THE HOLLOWAY SANATORIUM.

We present herewith a view of the noble institution, the "Holloway Sanatorium," erected at Virginia Water, Egham, at the sole expense of Mr. Thomas Holloway, the prince of English pill makers. It is intended for persons of the middle class afflicted with mental disease. It is designed for the accommodation of one hundred male and the same number of female patients. The building, of which Mr. W. H. Crossland was the architect, is constructed of red brick, with Portland stone dressings, and in the Gothic style, richly decorated. It stands just facing the Virginia Water station of the Staines and Wokingham Railway, on an eminence, and presents a façade of 640 feet, with a depth of 250 feet. There is a central tower 150 feet high, also turrets 60 feet high at the back of each wing, and a portico, with two tiers of pillared arcades, at the chief entrance. In front is a terrace 45 feet wide. The whole exterior has a very stately aspect. The adjacent grounds extend about twenty-five acres, laid out for an agreeable promenade.

The interior is arranged with great care and skill for the use of the institution. The center block, which divides the male from the female side, contains the administrative department, including the rooms for the staff and the visiting rooms; also the general dining hall, 54 feet by 30 feet; a grand recreation hall, 84 feet by 38 feet, and 50 feet high, which is handsomely decorated; libraries and billiard room. There are thirteen day rooms for each sex, all spacious and convenient, 30 feet long, 20 feet wide, and 12 feet high. Twelve dormitories, of the same dimensions, are provided for the men, and as many on the other side for the women; besides fifty rooms, 12 feet by 10 feet, for single patients. The delay in opening the Holloway Sanatorium has been mainly caused by the length of time required to complete the decorations of the recreation hall and dining hall, and those of the principal entrance and staircase, as well as to finish the building. It will have cost Mr. Holloway more than £200,000.

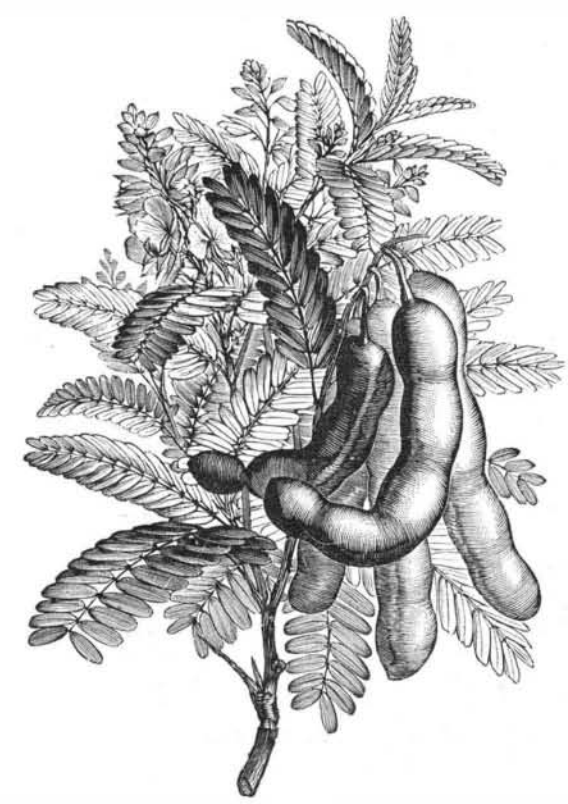
The London *News*, from which we take these facts, also says the announcement has recently been made of another magnificent institution, a college for women, to be erected on the Mount Lee estate, at Egham, at a cost of more than a quarter of a million sterling, by the liberality of this munificent public benefactor. Mr. Holloway has further promised an endowment fund of £100,000 for the support of this college; and the building, designed by his architect, Mr. W. H. Crossland, of Leeds, under his personal direction, will be constructed within the next four years.

Antidote to Poison Ivy.

