and sold for making soup. The output of birds from this farm is about 5,000 a year.

Natural History Notes.

Irritability of Plants.—In an address upon this subject Prof. Pfeffer points out that irritability is a fundamental quality existing in all plants, these organisms having the same power of reaction as animals. An increase of stimulus in plants, too, produces a dulling of sensitiveness. At the same time a plant or plant organ is never sensitive to a single stimulus only, and different stimuli do not produce one and the same effect in a given cell. While plants exhibit a variety of sensibilities equal to that of animals, the vegetable kingdom has the advantage in delicacy of perception, bacteria being attracted by a billionth or trillionth of a milligramme of meat extract or of oxygen.

Experiments with Dodder.—Mr. G. J. Peirce records in the *Annals of Botany* the results of a number of experiments with several species of dodder (*Cuscuta*). These are parasitic climbing plants, which, at certain stages, twine around the host plant as the result of the combined effects of circumnutation and geotropism, and, at others, by contact-irritation, which modifies the manner of coiling and accelerates its speed. Haustoria are usually found upon the concave surfaces only of the close coils, and are the result of irritation, their development depending upon contact and nourishment.

Chlorophyl is frequently absent from these plants, but is formed whenever they are insufficiently nourished, and the intensity of the green color may then serve as an index of the amount of organic food they are receiving. The only plants open to attack by the parasites are those whose size, peripheral tissues, internal structure, cell contents and secretions allow to be closely embraced and readily penetrated by the haustoria, and whose conducting tissues speedily unite with those of the parasites, while they produce no poisonous effects by their cell contents or secretions. Such changes as take place in the host plant are rarely anatomical, the effects being mainly physiological. Then penetration of the haustoria is effected by means of mechanical pressure and the chemical activity of the pre-haustoria and cells at the tips of the haustoria proper, aided by the action of the cushion cells. The pre-haustorium consists of the long papillate cells in the center of the "cushion" of older authors, and the cushion cells are the other modified epidermal cells. The tips of the latter partially dissolve and fuse with the walls of the opposite epidermal cells of the leaf attacked, and thus securely hold it, while the papillate cells of the pre-haustorium perforate the walls by more complete solution, and, growing through the holes thus made, enter the mesophyl of the leaf.

The stem of the parasite can then brace and so assist the forward growth of the haustorium, which grows through the center of the area of attachment, and advances by the way partly excavated by the papillate cells.

Flight of the Frigate Bird.—Mr. J. Lancaster, who has spent five years upon the west coast of Florida in the study of the habits of aquatic birds, of which he has made a specialty, asserts that he has seen frigate birds fly for seven consecutive days, night and day, without ever resting. According to his observations the fatigue of these birds is not excessive, even in such long continuances in the air. In fact, the frigate bird can easily, and almost without a flap of the wings, not only maintain itself, but also fly with a speed of nearly a hundred miles an hour. The spread of the wings extended varies between 11 and 13 feet. It feeds, gathers materials for its nest here and there, and even sleeps on the wing. This well proves that in this bird the motion of the wings is, in a manner, independent of the will.

The albatross, which also has been the subject of Mr. Lancaster's observations, is larger than the frigate bird, its wing-spread reaching at least 16 feet; but if it follows ships at sea for a long time, it is always obliged to take a rest upon a rock or upon the ship itself at the end of about four or five days.

Chemical Defenses of the Beetles.—In addition to their chitinous cuirass, which is sometimes very thick, the coleoptera are very often provided with chemical defenses in the way of nauseous or caustic liquids secreted by the anal, salivary, or tegumentary glands, and which they expel upon the least provocation. These defensive liquids are not always glandular secretions, however. In fact, however surprising it may appear, Mr. L. Cuenot has ascertained that in a certain number of beetles it is the blood itself of the insect, charged with noxious products, that makes its exit from the body through fissures in the integuments and protects them against the attacks of ferines.

