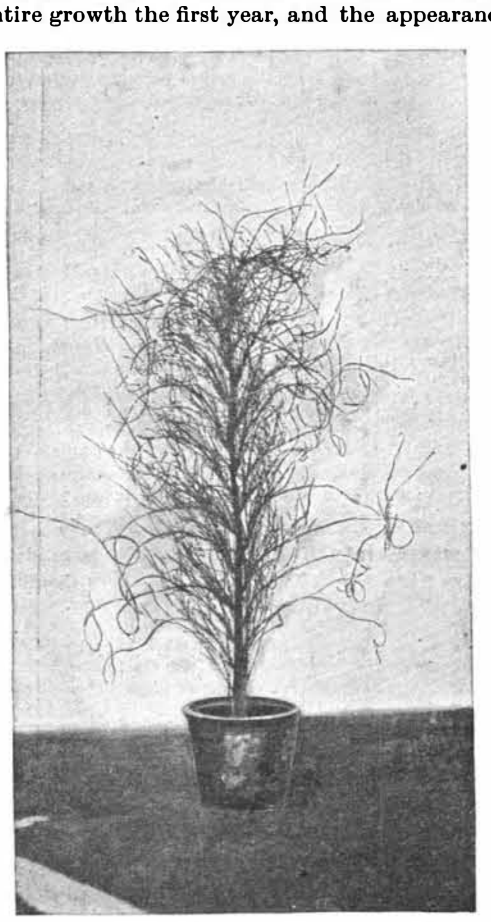
A CURIOSITY IN PLANT LIFE.

BY N. W. HALCOMB, OF JAPAN.

In the autumn of 1888, while I was residing at Fukui, in Japan, there came under my observation one of those anomalous freaks of nature which are of such frequent occurrence, and it was of such a striking character that I deem it worthy of special notice. For several days I had heard my Japanese friends speak of a wonderful bamboo which was on exhibition at a certain gentleman's house, and which was attracting many visitors. My curiosity being awakened, I called with a friend at the house of the owner of the strange plant, and when I saw it, did not wonder at the attention it had attracted. It had grown that season in the bamboo grove of Mr. Suzuki, the gentleman who exhibited it.

The accompanying sketch was made from a photograph taken soon after the plant was transferred from the grove to a flower pot, which event took place on the 22d of September. The plant had first been observed in the latter part of May, and though somewhat peculiar in appearance, did not attract especial attention. It was not noticed again until the autumn, when it appeared as in the engraving. It is of a species of bamboo called in Japanese *madake*, the next to the largest of the ten or twelve species that grow in that part of Japan. This species grows from twenty to forty feet high and often attains a circumference of fifteen inches or more. The circumference often does not exceed six or eight inches. As is well known, the bamboo attains its entire growth the first year, and the appearance of



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the plant in the engraving, being essentially the same as when I saw it on October 29, may be taken as its matured and final form. Among its abnormal features may be noticed its small height, 5 feet; its small circumference, 4·56 inches; the large number and shortness of the joints, the whole number from base to tip of the longest limb being 107, or fully twice the usual number; the large number, length, and peculiar curling shape of the limbs, one measuring 3 feet 10 inches in length, or nearly four-fifths of the height of the plant, while many smaller limbs—ten or twelve—grow from the larger ones, two or three of these latter springing from each joint of the main stem; and the nearly total lack of leaves, only fifteen of the limbs having leaves, and they having very few. It is also worthy of remark that at each joint of the limbs is a bud, and near the ends of many limbs are several larger developments like miniature reproductions of the huge sheath that incases the young bamboo shoot when it just emerges from the ground.

One other plant of the same general character was found at Fukui the same season, but the peculiar features were much less strongly marked than in this one. The Japanese told me that these two were the only ones of the kind that had ever been seen, so far as they knew. In old groves of that particular species of bamboo, a bunch of abnormally developed limbs, slightly similar to those of the plant described, will not unfrequently grow from one or more joints of an otherwise healthy-looking plant. It is supposed to indicate a diseased condition of the plant on which it grows, and the plant above described may be an unusual instance of such abnormal development. The grove in which it grew was very old, and I saw quite a number of the peculiar bunches of limbs growing from healthy-looking plants. Another bamboo which grew from the same root as the one described exhibited no peculiar features, except that it was rather small.

Heat and Light.

At a recent meeting of the Physical Society, London, Mr. Shelford Bidwell, F.R.S., showed "A Lecture Experiment Illustrating the Effect of Heat on the Magnetic Susceptibility of Nickel," and "An Experiment Showing an Effect of Light on Magnetism." In the first experiment a piece of nickel was attached to one side of a copper pendulum bob, which was held out of the vertical by bringing the nickel in contact with a fixed magnet. On placing a spirit lamp flame below the nickel, the bob was (after a short time) released, and oscillated until the nickel had cooled, when it was again attracted, and the operation repeated itself. The second experiment had been recently shown before the Royal Society. One end of an iron bar which had been magnetized and then demagnetized was placed near a magnetometer needle. On directing a beam of light on the bar an immediate deflection of the needle resulted, and on cutting off the light the needle promptly returned to near its initial position. The direction of magnetization induced by the light is the same as the previous magnetization, and the bar seems to be in an unstable magnetic state. That the effect is due to light and not heat the author thinks is rendered probable by the suddenness of the action.