Dr. J. M. Ward, in the *Medical Record*, makes another addition to the already extensive list of remedies for poisoning by *Rhus radicans*, or "poison ivy." He recommends the profession to use, in all cases of poisoning by this plant, Labarraque's solution of chloride of soda. "The acid poison," he remarks, "requires an alkaline antidote, and this solution meets the indication fully. When the skin is unbroken it may be used clear three or four times a day; or in other cases diluted with from three to six parts of water. After giving this remedy a trial no one will be disposed to try anything else. It is one of the most valuable external agents known to the profession, and yet seldom appreciated and but rarely employed. It will sustain its reputation as a local application in erysipelas, burns, and scalds."

THE TAMARIND.

This tree is indigenous in various parts of Africa and India, and it grows wild in several of the East Indian Islands. It is completely naturalized in the West Indies and in portions of Brazil and Mexico. It is a handsome tree, 60 to 80



TAMARIND.—*Tamarindus Indica.*

feet in height. Its compound leaves of ten to twenty pairs of small oblong leaflets form a dense foliage. The flowers are white when they first open, but they soon turn yellow. The fruit is an indehiscent legume or pod, 3 to 6 inches long, straight or somewhat curved, and with a hard, brittle exterior shell. The seeds, from 4 to 12 in number, are each surrounded by a tough, papery membrane, outside of which, between it and the shell, there is a firm, juicy acid pulp, traversed by strong woody fibers, which start from the fruit stalk. The ripeness of the fruit is known by the brittleness of the outer shell.

In the West Indies its fruit is picked, deprived of its shell, and packed in casks, and boiling sirup is poured over them until the vessel is full; when cool the package is headed up and is ready for market.

A better kind, rarely found on sale, is prepared by packing the shelled fruit in stone jars with alternate layers of sugar.

The pulp has a brisk acid taste, modified more or less by the amount of sugar used; it contains tartaric, citric, and other acids, and some principle not well ascertained, which gives it a laxative property. Tamarinds are used in tropical countries to prepare a refreshing drink by pouring boiling water over the fruit. This drink is also used as a laxative and refrigerant in fevers. The wood is useful for timber and makes a fine charcoal. The shell of the seed contains tannin, and the kernels are used as food in India in times of scarcity.

White Willow Hedges.

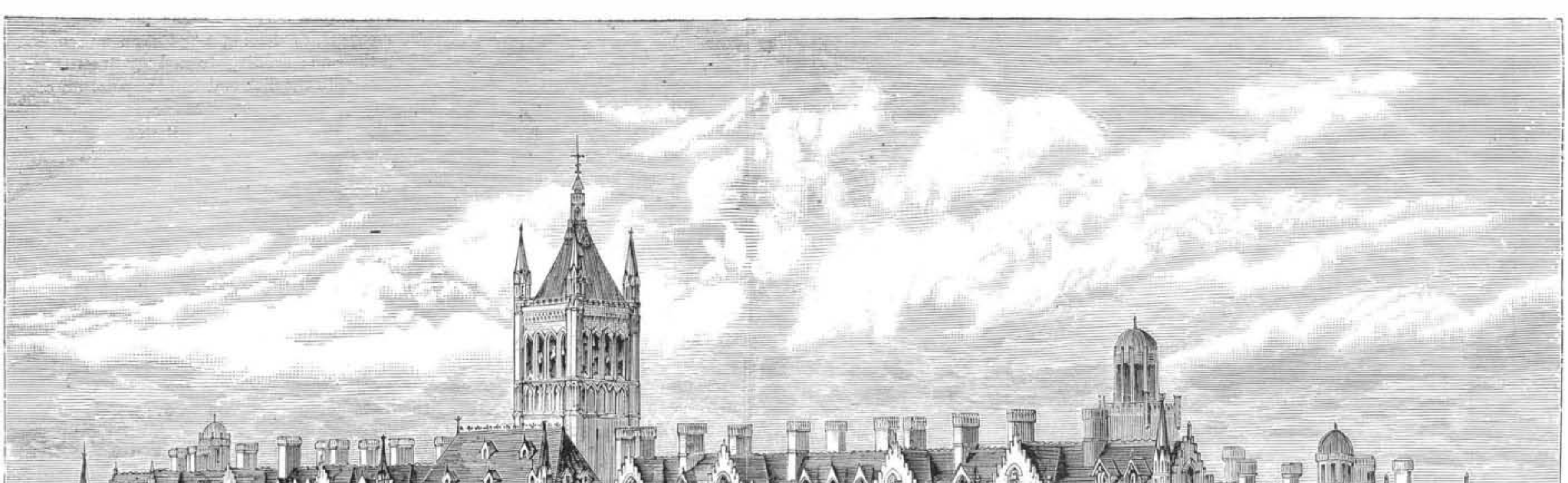
J. W. Myers, of Hampton, Iowa, says, in the "Iowa Horticultural Transactions," that after many trials there are two trees which have endured the ordeal of northern hedging, and have not been found wanting in any particular. These are the honey locust and the white willow. The best management of the willow is to take none but good strong shoots of last year's growth, cut ten inches long and sharpened, assorted as to size, and tied in bundles of twenty-five each. Place them, sharp ends down, in a shallow pond or other water for ten or fifteen days, and if the points are stuck in the mud they will be held in position. Plow the ground deep and harrow well. With a buckskin glove on the right hand, thrust the cuttings, slanting, eight inches into the mellow soil, ten inches apart. Then keep the ground perfectly clear of weeds; cultivate two more years with the shovel plow, and the hedge may be "left alone in its glory," and it will make a good barrier. But if cut to the ground early in spring when two years old, it will be much better. It will be best of all by "laying" or bending the trees down in a horizontal position at three years, and tying them in a line with short pieces of wire. The strong outgrowing shoots may be cut back every few years for fire wood. The simplicity of this method and its perfect success are said to be "astonishing."

