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

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

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

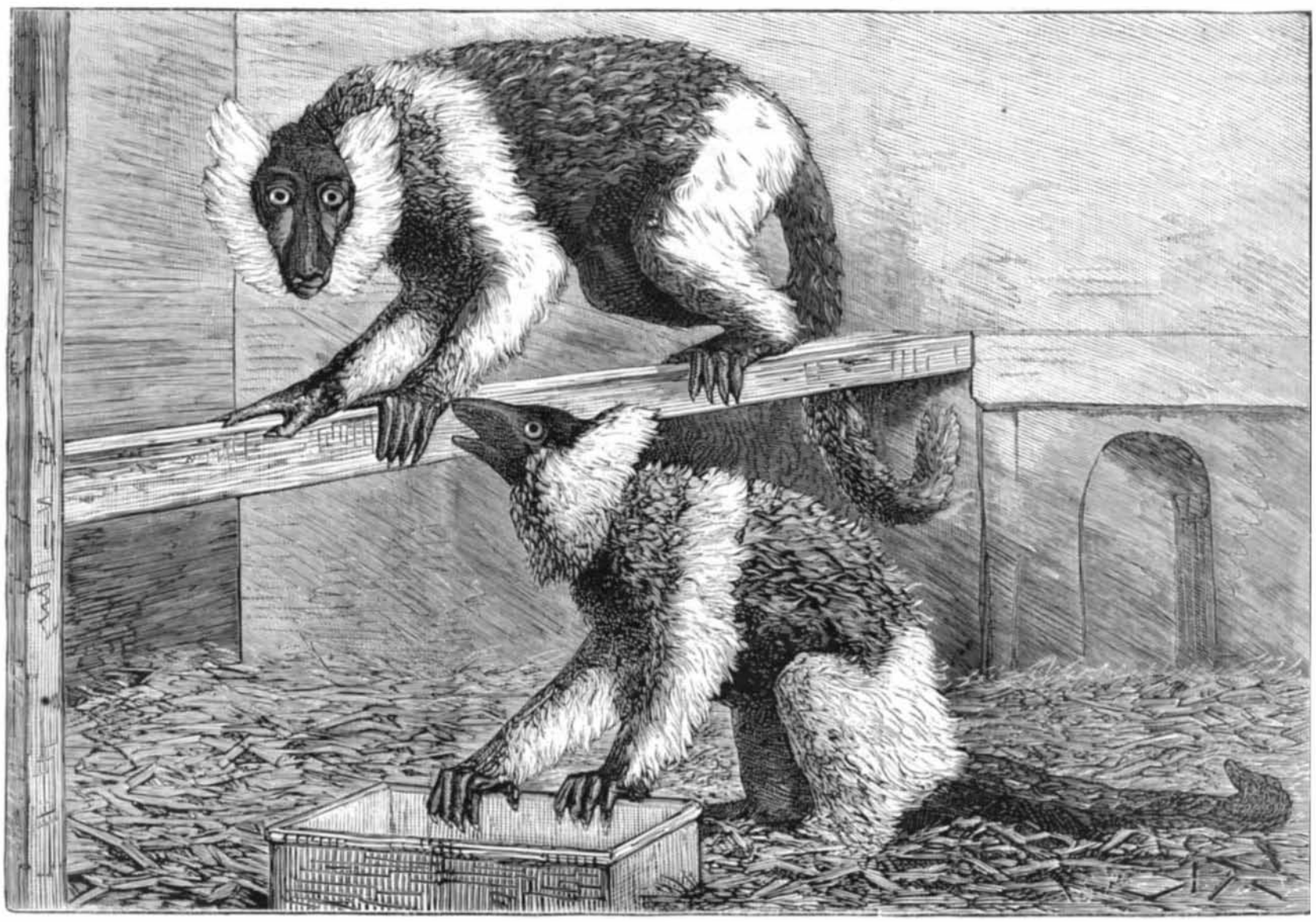
THE LEMUR VARI.

Lemur is the name applied to many animals of the order *Quadrumana*, or monkeys, of the families *Galeopithecidæ* and *Lemuridæ*.