Mr. Cuenot thinks that the principles that give the blood its defensive properties vary with the species. Thus the blood of the Coccinelidæ has quite a strong and very disagreeable odor, which, moreover, is that of the entire insect, while the blood of the Timarchæ is odorless, but has a very persistent astringent taste, and, in *Timarcha primelioides* (according to the researches of De Bono), contains a venomous product, capable of poisoning flies in a few minutes, and of rapidly killing, through stoppage of the heart, Guinea pigs, dogs, and frogs. Finally, in the Meloidæ, it is well known, from the researches of Leydig, Bretonneau, and Beauregard, that the blood contains a large quantity of cantharidine, the vesicatory properties of which make of it an eminently defensive product. This singular means of defense is, up to the present, known to exist in but three groups of coleopters, viz., among the Chrysomelidæ, in numerous species of the genera *Timarcha* and *Adimonia*, and probably the *Megalopi* of equatorial America; among the Coccinelidæ, in the majority of the *Coccinellæ;* and, finally, among the Meloidæ. in the genera *Cantharis*, *Lytta*, *Meloe*, *Mylabris*, *Ceracoma*, etc. It is probable, adds the author. that we shall find it in still other insects.

Insectivorous Habit of Dionæa.—Mr. B. Dean, from observation of the Venus' fly trap (*Dionæa mascipula*) in its native habitat, states (Trans. New York Acad. Sci.) that the position of the trap is more adapted for the capture of creeping than of winged insects. A far larger quantity of the remains of the former were found in the traps than of the latter, the escape of the larger winged insects being also facilitated by the slowness with which the trap acts. The leaves frequently close on vegetable and even on inorganic objects when captured. After digestion has taken place, the position of the trap, when reopened, allows the undigested particles to fall to the ground. The sensitiveness is not confined to the bristles, but belongs in a modified degree to the whole of the upper surface of the leaf.

Rhythmic Growth.—Mr. Thos. Meehan gives illustrations (Proced. Philada. Acad. Nat. Sci.) of rhythmic or interrupted growth, in contrast to continuous growth, in the case of the fruit of a number of species of *Citrus*, especially in the Tangerine orange and in a variety known as the "navel orange," in which there is an attempt to form another fruit at the apex, usually accompanied with a failure to produce seeds. Further instances are afforded by the proliferous growth of the flower frequent in many Rosaceæ, and in the development of the inflorescence of two species of Compositæ, *Heliopsis lævis* and *Bidens bipinnata*.

A Russian Factory.

In speaking of Russian industry, the name of Morozof comes first to mind. The Morozofs have done most for the cotton industry in Russia, and it is due to them that this industry has produced goods which rival those made in other countries. One of the most celebrated Russian manufactories, that of Bogorodsko-Gloukhof, belongs to one of the members of this family, Arsene Morozof. This has made immense progress under his intelligent direction. In the period of twenty-five years the business has increased from 900,000 to 13,000,000 rubles. [Value of a ruble is $0.75.] There are now 8,500 workmen employed, of whom only 2,000 lodge outside of the factory. All the workmen and foremen are Russians; the spinning only is directed by an Englishman. The works use annually 5,600 tons of cotton, of which 1,280 tons are bought in Central Asia; the rest comes from America and Egypt. The Asiatic cotton of Bokhara is used only for stuffs of inferior quality; the Asiatic cotton produced from American seed is superior to it. But the best kinds of cotton are those from America and Egypt.—*Revue Francaise.*

Imitation Agate.

Mr. Solms-Baruth (Silesia) has recently patented a process for the manufacture of an imitation agate, obtained with the following composition:

Basalt	100 parts.
Soda	50 "
Borax	10 "
Carbonate of lime	20 "
Sand	80 "
Chloride of silver	1 part.

Into the molten glass are introduced fragments of basalt, lava, scoriæ, iron ore, or roasted pyrites, and then bichloride of tin is added to the mixture. Through the effect of the incomplete dissolving of the basalt, the appearance of agate is given to the mixture. Upon cooling the surface of the glass more rapidly, there is obtained a better effect, which consists in the production of a deeply colored surface upon a dark ground.—*Revue Scientifique.*