The honey locust is similarly treated after the hedge has been planted and has attained a height of eight feet. The plants, however, are set in the row two feet apart, to prevent killing one another out. In laying down, the thorns are avoided by using a plank to bend the trees down, one end against the tree and the other on the ground, the operator sitting on it while tying the trees. The honey locust is more easily kept within bounds than the willow.

The Chemical Reaction of Blossoms.

According to the reports of Frémy and Cloez all red and pink blossoms show an acid reaction, whereas all blue blossoms are neutral and occasionally show an alkaline reaction. In order to examine the validity of these statements, Mr. A. Vogel examined 100 blossoms, of which 39 were blue, 44 red, 6 violet, 8 yellow, and 3 white.

He states that the acid reaction was not equally intense in all cases, but, on the contrary, varied considerably. The bright red, white, and yellow blossoms showed the most intense acid reaction. The acid reaction of the blue and violet blossoms was much weaker than that of the red blossoms, but was nevertheless perceptible. Of the blue blossoms only 10 were neutral or of a slightly alkaline reaction, as 3 violet and red blossoms were likewise. Among the latter were the



THE HOLLOWAY SANATORIUM AT VIRGINIA WATER.

Campanula sepunculoides (light violet), the *Prismatocarpus speculum* (crimson violet), and the bright red *Pisum sativum*.

There is no doubt that a great difference exists in the chemical reaction of red and blue blossoms, but from the above it appears to be erroneous to attribute an acid reaction to red and an alkaline reaction to blue blossoms. The majority of all blossoms show an acid reaction.—*Chemisches Centralblatt*.

A New Coloring Matter.

Mr. T. L. Phipson, according to a note recently presented by him to the French Academy of Sciences, has succeeded in extracting from the little blood-red alga (*Palmella cruenta*) found at the base of damp walls, a new rose-red coloring matter, which exhibits very curious properties. Mr. Phipson proposes for it the name of *Palmelline*. Its color resembles no known color except the coloring matter of the blood—the hæmoglobine of modern chemists. Like the latter, palmelline is insoluble in alcohol, ether, benzine, bisulphide of carbon, etc., but dissolves in water. Like the coloring matter of blood, palmelline is dichromic, consisting of a red matter united with an albuminous substance, and being coagulated by alcohol, heat, and acetic acid added to its aqueous solution. Like hæmoglobine, too, palmelline gives rise to absorption bands in the yellow of the spectrum; but these bands did not seem to Mr. Phipson to occupy exactly the same position as those given by blood. Palmelline in solution, like the coloring matter of blood in solution, readily undergoes putrefaction at summer heat, giving out a strong ammoniacal odor and a smell of rotton cheese. Finally, like the coloring matter of blood, palmelline contains iron. This new coloring substance cannot be extracted from the moist plant, for the vitality of the latter is such that it will not part with its color by the action of water, it has to be first dried in a current of air. At the end of from twenty-four to thirty-six hours the pellicles are usually pretty dry, for the plant and the matters upon which it grows dry quite rapidly in the air. It must not be dried on paper, for the cells would adhere thereto. On leaving the dried plant in a small quantity of water in a covered porcelain capsule, the coloring matter dissolves out, and, on the following day, the clear liquid may be decanted from it. The coloring matter is of a magnificent rose-red by transmitted light, and of an orange-yellow by reflected light.