The fingers are not all provided with flat nails, some of them terminate in claws. They stand with difficulty, and their gait is generally like that of a quadruped. They have no pouches; their nostrils terminate in folded elastic sides, which permits of opening and closing them at pleasure. The incisor teeth are separated by vacant spaces, and the molars provided with sharp conical points adapted to tearing. The lemurs live principally upon fruits and roots, and are fond of insects; if they eat flesh at all it is in very small quantities. If the physical conformation of the lemur is similar to that of the carnivorous animals, their habits place them among the monkeys, and like them they live habitually upon the trees in the midst of the foliage. There, concealed and suspended by their lower members, they watch for their prey. If an insect comes within reach it is the work of an instant to catch and devour it.

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

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



THE LEMUR VARI.

A New Species of Aphis Affecting the Pine.

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

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

For the past two years we have detected numerous large brown plant lice upon the common pine of this region (*Pinus australis*), which for want of time we have left unmolested. They cluster together upon the new and tender branches, which they puncture with their remarkably long beaks, causing the sap to exude and the branch upon which they exist to become gummy and sticky. In their habits they are suprisingly shy and timid. On disturbing them they invariably seek safety by hiding between the needles of the pine; indeed, even on hearing approaching footsteps, we have observed them cling closer to the limb, while a few skelter off where the needles are denser.

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

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

The Spring Flower Trade.

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

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

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

To enumerate the varieties of plants and flowers sold in the spring trade this year would require a census of the globe in that line. The gardeners are constantly adding foreign varieties to their stocks, and the gardens of India, China, and the Sandwich Islands contribute to the store New Yorkers select from. The heaviest sales are, of course, in the cheaper varieties of plants. The familiar roses, geraniums, fuchsias, heliotropes, pansies, daisies, hydrangeas, laburnums, verbenas, petunias, violets, carnations, and mignonettes are sold by the hundreds of thousands. Ivies, passion flowers, and other vines have an immense sale too. Ferns, native and tropical; strange grasses from the sun-smitten natural gardens of South America, and orchids from the mysterious forests of the Equator swell the list. The catalogues the flower men publish would put those of many a library to shame, for size at least.

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

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

Silk Culture in Louisiana.

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

worms. Specially promising are the opportunities held out in connection with silk growing. One of the better known silk growers of Louisiana, Mr. L. S. Crozier, says that not only are the silk worms of that State entirely free from disease, but the mulberry grows so rapidly that, instead of waiting five years for the first crop of cocoons, the careful planter can begin to feed worms the first year after planting.

The prospects for this spring's hatching are said to be very encouraging. The frosts of the past winter did not hurt the trees, and the worms are doing nicely. Some are nearing the last moult, and others are yet not hatched. All are healthy. One good tree will feed enough worms to produce seven pounds of silk, and ten pounds of leaves will produce one pound of silk. One ounce of good eggs will produce enough worms to eat 1,200 pounds of leaves. They cost from 50 cents to $6 per ounce. Thus, at $5 per pound for silk, the allowance for labor and expense is very large. The secrets of silk culture are pure air, warmth, dryness, and proper food. That the climate is warm enough in Louisiana is proved by the fact that a lot of 1,500 silk worm eggs were wintered at the outside temperature by Mrs. Leywaud, and are now hatched. The mulberry tree flourishes and the workers are careful. When it is wet they keep a fire in the house of the silk worms, and dry the leaves on the branches cut from the tree before they spread them on the worms. They avoid the dew, and it is a rule to have two meals of leaves in advance. The State, it is believed, has great advantages over European countries in the matter of raising the mulberry.

Silk Culture in Pennsylvania.

The Pennsylvania House of Representatives lately gave a hearing to the Women's Silk Culture Association touching the aims of the association. Mrs. John Lucas, president of the association, said that its main object was to instruct the women and children of the working classes in the management of silk worms and the proper treatment of the cocoons for the production of silk, by means of which they would be provided with light, agreeable, and remunerative employment. The advantages presented by this country for silk culture were enlarged upon, as well as the great benefit that would accrue to all classes of society by the proper encouragement and development of the silk industry. Several other lady officers of the association discussed the purposes, methods, and prospects of silk culture, hoping to give the legislators such a favorable impression of the operations of the society as to secure a small appropriation for the enlargement of the work. At the conclusion of the addresses the members examined the specimens of cocoons which the ladies had with them, one case of which was raised by Mrs. Taylor, mother of the late Bayard Taylor, who is eighty years of age.

