

THE THREE-TAILED BIRTHWORT.

This singular plant, of which we present an engraving, taken from the *Garden*, is an arborescent evergreen shrub, with jointed branches swollen at the points of the stems. The dark green leaves are tapering, and from five to eight inches long. The flowers, which are produced in August, are of a maroon-red color outside and very dark purple-brown inside, and the lower margin is split into three diverging awl-like tails, resembling a three-pronged fork. These attain a length of four inches. Ghiesbreght discovered this plant in the forest of Chiapas, in the extreme east of Mexico. It requires a warm temperature, and will flower well in a small state. It is altogether scentless.

Effect of Sea Waves on Masonry.

A remarkable instance of the effect of sea waves on masonry is furnished in the case of the well known breakwater at Wick, on the coast of England. The height of the waves at this place was, it appears, several times measured and estimated, the result showing about forty-two feet from crest to hollow. Stones of eight and ten tons weight were, by these waves, carried from the parapet to the very top of the breakwater; and it was therefore determined, finally, to construct the outward extremity of the breakwater by depositing three courses of one hundred ton blocks of stone on the rubble base, as a foundation for three courses of large flat stones, surmounted by a monolith of cemented rubble built on the spot. The end of the breakwater, therefore, was in substance a monolith weighing upward of eight hundred tons, being about twenty-six feet by forty-five, and not less than eleven feet in solid thickness, cemented to the underlying rubble base. Incredible as it might seem, this huge monolithic mass succumbed to the force of the waves—it was, indeed, actually seen by the resident engineer to be bodily slewed around by successive strokes until it was finally removed and deposited inside the pier. Not only the upper portion, but the three lower courses of stone, forming a mass of 1,350 tons, were removed without breaking.

THE BAOBAB TREE.

Our illustration represents one of the largest trees known, the baobab, of Africa and Madagascar. The trunk is from 15 to 60 feet high, and from 70 to 75 feet in circumference. The lower branches extend horizontally outward, frequently to a distance of 60 feet, often hanging to the ground and concealing the trunk. The leaves are large and abundant and of a dark green color. The flowers are white, and the fruit soft and pulpy. Of the fibers obtained from the outer bark the natives make cordage.

A curious peculiarity of this tree is that scarcely any injury will destroy it. Fire scorching the exterior does not impair its vitality. Nor can it be injured from within, as it is quite common to find it hollow. Even cutting down does not exterminate it, for it continues to grow in length while lying on the ground, and its roots, which reach 40 or 50 yards from the trunk, retain their vitality. Although the tree attains an enormous age, Livingstone having examined one which he judged to be 1,400 years old, it is attacked by a disease which affects its woody structure, so in course of time its own weight causes it to fall in a mass of ruins.

On Corns.

In a lecture at the St. Louis Hospital, Paris, on hypertrophy of the epidermis, M. Guibout observed that, while in callosities the hypertrophy takes place at the surface, in corns the hypertrophied part becomes pyramidal, and takes the form of a nail, with its point directed toward the deeper seated parts. This sharp point, lodged in a kind of cupola, which exactly boxes it in, has a tendency to penetrate into the substance of the dermis whenever the base of the corn is compressed. The portion of the dermis which is in permanent contact with the epidermic induration becomes inflamed and altered in character, its papillæ disappearing, so that at last it becomes a true matrix, destined to form deep, new, horny epidermic layers, in proportion as the more superficial layers are eliminated.

Changes of the weather often give rise to great pain in corns, which has been supposed to be due to their hygroscopic nature, which, by causing their enlargement, adds to the suffering. But, in fact, the exacerbations are less severe during the time that it

rains than they are for some days preceding; and they are also met with when the weather is about to change from wet to dry. These painful exacerbations of the pain of corns are quite as remarkable and as inexplicable as are those of rheumatic pains. The sole efficacious treatment is excision, but care must be taken that this is complete. The summit of



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the cone must be cut down to, so as to entirely empty the dermic cupola. And then it is quite necessary to destroy, by cauterization, the inner surface of this cupola, namely, the matrix of the corn, which will otherwise be reproduced.

The best caustic is sulphuric acid, of which we may deposit a drop, by a match or glass rod, on the excised part. If the corn recurs, the same processes of excision and cauterization must again be resorted to.

New Agricultural Inventions.

Mr. C. D. Page, of Greeley, Col., has invented a Portable Irrigating Apparatus, intended to facilitate the irrigation of land from open ditches. The apparatus is formed by a combination of side pieces and one or more flood boards for the ditch banks, with an end gate sliding between the side pieces, the whole being connected and constructed so as to be readily laid in the ground and operated.

Mr. O. O. Moore, of Medina, N. Y., has patented an improved Churn Dasher, which is perforated, pivoted eccentrically in a frame carried by the dasher rod, and provided with stops in such a manner that during the down stroke the dasher is horizontal, but drops into an inclined position on the up stroke, thus rendering the lifting motion easy.

An improved Corn Planter has been patented by Messrs. O. B. Seamans, V. A. Bryant, and Hugh Develling, of Coalville, Iowa. The improvements relate to the mechanism for operating the seed valves and marking the rows, and the special point covered by the patent is the lever arrangement by which the driving wheel is raised from the ground when the machine is moved from place to place.

Mr. J. C. Carpenter, of Council Grove, Kansas, has invented a Plow of such construction that the share, when worn, may be slipped forward one or more times, so as to enable it to be used much longer than with the usual arrangement. A strip of steel is inserted in the space thus left between the rear edge of the share and the forward edge of the mould board, and secured by bolts to a plate riveted to the mould board, the share also being adjustably retained by this plate.

An improved Hoe, for weeding cotton and other plants, has been invented by Mr. W. H. Eggleston, of Sugar Land, Texas. The blade is set at an inclination with the handle, is plated with steel on its lower side, has its forward edge beveled upon the upper side, beveled side edges, and projecting points upon the forward corners.

Aerial Navigation.

Mr. Brearey, secretary of the English Aeronautical Society, called attention, in a recent lecture, to some curious facts which those who are seeking solutions of the flying machine problem might profitably bear in mind. He stated that light as the atmosphere is in proportion to the weight of water, the rarer medium is capable of supporting a creature much heavier than itself, while water, 800 times heavier, only supported a fish of about equal weight, bulk for bulk. Supposing a fish bore the same proportional weight to its elemental medium as a bird does to the atmosphere, it would have to be made of something heavier than platinum. As it is a fish is really a bird without wings.

He gave some curious comparisons between different birds and insects as to the surface they presented to the atmosphere and their weight. Thus the gnat was of three million times less weight than the Australian crane, but presented in proportion one hundred and forty times more surface to the air; and between these two there were almost all gradations. In these investigations lay some of the most hopeful facts which seemed to render aerial navigation possible, and if man could get sufficient surface he could surely get sufficient machine power for propulsion. It was not so much a question of power as of the right application of power. There was also the question of balance. The manner in which a bird kept its balance, while its wings were being energetically worked alternately above and below its center of gravity, was marvelous. Mr. Brearey thought that with the example of the bicycle the question of balance would not present much difficulty.

He then touched on the application of steam to the navigation of the air. Until lately it had been thought that this was inadmissible as a motive power, because of the cumbrous method of its generation; but it had been declared that when steam could be applied with a weight not exceeding 20 lbs. per horse power, the problem would soon be solved. This had been accomplished, and they would hope the prognostication might be true.

KING HUMBERT, of Italy, has granted four annual prizes, of 5,000 lire (about \$950) each, for the best productions in art, science, and literature, the awards to be made by the Accademia dei Lincei, at Rome.



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