

### The New York Academy of Sciences.

The chemical section of this society met on March 27, Professor A. R. Leeds in the chair.

Mr. C. Chamberlain exhibited several magnificent specimens of

#### AMAZON STONE,

from the collection of Professor A. E. Foote, of St. Louis, Mo., who is now in Philadelphia preparing to exhibit the minerals of the New World to our foreign guests at the Centennial. Amazon stone is a variety of orthoclase or potassa felspar, of a bright verdigris green color, and quite rare. These specimens were brought by Professor Foote from Pike's Peak, Col. The crystals were remarkably large and perfect, while the color was unusually brilliant. The same gentleman exhibited a crystal of beryl found by himself in 56th street in this city. Also a perfect crystal of datholite,  $\frac{1}{2}$  inch long, from Bergen tunnel, and a specimen of petzite or telluride of silver, brought from Colorado by Professor Foote.

Dr. H. Endemann exhibited and described a new form of apparatus for the

#### QUANTITATIVE DETERMINATION OF ACETIC ACID

in crude acetate of lime. It consisted of four glass flasks connected by glass tubes, the first and last being provided with safety tubes. The first flask is filled with water; the substance to be analysed is placed in the second flask along with a sufficient quantity of phosphoric or sulphuric acid. The third and fourth flasks, which are at some distance from the second, and at a lower level, contain a known volume of a standard soda solution. A gentle heat is applied to No. 2, steam is generated in No. 1 and passed into No. 2, and drives out all the acetic acid, which distills over into No. 3 and is absorbed by the soda. The distillation is complete in 15 minutes, and it is only necessary to triturate the soda solution with the standard acid to ascertain how much of it was neutralized by the acetic acid, and then from this to calculate the quantity of acetic acid.

Dr. Elwyn Waller, E. M., read a paper on

#### MILK AND THE LACTOMETER,

in which were embraced most of the facts contained in the editorial on "Milk and its Adulterations" in our issue of April 1. Dr. Waller has analysed a large number of samples of milk for the Board of Health, and in almost every case found that the only adulterant employed was water. The speaker detailed his experience, and gave figures to prove the unreliability of the method, once strongly advocated by a city chemist, which was to shake the milk with a given volume of caustic potash, add acetic acid, heat, allow to cool, and read off the amount of coagulum formed, from which the quality of the milk is calculated by means of tables prepared for the purpose.

An animated debate took place at the close of the paper, between Drs. Waller, Doremus, Falks and others, during which the hour for adjournment arrived, and further discussion was postponed till Monday evening, April 10, at which time Mr. Mott's paper, on a comparison of the milk of the African and Caucasian races, will also be discussed.

#### The Odors of Coal Oil.

The refinement of crude petroleum is extensively carried on in the vicinity of Hunter's Point, N. Y., a locality situated opposite the center of New York city, directly across the East river. The distance of the oil works is a little over a mile in a direct line from this metropolis. For a long time the inhabitants of the northerly portion of the city have complained of bad health, due, as they allege, to foul odors that swept across the river from these works. A bill is now before the legislature, intended to effect an abatement of the nuisance. Professor Charles F. Chandler, President of the Board of Health, a well known chemist, is of opinion that, at a trifling expense, chemistry can furnish means for the removal of the odor, if persons complained of will only take the trouble of using them. That the men at work in these factories do not mind the smell does not prove that sensitive women, young children, feeble convalescents, and prostrate invalids do not suffer from it. In a civilized community, the principal, as it is the most beneficent, purpose of law is to protect and help those whose struggle for existence is hard. As for the objection that persons living near the factories do not complain of the smell, it is well known that such odors ascend perhaps one hundred feet from their source before they begin to diffuse themselves; and that great condensation or compression of odors often lessens their power—a bag of musk, for example, is not nearly so fragrant as it is in the handkerchief that has lain beside it.

The cause of this nuisance, said Professor Chandler, is simple enough. Crude petroleum is a liquid of dark, greenish brown color, and of an offensive odor, and must be refined before it is suitable for household use. The process of refining is threefold: First, the lighter oils, which are dangerously inflammable, and the heavier oils, which are not inflammable enough, are distilled; secondly, the product remaining after distillation is agitated with sulphuric acid in order to remove a portion of its color, and all its disagreeable odor; thirdly, the oil thus refined is again agitated with an alkali, either caustic soda or ammonia, in order to neutralize all traces of the sulphuric acid. After the second of these processes there is left a dark, tarry sediment called sludge acid, of an exceedingly disagreeable odor, and it is of this odor that the people of a large part of the city are now complaining.

The effects of inhaling it, said Professor Chandler, are not different from those following the inhaling of any odor which produces or tends to produce nausea. The appetite is impaired, and the general tone of the system injured. It can

rarely be proved that any particular odor causes any particular disease. But the body becomes degenerated, and the scale is turned against convalescence.

It is not quite certain whether the nuisance originates with the petroleum factory or with the fertilizer factory near it. The sludge acid which is made in the former is sold to the latter, where it is poured over spent bone black and other refuse animal matter in order to produce various sorts of artificial fertilizers. "In any case," said Professor Chandler, "either party can entirely prevent the disagreeable odor, were they so inclined."