Photometry by the Photographic Method.

It is announced that M. Janssen has made a promising advance in the application of photometrical methods to the precise measurement of the intensity of light, the process adopted being equally applicable to strong or feeble light, and needing only the presence of one light source at the time of measurement. M. Janssen's photometer consists essentially of a frame with a sensitized plate, before which, and in the path of the light rays to be measured, a perforated screen is caused to pass with a known rate of uniform motion. If the perforations were rectangular, in the form of slits, a uniform shade would be produced on the plate; but, by making them triangular, a variation of shade is obtained, decreasing in depth from the side corresponding to the base of the triangles to that corresponding to the apex. To compare two luminous sources with each other, each source is made to act successively on two similarly prepared plates in the instrument, when the points of equal shade in the two plates indicate the ratio of intensity. There is no difficulty in obtaining and testing by the same instrument the exact ratio of sensibility between any number of plates, so that absolute reliability may be placed upon the equality of the conditions under which the tests are made. It is stated that this photometer is so delicate, and at the same time capable of such universal application, that M. Janssen has succeeded in comparing the light of the sun with that of various stars, and has compiled a table to express the illuminating power of the latter in terms of the former. In this way it is expected that a definite solar scale might be constructed, to which all artificial lights might be referred.

A New Process of Decorative Printing.

In a recent letter from Italy to the *Times* Mr. James Jackson Jarves says that a good deal of interest is being shown in Florence in regard to a new process of printing on satin for decorative screens, panels, hangings, etc. The process is the invention of a Signor Gutman, whose subjects are chiefly the brightest-hued birds and flowers, amid tropical foliage, ferns, and other graceful plants. They are skillfully done, Mr. Jarves says, and very striking on first appearance, but altogether too gaudy in general effect and lacking harmonious combination of colors. They would be painful to the eye to look at long, and would kill everything else in the room as to tints, producing intensely disagreeable discords of coloring. Yet, judging from the remarks of the press, it would seem as if this new system of decorative work would soon become all the fashion in Florence. The Orientals, and especially the Japanese, understand how to combine brilliancy with harmony in ornamentation, giving variety and animation to objects without violating those principles of æsthetic repose which are the alpha and omega of decorative art. Instead of this, in these works we have exaggerated garish compounds and contrasts, irritating to the senses and destructive to good taste. As the process is patented, no doubt cheap reproductions, done in a mechanical way, will soon be seen in America.

The Coarser Varieties of Timber.

An eminent philosopher, passing through a low attic upon one occasion, carried his head so loftily as to strike the collar beams which strengthened the rafters, whereupon a friend, who was with him, remarked that he who looked too high would not only run the risk of breaking his head, but would lose sight of a vast amount of beauty, which could be found only upon a lower level. That this truth applies to the experiences of every-day life is shown in the tendency of human nature to search for gold and diamonds because of a supposed superior reputation and value, leaving to the plodder and economist the task of looking for the baser metals of greater economic value. This truth applies with equal force to the searchers after wealth in the forest productions of the United States. The pine and the oak, together with black walnut and maple, have been the gold toward which the lumberman has turned his eager eyes, and they have turned his vision away from the humbler, yet not less valuable, sources of forest wealth which exist in the hemlock, black ash, and beech, with which our forests abound.