From the properties above noted, it will be seen that palmelline appears to exhibit considerable analogy with the hæmoglobine of the blood; and, as Mr. Phipson says, it is the first time that a substance of this nature has been met with in the vegetable kingdom.

Colors of Plants.

At the last meeting of the Philadelphia Academy of Sciences the discussions were mostly confined to botanical matters.

Mr. Martindale stated that in a collection of over twenty selected specimens of Habenaria from the vicinity of Newfield, N. J., he had found all shades of color, from the bright buff to the pure white. He had found no difficulty in assigning all the tinted specimens to the species Ciliaris, while the white ones were undoubtedly Blephariglottis, the petals in the former being linear, and in the latter spatulate, or widened toward the tip about one-sixth of their diameter. The tendency of certain flowers to albinism was considered.

Dr. Hunt remarked that the causes of color variation in flowers was entirely unknown to botanists. It could not yet be explained why the same species in different localities were of different color, or why even the same flower presented varying tints at different parts of the twenty-four hours. He was firmly convinced after further studies of habenaria that the distinctions between the two forms mentioned were not specific, as he had actually found both forms on the same spike. Referring to the variation of color in plants, Mr. Meehan called attention to the case of *Gilia aggregata* of the Rocky Mountain region. Toward the north all these plants, which form a striking feature of the landscape, are white. As the traveler proceeds southward he observes that they assume a pink tint, which gradually deepens, until, when found three or four hundred miles farther south, the same species is of a deep crimson color. He believed that the two forms of habenaria were probably of the same species.

Mr. Redfield was of opinion that, had it not been for the difference of color, the two species of habenaria would probably never have been defined. The distinguishing characters having been pointed out, however, he believed that they were sufficiently permanent to constitute valid species.

The discussion was continued by Mr. Martindale, who believed that the two forms were distinct, although the differences, apart from the color, were undoubtedly very slight.

The Proper Diet for Children.

Here is another case of disease of the cornea. This baby is twenty months old. There is a white spot over the center of this little girl's pupil. It is soft-looking, and I therefore know that it is recent. The child has nasal catarrh. It was weaned when six months old, and it is now just cutting its eye teeth. The mother says it is being fed with whatever there is upon the table; that it receives a little tea and coffee, and that it it allowed to suck pieces of meat, all of which is wrong. Do not allow it among your patients, gentlemen. If the good Lord had wished us to eat meat at the age of twenty months, he would have given us a full set of teeth ready for use at that time.