[For the Scientific American.]

### THE HORTICULTURAL HALL AT THE CENTENNIAL EXHIBITION.

The interior of Horticultural Hall greets the artistic eye very pleasantly, and promises to be, so far as architectural beauty is concerned, one of the most attractive parts of the Centennial Exhibition. The four forcing houses, two on the north and two on the south side, are already partially stocked with trees, shrubs, ferns, and plants, the smallest plant among which is most notable for its rarity. It is a parasite which has attached itself to the petiole on a *pyrethrum*. Our engraving represents the plant and parasite, the latter having two coils wound closely around the petiole or stem just below the leaf, sustaining itself by several small spurs with which it has pierced the petiole, and which are plainly visible from the semi-transparent nature of the stem. The parasite itself is of a reddish brown color, and might easily be taken for a piece of fine twine, were it not for its soft and sappy appearance. It has coiled itself about the stick in the pot, and is at present about a foot long, having no signs of leaves other than two short spurs or stipules which are cordlike and of the same color and diameter as the trunk. Mr. Thomas Mingey, the urbane head gardener of the hall, informs us that his lengthy and varied experience has never afforded him a similar curiosity upon such an order of plant.

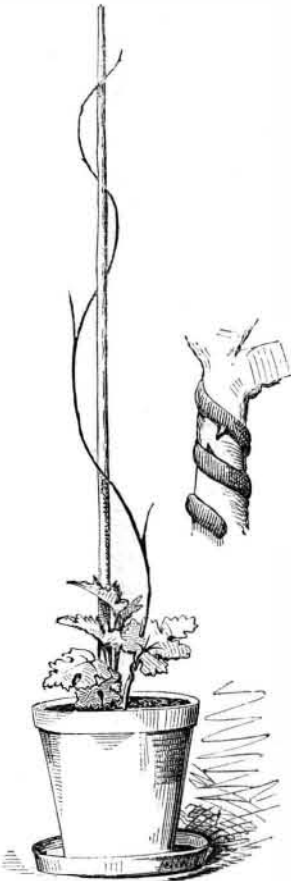
The *pyrethrum* is one of the numerous orders of chrysanthemums, which also includes the ox-eye, daisy, fever few, and corn marigold. The *pyrethrum* is an annual plant, having flowers about 6 lines in diameter, with a white ray: others of the same class, however, vary from a golden yellow to the various shades of red. It is indigenous to Europe, Asia, and North Africa; it was introduced into England as a medicinal herb, and has become naturalized in some parts of that country. It runs from one to three feet high, with leaves pennately divided into broad-lobed segments.

The parasite is, we think, of the genus *cuscuta*, or, as it is called in England, "dodder," of which there are in that country five native species, which grow upon hops, flax, and nettles. They appropriate the sap of the plants on which they live, and frequently kill them. They belong to the second order of the fourth class.

Botany affords us no more interesting order of plants than the parasites. In tropical climates, they grow in great profusion, and attain large proportions; in cold climates, the classes are few and the sizes diminutive. Among the most remarkable is the genus *epidendrum* (in the 20th class, *gynandria*, of Linnaeus) one species of which, called *flos aeris*, or flower of the air, is found in abundance in the East Indies beyond the river Ganges, and it grows and even blossoms in the air, when hung up, without attaching itself to any solid body. The perfume of the flowers is so delightful that the inhabitants suspend it from the ceilings of their rooms, where it will vegetate for years.

Mirbel, the French botanist, says that in North America there are parasitical trees which grown on other trees; the long roots of the *clusia rosea* (rose colored balsam), a parasite of this kind, descend from the summit of the trees upon which they grow to the ground, and then sometimes become engrafted into each other, and are then covered with the same bark, so as to form an immense case in which the trunk of the stranger tree, supporting the *clusia* in the air, is enclosed.

Among the other plants and trees already in Horticultural Hall is a fine specimen of *monstera deliciosa*, bearing a fruit similar in flavor to the pineapple. Nearly all other trees of its class bear poisonous fruit. A large mango tree is bearing fruit, which is a somewhat rare occurrence in a hot-house. A South American mahogany tree is noticeable for having an unusually clean stem. There is a very fine specimen of the camphor tree in one of the forcing houses on the south side of the hall. Joseph Lovering, of Philadel-



phia, exhibits a collection of orange and lemon trees, so full of fine fruit that the boughs bend from its weight. The lemon trees have ripe and green fruit in profusion, and of a size rarely seen upon them. The trees bearing them have also new blooms, side by side with the fruit. The gardener says that he never saw such fine specimens, even at Hampton Court in England.

Two excellent specimens of the *cybotium*, from the Sandwich Islands, are noteworthy, both for their size and healthy appearance. The mat-like bark contains a profusion of pockets filled with the delicate golden colored and silky fiber for which this tree is famous. One of the hot-houses on the north side of the hall is pervaded with the delicious perfume exhaled by four specimens of the *malurina odorata*, whose small, yellow, buttercup-like flowers gracefully hang their heads as if at their orisons.