In one of the timber growing States, there is now an estimated wealth of $87,500,000 in the growing pine timber, estimated at an average value of $2.50 per thousand feet for the standing tree. This is a vast source of wealth to the State in which it is growing, yet in the same State, unhonored and most lightly esteemed, even to such extent that its wanton destruction passes unnoticed, are to be found fully 7,000,000,000 feet of hemlock, which, in the near future, will be sought for at a price scarcely below the present value of the pine, for which it will be utilized as a most excellent substitute in many of the coarser uses of lumber. This hemlock is to-day utilized only in the production of bark for tanning purposes, and it bears to the timber wealth of the State only about the same relation that the hordes of buffalo upon our Western plains bear to the meat supply of our nation, as they are slaughtered by the thousand and stripped of their pelts for the use of the civilized world, while the carcass is left to the vulture, regardless of the fact that a race is being exterminated which can never again be propagated. The hemlock tree of the Northwest, like the buffalo of the plains, possesses a value, the extent of which will be realized only after the process of wasteful extermination has done its worst and no more remains to be utilized. The hemlock in one State, if placed at a value which it will bear before the expiration of five years from this date, would bring to its owners not less than $14,000,000; at the value which is placed upon it to-day it is worth not less than $2,000,000, and, in the endeavor to utilize the bark, the trunk of the tree, which might also add to the wealth of its owner, is left to rot upon the ground or to feed the insatiate forest fires which sweep away so much of our forest wealth every year.

But another despised factor presents yet more astounding revelations of timber wealth. Thousands upon thousands of acres of hardwood timber are yearly destroyed in the clearing of land for farms and the burning up of the forest growths which they contain. The hardwood of the State in question, if valued at but 25 cents per cord, is of the value of $175,000,000,-or twice as much as the value of the pine timber. And yet but little account, comparatively, is made of this vast source of wealth. The furniture factories of a mighty nation, the vast commercial industries of the world, are ready and willing to pay the gold for this timber, which, to a great extent, is suited to their needs: yet its owners fail to see the opportunity, and large quantities of valuable timber are consigned to the flames. The time is near at hand when a wiser policy must and will prevail, and the modest yet valuable timber growths now neglected for the more pretentious and popular pine, will receive the attention which they merit; and those who now esteem the gold mines more highly than they do the iron, will discover that in the latter is a more enduring source of wealth, toward which they will gladly turn while seeking the high road to prosperity.

The proneness of the human mind toward entering those avenues which give promise of sudden wealth is too well known to need comment. The land of gold will attract thousands; the discovery of iron excites hardly the slightest comment. Yet the iron is actually the more valuable in its adaptation to the wants of man, and in its ulterior effect in adding to his wealth. The careful, earnest, saving plodder of 25 years ago is the rich man of to-day, while the sons of his millionaire employer of the former time are his clerks, his porters, and his draymen. That which is common in every-day experience is neglected by the multitude in the mad rush after wealth, but the sons of the rag-picker and scavenger of to-day will perhaps be the merchant princes of the next generation, the foundation for their immense wealth being based upon the humble and despised occupation which by the multitude is neglected. These truths of every-day experience apply to the now neglected timber wealth of this country, and a wise conservation of the despised hemlock and hardwood growths of our forests will result in the accumulations of wealth far greater in extent than are the colossal fortunes which have been made by the operators in pine timber and lumber.—*Northwestern Lumberman.*

The Drawing Out of Glass Tubes.

The Bunsen blast lamp is generally used in the accomplishment of this object, although in case of necessity the common Bunsen burner, or a round compound burner, may be employed, taking care, however, to observe the previously mentioned precautions. The tube should be held between the first three fingers of each hand, in the flame, and continually turned until it becomes sufficiently soft as to bend easily; it is then quickly taken out of the flame and drawn out, the rotary motion being kept up. The axes of the two drawn out portions must be held in a straight line, otherwise sharp points will be obtained. Very much depends on the care with which the tube has been softened; when thick tubes are used, they should be turned with great regularity. The object of this turning is to avoid uneven softening; the lower portion of the flame is, of course, hotter than the upper portion, and so when the tube is drawn out, the lower portion being softer, would yield first, and the result would be an uneven drawing out. When the tube has completely cooled, the drawn out portion is cut at the desired point with a sharp glass knife. Then taking a file, the projecting points are filed off, and the opening may be narrowed as desired by melting the cut in the flame. Here, also, we must carefully and regularly rotate the tube in the flame, or else the end will bend of its own weight. If the orifice has become too small from having been held too long in the flame, or if it has closed altogether, it may be opened by carefully touching the cut with the flat side of a file; of course only after the tube has been completely cooled. In fact, for many purposes this latter method is considered desirable, especially when a gas, such as hydrogen, is to be burned from the end.