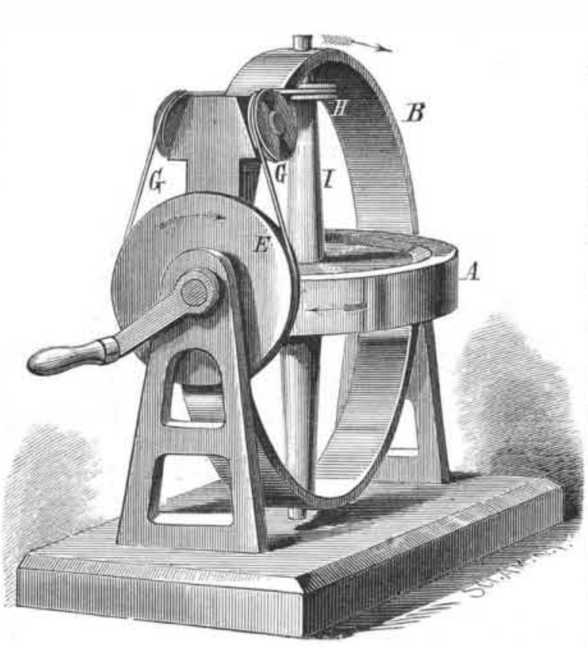
Dr. Leaming, of this city, whom you should all know, has for some years had charge of an asylum in which large numbers of children are received and cared for, and he does not allow one of them to have anything except milk, and substances which can be dissolved in milk, until they are seven years of age. I think your professor of materia medica is equally emphatic upon this question, and now your professor of ophthalmology comes to you and beseeches of you to use all possible influence in the direction of having children reared upon milk alone. Not upon tea, not upon coffee, not upon meat, not upon sweet cake and puddings, but upon milk. Every physician will, under rare circumstances, prescribe beef juice for infants, very much as brandy is prescribed upon rare occasions for small children, and I shall not quarrel with them upon that point. But I have a decided opinion that, under ordinary circumstances, no child should have anything except milk and farinaceous food until it has been provided with teeth with which to prepare other articles of diet for the stomach. Follow nature in your practice in ophthalmic as well as in every other kind of disease. I will engage, if this mother, who is anxious for her child, will listen to what I say about feeding it hereafter with milk, barley, farina, corn starch, hominy, with perhaps a small quantity of sugar, that the teething will be easier, the bowels will be more regular, and diseases of the cornea will be less liable to occur.—*Dr. D. B. St. John Roosa, in New York Medical Record.*

Correspondence.

ROTARY MOTION.

To the Editor of the Scientific American:

We are taught in text books on physics that "rotating bodies preserve their planes of rotation, and *will resist a considerable force to change their planes*," and Bohnenberger's apparatus is used to illustrate the same. The proposition holds good with Bohnenberger's apparatus, but the latter half of it will not hold in the case of the flywheel in the apparatus shown in the accompanying illustration.



APPARATUS FOR EXHIBITING ROTARY MOTION.

The flywheel, A, revolves with its axle, I, in journals in the ring, B. The latter revolves on bearings at right angles to the axle, I. A band, G, passes around the wheel, H, on the axle, I, over the pulleys journaled at the sides of the ring, B, and around the driving wheel, E. The driving wheel, E, is connected with the crank. When the band, G, is removed the ring, B, holding the flywheel is free to revolve on its pivots. If the band, G, is replaced and the crank is held stationary the ring, B, will revolve and cause the revolution of the flywheel; or if the ring, B, is held stationary, and the crank is turned, the flywheel will again be set in motion.

If rotating bodies always resist a force to change their planes of rotation, it will be seen that the fly wheel, A, would tend to hold the ring, B, stationary while the crank was turned, and the flywheel might thus be kept in motion, *provided the overcoming of the resistance of a rotating body to change its plane of rotation does not retard the revolutions of that body.* But there is no resistance whatever in changing the plane of the revolving flywheel, A, as can be seen by disconnecting the band, G, leaving the flywheel in motion. The ring, B, can be turned on its pivots without the slightest resistance, and when set in motion, the ring will continue to revolve the same when the flywheel is rotating as when at rest. When the flywheel is in motion and the band, G, disconnected, if the whole apparatus is revolved on a pivot or any other (the plane of revolution being parallel with the plane of the base of the apparatus, for instance), the rotating flywheel will instantly assume a position in which the plane of *its* rotation will be parallel with the plane of the revolution of the apparatus, that is, parallel with the base. Moreover, if the direction of the revolution of the entire apparatus on the pivot is a right hand motion, the flywheel will have a right hand motion parallel with it; and if the revolution of the apparatus is reversed so that the base has a left hand motion, the flywheel, A, will cause the rim, B, to make a semi-revolution so as to allow A to rotate parallel with the plane of D, and in the same direction, that is, a left hand motion.