The President, Prof. Reinold, said he had tried the experiment himself and failed to get any effect, but after seeing the arrangement of apparatus used, he believed his non-success due to the comparatively great distance between his bar and needle. A member asked if the results were different for different colored rays, and Professor S. P. Thompson inquired whether the magnitude of the effect varied with the intensity of illumination, as in selenium, and also if any change was produced by altering the direction of vibration of the incident light. Mr. G. M. Whipple wished to know whether any difference was produced by blackening the bars, and as bearing somewhat on the same subject mentioned an induction magnetometer in which an iron bar used was demagnetized by plunging in hot water. The results obtained were very irregular after the first magnetization, and this may have been due to the instability shown to exist by Mr. Bidwell's experiment.

In reply, Mr. Bidwell said red light produces most effect, and blackening the bar makes the action much slower. As regards selenium, the character of the effect is similar, but he believes the causes to be different. Polarized light produces no change. In answer to Professor Herschel, he said that any part of the bar is sensitive to light, and showed that illuminating both sides of the bar increased the effect.

Profitable Watch Manufacturing.

At the annual meeting of the Waltham Watch Company, in Boston, recently, it was voted to increase the capital stock of the company by $1,000,000, making the total capital $3,000,000. A cash dividend of 50 per cent was also declared. The treasurer of the company, in explaining the matter, said that the company had a surplus of $2,000,000 above its capital. The capital stock had been increased to the extent of the cash dividend, and those of the stockholders who wished could take the cash they received in dividends and purchase new stock at par in pro rata proportion to what they already held. It was not a stock dividend. The other $1,000,000 surplus would be used in carrying on the business of the company. There would be no additions to the works on the head of the increase in stock. In 1865, when the capital stock was $300,000, a dividend of 150 per cent was made and the stock increased to $750,000. In 1880 a dividend of 100 per cent was made and the capital increased to $1,600,000; and in 1885 the stock was increased $500,000, for which the stockholders paid.—*Bradstreet's.*

Good Advice to Engineers.

It cannot be too carefully borne in mind that condensing engines must be absolutely tight as to their valves and pistons in order to secure economy. Many condensing engines are actually using more steam per horse power than they would if run high pressure. Steam leaks into a vacuum much faster than it does into the atmosphere or through the valves and pistons of high pressure engines. There should be at least 26 inches (not pounds) of vacuum in every condenser, and unless there is, there is a defect somewhere in the design, or leaks in the apparatus, either steam or air, and perhaps both. Air leaks are easily found with a lamp. Any suspected spot can be readily tested with a lighted jacket lamp. Apply the flame to the place, and if there is any leak the flame will be drawn in. Chaplets used for holding up the cores of large exhaust pipes, when cast, are often a source of leakage, for, as part of the rod remains in the casting, it cannot be always told whether the union is absolutely airtight. Such spots should be well puttied over with thick red lead putty. Leakage often occurs through faults in the foot valves. Since the air pump is open to the atmosphere unless the foot valves are absolutely airtight, under all circumstances, the vacuum will be injured very much. Air leaks, however, have to do only indirectly with the economy of a plant. The steam leaks are the worst sources of loss, and against these all engineers know so well how to provide that we need not offer suggestions.—*The Engineer.*

VORTEX MOTION.

BY GEO. M. HOPKINS.

Every one has noticed the symmetrical wreaths of smoke and steam occasionally projected high into the air on a still day by a locomotive; similar rings may often be noticed after the firing of a gun. It is not uncommon to see a smoker forming such wreaths with his mouth. These rings are simply whirling masses of air revolving upon axes curved in annular form, the smoke serving to mark the projected and whirling body of air, thus distinguishing it from the surrounding atmosphere. The whorls would exist without the smoke, but they would, of course, be invisible.

All the apparatus needed for producing vortex rings at will is an ordinary pasteboard hat box, having a circular hole of 4 or 5 inches diameter in the cover. Two pads of blotting paper are prepared, each consisting of six or eight pieces. Upon one pad is poured a small quantity of muriatic acid and upon the other a similar quantity of strong aqua ammonia. These pads are placed in the box and immediately a white cloud is formed, which consists of particles of chloride of ammonium so minute as to float in the air.

By smartly tapping opposite sides of the box, a puff of air is sent through the circular opening of the cover carrying with it some of the chloride of ammonium.

VORTEX RINGS.

The friction of the air against the edges of the cover retards the outer portion of the projected air column, while the inner portion passes freely through, thus imparting a rotary motion to the body of air adjoining the edge of the cover, the axis of revolution being annular. After the ring is detached the central portion of the air column continues to pass through it, thus maintaining the rotary motion.

When two rings are projected in succession in such a manner as to cause one to collide with the other, they behave much like elastic solid bodies. By making the aperture in the box cover elliptical, the rings will acquire a vibratory motion.

By fastening the box cover loosely at the corners, the box may be turned upon its side and rings may be projected horizontally.

It is obvious that smoke may be used in this experiment in lieu of the chloride of ammonium.

Phthisis from House Sweepings.

The *Munchener Medicinsche Wochenschrift*, No. 308, reports that Carnet has experimented with the dust obtained from the walls and floors of various dwellings in which tuberculous patients have been, inoculating guinea pigs with it, and carefully excluding all possibility of infection from outside sources. In this way, twenty-one rooms of seven Berlin hospitals were examined, and bacilli found to have been present in the dust from most of them. Positive results were also obtained with the dust from insane asylums and penitentiaries.

The dwellings of fifty-three tubercular patients were investigated in the same way, and the dust in the neighborhood of twenty patients found to be virulent. It was the case, with absolute regularity, that the dust was always virulent when the patient had been in the habit of spitting on the floor, or in a handkerchief, while it was never so when a spit cup had been employed.