The advantage of this process is that the thin sides of the tube are thickened by the fusing, and so are better able to resist the heat produced by the burning gas. The fusing of the point of the tube is sometimes prevented by platinizing it. This is effected by dipping it into a solution of platinum chloride, so that a drop or two of the fluid adheres to the tube. The point, in heating, acquires a fine metallic luster. By repeating this operation several times, a good coating of metallic platinum will be produced both on the exterior and the interior of the tube. This method is recommended in connection with the development of arseniureted hydrogen gas in the Marsh test for arsenic. When a point is desired having a very small opening, it is considered advisable to first fuse the ends and then open them with a file to the required size.—*M. B., in Journal of Education.*

Annual Meeting of the Women's Silk Culture Association.

The Women's Silk Culture Association lately celebrated in Philadelphia its first anniversary, and was able to give an encouraging report of its first year's operations. Touching the financial aspects of the industry the report was decidedly hopeful.

"The demand for the raw material, its constant increase, its value to our country, has already been proven. There is another valuable item of wealth. The ready market is at our doors; a price has been offered for all pierced cocoons, formerly waste, to be used with approved machinery in the manufacture of spun silk. As soon as the American people prove that they are ready to raise cocoons the filatures of the country will be put into operation. Cocoons are worth a price ranging from $1.50 to $2.50 per pound, pierced cocoons at $1.80 per pound, and eggs from $4 to $5 per ounce."

Further on the report said: "Up to this date trees and cuttings, in quantities from five to hundreds, have been sent into fifteen different States, and eggs, to the amount of many ounces, sent into twenty different States. This is a beginning at least, and these experiments will lead to others, until the hope is all our States and counties will soon present at their annual fairs, among other agricultural products, their quota of *cocoons and silk.* This year has gained for us new hopes, new ideas, fresh knowledge, familiarity with the need of the people and the needs of the association, and last, but not least, we hope, new friends."

After the reading of the reports the following important communication was received:

"*Mrs. John Lucas, President Silk Culture Association.*

"MADAM: In order to encourage the culture of silk among the people directly tributary to Philadelphia, we will offer through your society a series of prizes for the best four pounds of silk cocoons raised in the States of Pennsylvania, New Jersey, Delaware, and Maryland, the awards to be made according to the judgment of a person or persons selected by the society.

"We propose to give $500 in premiums, as follows: $200 for the best pound of cocoons, $150 for the next best, $100 for the third in quality, and $50 for the fourth. We desire the society to arrange all the preliminaries, and the only active part we wish to take would be to pay over the money to the winners of the prizes.

"Yours respectfully,

"STRAWBRIDGE & CLOTHIER."

The Silk Culture Association is to select the judges, who will decide upon the cocoons when they are offered in competition.

The Dark Day in Canada.

In some interesting and graphic reminiscences of Montreal sixty years ago, Mr. J. H. Dorwin writes to the Montreal *Star* as follows:

"What was the strangest occurrence of that time, or rather the strangest thing that ever happened in the history of this country, was what has been always known as the 'Phenomenon of 1819.' On the morning of Sunday, November 8, 1819, the sun rose upon a cloudy sky, which assumed, as the light grew upon it, a strange greenish tint, varying in places to an inky blackness. After a short time the whole sky became terribly dark, dense black clouds filling the atmosphere, and there followed a heavy shower of rain, which appeared to be something of the nature of soapsuds, and was found to have deposited after settling a substance in all its qualities resembling soot. Late in the afternoon the sky cleared to its natural aspect, and the next day was fine and frosty. On the morning of Tuesday, the 10th, heavy clouds again covered the sky, and changed rapidly from a deep green to a pitchy black, and the sun, when occasionally seen through them, was sometimes of a dark brown or an unearthly yellow color, and again bright orange, and even blood red. The clouds constantly deepened in color and density, and later on a heavy vapor seemed to descend to the earth, and the day became almost as dark as night, the gloom increasing and diminishing most fitfully. At noon lights had to be burned in the court-house, the banks, and public offices of the city. Everybody was more or less alarmed, and many were the conjectures as to the cause of the remarkable occurrence. The more sensible thought that immense woods or prairies were on fire somewhere to the west; others said that a great volcano must have broken out in the Province; still others asserted that our mountain was an extinct crater about to resume operations and to make of the city a second Pompeii; the superstitious quoted an old Indian prophecy that one day the Island of Montreal was to be destroyed by an earthquake, and some even cried that the world was about to come to an end.