As stated before, when the base is at rest and the flywheel in motion (the band, G, being disconnected) there is no resistance against changing the plane of the rotating flywheel; but *if the base, D, is revolving at the same time, there is a very decided resistance offered against changing the plane of the flywheel.* So strong is this resistance that if the band, G, is connected, the flywheel may be kept continually in motion by turning the crank, showing that *the overcoming of the resistance of a revolving body against changing its plane of rotation does not retard the motion of that revolving body.*

I do not know that this fact has ever before been demonstrated.

By oscillating the base upon a pivot while the flywheel is in motion the ring, B, can be made to revolve; and if the crank is fastened so that the driving wheel is held stationary, the velocity of the flywheel can be accelerated or retarded and kept in continuous rotation. Motion may thus be imparted to the flywheel still better by rotating the base on a pivot eccentric to its axis, no matter how slight the eccentricity, the base remaining comparatively still; or still better, by keeping a point at the center of the wheel stationary, and oscillating the pivots of the ring, B, in opposite directions, in both cases the crank remaining unmoved.

H. J. M. MATTIS.

The Durion.

To the Editor of the Scientific American:

In the July, 1879, EXPORT EDITION of the SCIENTIFIC AMERICAN, I find, at page 49, the views of a writer in the *Gardener's Chronicle* on "A Tropical Fruit," the durion. The article concludes thus: "It does not succeed well in India, and cannot be grown in the West Indies." This assertion, as regards India, I am not in a position to disprove; but it is decidedly erroneous in respect to the West Indies, as the durion grows most luxuriantly in this island, in proof of which I had purposed by this opportunity sending you one but have been disappointed in its receipt. You may, however, rely on my so doing at an early date.

GEORGE LEVY.

Kingston, Jamaica, September 4, 1879.

Bitten by a Skunk, but Still Alive.

To the Editor of the Scientific American:

I notice in your issue of September 20 an article on skunk bites, in which the writer says that the bite is *always* fatal, sooner or later. Permit me to say that when a youth of 19 I was badly mangled by a skunk which I seized in the dark, believing it to be a rabbit. I am now 55, hale and hearty. I have personal knowledge of two similar cases, and have heard of others, and have yet to learn of the first case of death attributable directly to the bite, or causes arising therefrom.

I am inclined to think that the fatal cases are of the same order as those of the centenarians who die from the use of tobacco (?).

JAMES L. HOWSON.

Washington, D. C., September 12, 1879.

The Spot on Jupiter.

To the Editor of the Scientific American:

In your issue of September 12 I noticed a communication from F. S. Davenport, describing a spot seen on the planet Jupiter; and on the same evening turned my instrument (a six inch achromatic) to the disk and had the pleasure of seeing the spot.

When first seen, at 6¾ o'clock P.M., it was nearly central, and occupied nearly 1-3 the breadth of disk from east to west, and with a width from north to south about the same as represented by Mr. D., and passed off to the right in line of the planet's rotation.

The above observation was made with a terrestrial eyepiece. There seem to be some mighty changes going on on the planet, especially in the vicinity of the belts, the nature of which it is impossible to conjecture with any probability of accuracy.

R. L. ALLEN.

Providence, R. I.

Note on a Peculiar Case of Corrosion of the Metal Tin.

BY J. W. OSBORNE, OF WASHINGTON, D. C.

The writer exhibited before the American Association a block tin tube, which had been used in the construction of a filter for household purposes, large quantities of water having passed over it for 20 months.

The tube formed one leg of a siphon. It passed through a stratum of charcoal and one of pure sand, the water to be filtered rising high above the latter. The outside of the tube, in that part of it only which corresponded in position to that of the sand, was deeply pitted, oxide of tin having been formed. The difficulty was to explain in what manner the sand determined the oxidation.

An interesting discussion followed the reading of this paper, many members of the section taking part, but no satisfactory solution of the problem was reached.

Action of Aqua Regia on Platinum.

Mr. Edison finds that platinum, after it has been rendered homogeneous under the vacuum treatment, is dissolved with great difficulty in boiling aqua regia. He subjected a specimen of the vacuum-treated platinum to the action of boiling aqua regia for five days without dissolving it.