Among the trees and plants most notable on account of their size are a cocoa tree, a cinchona or Peruvian bark tree, a camphor tree, an *araucaria Braziliensis*, a Japanese *mespilus japonica* (bearing an edible fruit), and a Dicksonia or tree fern.

JOSHUA ROSE.

THE government of Newfoundland has a characteristic emblem upon its postal stamps, a hungry-looking fish swimming in the sea, its mouth open, eyes expanded, anxiously searching for prey.

### Recent American and Foreign Patents.

#### NEW CHEMICAL AND MISCELLANEOUS INVENTIONS.

##### IMPROVED ROWLOCK.

Francesco Roseti, New York city.—This consists in combining a ball with the oar shaft, so that a ball and socket joint can be employed in the rowlocks. It also consists of a contrivance of the socket to turn the oar around to the line of the gunwale of the boat and to lock it in that position; also, to lock the oar in the socket, so as to hold it while not in use.

##### IMPROVED SKATE SHARPENER.

William H. Fisher, Selin's Grove, Pa., assignor of one half his right to Charles K. Fisher, same place.—This is a device for sharpening skate runners, which may be readily carried in the pocket. A fine crosscut steel file is placed in the body of the implement, and secured rigidly in position. The file is made flat on one side for sharpening flat runners, and convex on the other for sharpening runners with a groove or gutter. A second crosscut file of coarser grain serves to remove the rough edge, while the finer grained file gives the fine edge or finish to the runner. There is a suitable guide flange and adjustable gage.

##### IMPROVED BOOT JACK.

George W. Phenix, New Brunswick, N. J.—This boot jack is so constructed that it may readily be folded into a small compass, and conveniently carried in the pocket or in a traveling bag. It is formed of two hinged and one pivoted parts, constructed so, as when folded, as to give no additional thickness.

##### IMPROVED MACHINE FOR TRIMMING CIGARETTES.

Andrew Montes, New York city.—This invention consists of a spurred endless belt that feeds the cigarettes from a hopper to the revolving trimming knives at the sides of the belt, and then delivers them over an inclined end plane to a suitable receptacle.

##### IMPROVED SPRINKLING ATTACHMENT TO BAKING MACHINES.

Alexander Rannie, Palmyra, N. Y.—This consists of a nozzle, arranged over the way on which the pans pass into the oven, for moistening the cakes with fine spray as they pass along, the said nozzle being constructed with very fine perforations in the lower end.

##### IMPROVED CONNECTING POSTS FOR ELECTRICAL APPARATUS.

Jerome Kidder, New York city.—This consists of a sliding collar and a spring on the post under or over the conductor to be used instead of the ordinary binding screw for binding the conductor. The spring presses the collar against the conductor. This binder has the advantage of being operated quicker than the screw, and it cannot be detached and lost, as there is a nut on the top of the post which prevents it from coming off.

##### IMPROVED BOTTLE STOPPER.

Adolph Luthy, New York city.—This stopper is easily opened and closed, and is retained when in open position in such manner that it does not interfere with the pouring out of the contents of the bottle. It is applied by an eye to an extension of the wire neck band, and closed by a yoke that slides in a curved slot of the stopper cap piece. The yoke is centrally indented or bent, to carry the stopper in position.

##### IMPROVED TOY PISTOL.

Samuel D. Goodale and Dexter C. Goodale, Du Quoin, Ill.—This invention consists of a toy gun with a slotted barrel, that guides a piece of card paper propelled by the action of a spring hammer. Said hammer is attached to a slot at the breech of the barrel, retained by a catch, and released by a trigger. A practical application of the device may be made for the purpose of throwing messages on board of passing steamships, also to the delivery of important dispatches on board of passing railroad trains.

##### IMPROVED LAMP-LIGHTING DEVICE.

Frank L. Camm, Brooklyn, N. Y.—This invention consists of a tube fitted in the burner, so as to direct the match up to the wick when inserted from the bottom of the burner. It is provided at the upper end with teeth, across which the tip of the match is forced, so as to be fired by them.

##### REMEDY FOR DISEASES OF THE THROAT AND LUNGS.

Eileen Rohrer, Monmouth, Oregon.—This remedy is composed of tinctures of consumption root and mountain balm, prepared with sirup. It is claimed to be efficacious in the maladies mentioned.

##### IMPROVED STILT.

F. Beaumont, Jr., Dallas, Texas.—This invention relates to a means by which a boy's stilt may be quickly, easily, and securely fastened at different elevations on the standard, and consists in connecting with the standard a stirrup and sliding sleeve, that together form a lever by which a rapid and convenient adjustment is made.

##### IMPROVED INSTRUMENT FOR FILLING TEETH.

Carl D. Ludwig, Houston, Texas.—After inserting a cement filling in a tooth, this inventor proposes to harden it by the use of instruments made of talc, which are heated over an alcohol flame, and are applied to the filling as soon as it is set. This process is repeated and the filling is rubbed gently until it shows a dull polish on the surface, which polish is brightened by using a polisher of agate or polished steel. The filling is said to be complete and as hard as marble when the patient leaves the operator.