"About the middle of the afternoon a great body of clouds seemed to rush suddenly over the city, and the darkness became that of night. A pause and hush for a moment or two succeeded, and then one of the most glaring flashes of lightning ever beheld flamed over the country, accompanied by a clap of thunder which seemed to shake the city to its foundations. Another pause followed, and then came a light shower of rain of the same soapy and sooty nature as that of two days before. After that it appeared to grow brighter, but an hour later it was as dark as ever. Another rush of clouds came, and another vivid flash of lightning, which was seen to strike the spire of the old French parish church and to play curiously about the large iron cross at its summit before descending to the ground. A moment later came the climax of the day. Every bell in the city suddenly rang out the alarm of fire, and the affrighted citizens rushed out from their houses into the streets and made their way in the gloom toward the church, until Place d'Armes was crowded with people, their nerves all unstrung by the awful events of the day, gazing at, but scarcely daring to approach the strange sight before them. The sky above and around was as black as ink, but right in one spot in mid-air above them was the summit of the spire, with the lightning playing about it shining like a sun. Directly the great iron cross, together with the ball at its foot, fell to the ground with a crash, and was shivered to pieces. But the darkest hour comes just before the dawn. The glow above gradually subsided and died out, the people grew less fearful and returned to their homes, the real night came on, and when next morning dawned everything was bright and clear, and the world was as natural as before. The phenomenon was noticed in a greater or less degree from Quebec to Kingston, and far into the States, but Montreal seemed its center. It has never yet been explained."

Wandering Needles.

The London *Lancet* observes that the vagaries of needles which have been introduced in the body, and have escaped immediate removal, have in all ages attracted the attention of collectors of the marvelous in medicine. Hildanus related an instance of a woman who swallowed several pins and passed them six years afterward; but a more remarkable instance of prolonged detention was recorded by Stephenson, of Detroit—that of a lady, aged seventy-five, who last year passed by the urethra, after some months' symptoms of vesical irritation, a pin which she had swallowed while picking her teeth with it in the year 1835—forty two years previously. Occasional pain in the throat was the immediate symptom, but in 1845 she was seized with severe gastric pain, which passed away, and she had no symptoms until hæmaturia in 1876. This curious tolerance of such foreign bodies exhibited by the tissues is often observed in lunatic asylums. M. Silvy recorded some years ago the case of a woman who had a penchant for pins and needles so strong that she made them, in effect, part of her daily diet, and after her death 1,400 or 1,500 were removed from various parts of the body.

Another case almost as striking has been recorded by Dr. Gillette—that of a girl in whom, from time to time, needles were found beneath the skin, which they perforated, and were removed by the fingers or forceps. Concerning the way in which they had got into her system no information could be extracted from her. She was carefully watched, and in the course of eighteen months no less than 320 needles were extracted, all being of the same size. Most were black and oxidized, but some had retained their polish. The majority were unbroken. They passed out of various parts of the body above the diaphragm at regular intervals, but in a sort of series and always in the same direction. The largest number which escaped in a single day was 61. A curious phenomenon preceded the escape of each needle. For some hours the pain was severe, and there was considerable fever. She then felt a sharp pain, like lightning in the tissues, and on looking at the place at which this pain had been felt, the head of the needle was generally found projecting. The needles invariably came out head foremost. No bleeding was occasioned, and not the least trace of inflammation followed. The doctor in attendance extracted 318. They were sometimes held firmly, and seemed to be contained in a sort of indurated canal. It was conjectured that they had been swallowed with suicidal intentions; but, on the other hand, the way in which the needles escaped in series, and their direction with the head outwards, suggested that they had been introduced through the skin.

That little weight is to be attached to the pace at which the needles escape as proof of their mode of introduction is evident from a case recorded by Villars, of a girl who swallowed a large number of pins and needles, and two years afterward, during a period of nine months, 200 passed out of the hand, arm, axilla, side of thorax, abdomen, and thigh, all on the left side. The pins, curiously, escaped more readily and with less pain than the needles. Many years ago a case was recorded by Dr. Otto, of Copenhagen, in which 495 needles passed through the skin of a hysterical girl, who had probably swallowed them during a hysterical paroxysm; but these all emerged in the regions below the level of the diaphragm, and were collected in groups, which gave rise to inflammatory swellings of some size. One of these contained 100 needles. Quite recently Dr. Bigger described before the Society of Surgery of Dublin a case in which more than 300 needles were removed from the body of a woman who died in consequence of their presence. It is very remarkable in how few cases the needles were the cause of death, and how slight an interference with function their presence and movement cause. From time to time their detection by a magnetic needle is proposed as a novelty; but, as Dr. Gillette reminds us, this method was employed by Smee nearly forty years ago, and has often been adopted since.

Coca (*Erythroxylon coca*).

In Mr. Markham's "Peruvian Barks," recently published, he has given the results of his own observations, and collated that of other travelers, respecting this substance, and to this account we are chiefly indebted for the following facts:

"Coca," the "beloved narcotic of the Peruvian Indian," was first named botanically through the labors of Joseph de Jussieu. The history of this noted botanist is a melancholy one. He left France in 1735, in the ever memorable expedition of La Condamine, and after M. La Condamine left South America, M. Jussieu continued his botanical researches, making numerous journeys on foot, notably those to the cinchona regions. The results of fifteen years' labors were contained in certain cases of dried plants, etc., and a native servant at Buenos Ayres, thinking these cases contained money, stole them, and this loss had such an effect on poor Jussieu that he returned to France in 1771 deprived of reason.

The coca is the great source of comfort and enjoyment to the Peruvian Indian. It is to him what the kava-kava is to the South Sea Islander, the betel to the Hindoo and Malay, and tobacco to the rest of mankind, but with this difference, it produces invigorating effects. The Peruvian Indian looks upon coca with veneration. In the palmy days of the Uncas or Yncas, coca was sacrificed to the sun, the high priest or Huillac Umu chewed it during the ceremony, and before the arrival of the Spaniards, coca was used in lieu of money. After the Spanish conquest, much was done to prescribe its use, because as a council of bishops held in 1569, said it was a "useless and pernicious leaf, and on account of the belief stated to be entertained by the Indians, that the habit of chewing coca gave them strength, which is an illusion of the devil." Coca, indeed, from its popularity, being used by about eight millions of people, has always had a great commercial importance, and one viceroy, Don Francisco Toledo, issued no less than seventy ordinances concerning coca in the space of four years (1570–1574).

The coca plant is a shrub of four to six feet high, with straight and alternate branches and leaves like those of the tea plant, and is cultivated at elevations of from 5,000 to 6,000 feet above the level of the sea in the warm valleys of the eastern slopes of the Andes. Here the only alternations of climate is from wet to dry, frost is unknown, and it rains more or less every month of the year. The seeds are sown on the surface of the soil as soon as the rainy season commences, and begin to sprout in a fortnight, being carefully watered, and protected from the sun by a thatched roof. The following year the seedlings are transplanted in a soil carefully broken up and freed from weeds. The ancient custom was to raise the plants in terraces on the hillsides, but now plantations on the level ground are resorted to, although Indians aver that plants raised under the former conditions yield a much superior quality of leaf. At the end of eighteen months the first harvest is ready, and the picking of the leaves, performed by women and children, is very carefully proceeded with, so as not to injure the young and still tender shoots. As soon as one crop of leaves is removed, if well watered, and the ground carefully weeded, another crop is ready in about forty days. A plant continues to yield for about forty years, and Dr. Poeppig gives the profit of a coca plantation as about 45 per cent. Each picker carries a piece of cloth, in which the leaves, plucked one by one, are placed. These leaves are then taken to the drying yard, formed of slate flags. Here the leaves are spread out in thin layers, and carefully dried in the sun. Too much exposure to the sun spoils the flavor of the leaf, and if heaped too much together, the leaves ferment and become fetid. As soon as dried, the leaves are packed in bags made of banana leaves, with an outside covering of cloth, or packed tightly in larger parcels of about 50 lb. each.

In the Sandia district of Caravaya, two varieties of coca are recognized, the Ypara and the Hatun Yunca, the latter having a larger leaf than the former.

In Bolivia, coca is treated as a government monopoly, and the right is generally farmed out. In 1850, coca brought into that country's exchequer a sum of $200,000. The whole yield of coca in South America is estimated at thirty millions of pounds. Coca soon deteriorates in keeping, and Indians treat it as valueless if kept longer than seven months.

Such is the faith in coca, that it is believed if a dying man can but taste a coca leaf when placed on his tongue, his future bliss is assured. No Indian is without his *cuspa* or coca bag made of llama cloth, and three times a day, sitting down, he takes leaf by leaf and rolls them up in his mouth till he forms a ball. Then applying a small quantity of powder consisting of carbonate of potash, made by burning the stalks of the quinoa plant, mixed with lime and water, he goes on his way rejoicing. The use of coca is widely spread. The shepherd on the cold slopes of the Andes has but this and a little maize as his sole nourishment, and the runner messenger looks to it as his solace and support. As to the properties of coca, it seems very evident that it allows of a greater amount of fatigue, with a lesser amount of nourishment, and prevents difficulty of respiration in ascending steep mountain slopes. It has an agreeable and aromatic taste, accompanied by a slight irritation, which excites the flow of the saliva. When made into a tea, in taste it is like that of green tea, and effectually prevents drowsiness. Applied externally as a poultice, it moderates rheumatic pains, brought on by exposure to cold and wet, and also cures headache.

Mr. Markham chewed coca leaf very frequently, and states that he found it to produce an agreeable soothing feeling, that he could endure longer abstinence from food with less inconvenience, and that when using it, he could ascend precipitous mountain sides with a feeling of lightness and elasticity, and without losing breath. He also considers it the least injurious of all other like substances, even when taken in excess, and at the same time the most soothing and invigorating.

The Wax Palm in Pernambuco.

The Camanba palm (*Copernicia chifera*) seems to be a much more important plant in some parts of Brazil than is generally supposed. In Pernambuco the plant is very abundant, and the uses to which it is put very numerous. The wood, for instance, is used for roofing, both as beams or rafters, and as laths upon which to support the tiles; the fruits are used for feeding cattle, and the leaves are used for making hats and mats. A valuable medicine is obtained from the roots, which has recently been brought to notice in this country. From the shoots or leaves a wax is obtained; for this purpose they are cut before they unfold, dried in the sun, powdered, and boiled, the wax rising to the surface of the water. This wax, it is stated, is not produced in anything like the quantity that it might be. It is shown, in a recent report of Her Majesty's Consul at Pernambuco, that the export of this wax during 1875–76 amounted to 18,668 kilos, valued at £758; in 1876–77, to 171,980 kilos, valued at £6,957; in 1877–78 it fell to 89,482 kilos, of the value of £3,168; and in 1878–79, to 1,542 kilos, valued at only £61. By far the largest portion of this wax finds its way to this country. It is shown that the decrease during the last year was due to the famine and drought which so severely crippled all industry in the province. It is not a little remarkable that, at a time when roasted date stones are proposed as a substitute for coffee, we should also learn that the stones or seeds of the Camanba palm, when roasted, are used in Pernambuco as coffee.

Sleep and Sleeplessness.

Dr. J. M. Granville, in his work on this subject, says, with reference to the difficulty some persons find in getting to sleep: "Habit greatly helps the performance of the initial act, and the cultivation of a habit of going to sleep in a particular way, at a particular time, will do more to procure regular and healthy sleep than any other artifice. The formation of the habit is, in fact, the creation or development of a special center, or combination, in the nervous system, which will henceforward produce sleep as a natural rhythmical process. If this were more generally recognized, persons who suffer from sleeplessness of the sort which consists in simply being 'unable to go to sleep,' would set themselves resolutely to form such a habit. It is necessary that the training should be explicit and include attention to details. It is not very important what a person does with the intention of going to sleep, but he should do precisely the same thing, in the same way, at the same time, and under as nearly as possible the same conditions, night after night for a considerable period, say three or four weeks at least."