MORE CURIOUS VEGETATION.

We give below descriptions of four curious plants, in which, while proving novelties to the horticulturist, will be found many features of interest to the student of botany. With one exception none are indigenous to this continent, and, so far as we are aware, no specimens of the peculiar species represented are under cultivation in the eastern portion of the United States.

The plant represented in the first engraving—for which, with the other illustrations, we are indebted to the English *Garden*—is a cycad. It is not a quick grower, but very permanent in its character, as are all the other species of similar ferns. Other species in this group are also very effective when well grown, and none more so than the *e. horridus*, a stout dense-growing form, with spinose foliage, and one of the most striking of all foliage plants for conservatory decoration. *E. Caffer*—or, as it is popularly called, Hottentot bread—is another noble plant, forming, as it does, a fine trunk, surmounted by deep green, leathery foliage, which droops or arches gracefully on all sides. There are some good specimens of this in the palm house at Kew, England, and it deserves a place in every collection of warm conservatory plants. Cycads are as invaluable and as deserving of general culture as are the palms themselves, although they are more limited in number. Many come from the Cape district and Natal, or Southern Africa, where they form distinctive features of vegetation.

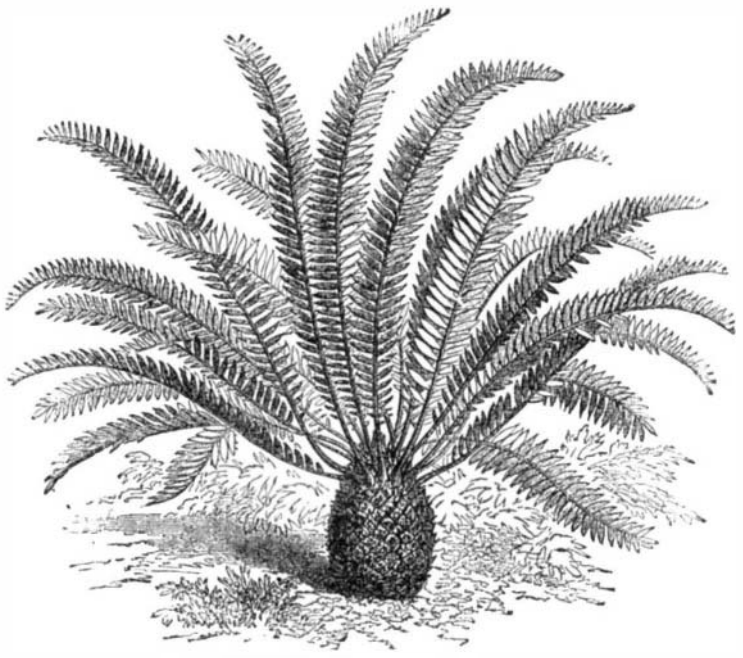

FIG. 1.—ENCEPHALARTUS ALTENSTEINII.

The odd-looking plant shown in our second illustration belongs to the genus *Dicksonia*. They are distinguished by their coriaceous fronds, the sori being situated upon the end of a vein near the margin of the pinnules, and inclosed within a coriaceous two-valved involucre.

The species represented is the *D. antartica*. The stem is both tall and stout, attaining in its native country, we are told, to from 30 to 35 feet in hight, and measuring from 1 to 2 feet in diameter. Upon the summit of these stately stems is borne a grand crown of dark green, plume-like, somewhat coriaceous fronds, which vary from 3 to 10 or more feet in length. The young fronds are beautifully arched, but with age they bend over and become more pendulous. The beautiful symmetry of this stately plant cannot fail to recommend it to every plant grower. It would appear to be common in mountain gullies and ravines in Tasmania and Australia.

Although the flowers of the stapelias are not merely devoid of fragrance, but exhale a repulsively fetid, carrion-like odor, many of them are, nevertheless, beautiful in color and singular in form. There are about ninety species of these plants, all of which are natives of the Cape of Good Hope, with the exception of *s. Europœa*, which is found in Spain and Algeria, as well as in South Africa. *S. hirsuta minor*, of which we give an illustration in Fig. 3, and the allied species emit such a powerful scent of decomposing flesh that the common blow fly is deceived into depositing its eggs among the hairs of the corolla. Its numerous succulent stems are thickly set with quadrangular, conical, ascending branches, forming tufts from 12 to 16 inches in hight. As in the genus cactus, the leaves are very rudimentary, being reduced to insignificant scale-like processes. The flowers are solitary, from two inches to two and a half inches in diameter, and are produced near the bases of the branches. The petals are thick and fleshy, smooth, and greeenish on the under side, very much wrinkled on the upper surface, marked near the base with transverse sinuous lines of purplish brown, and marbled and spotted all over with blotches of sulphur

FIG. 2.—DICKSONIA ANTARCTICA.

yellow. The bottom of the corolla is concave, circular, and of a purplish brown color in the center, while the edges are marked with yellowish spots. The structure of the stamens is very singular. From the bottom of the corolla rises a sort of cup, nearly pentagonal in shape, the upper part of which is divided into ten narrow strips, five of which are turned inwards and five outwards. The five inner divisions are straight, cylindrical, slender, and covered with purplish tubercles. Each of them is again subdivided into two parts, of which the outer one has a thickened apex, and is bent over the pistil; the other, or inner division, is quite straight. The five external primary divisions are of a green color, spotted with purple, are flat and oblong in shape, and forked at the apex. The anthers are of an orange color.

Fig. 4 is a California cypress, described by some authors as a variety of *c. Californica gracilis*, while others make it a distinct species. It forms a small bushy tree, from 16 to 20 feet high, with numerous spreading branches, and small scale-

FIG. 3.—STAPELIA HIRSUTA MINOR.

like leaves, closely set together, broad at the base and pointed at the apex. It is particularly distinguished by the shape of its cones. These are of a dark brownish color, streaked with lighter lines, each of the four scales bearing, near its apex, a horn-like projection, nearly half an inch long, whence it derives its specific name, *cornuta*. These horns are generally curved at the point, as shown in our engraving, which represents the cones in their natural size. The tree is a native of the mountains of California, and is a hardy and tolerably ornamental subject.

Dog Killing by Electricity.

Whether the slaughtering of scores of dogs by carbonic acid gas, as practiced in this city, is a painless operation to them seems rather questionable from the length of time which their struggles continue. A correspondent asks why cannot electricity be used? He suggests that, with a powerful battery and a good sized Rhumkorff coil that will give a spark of from twelve to eighteen inches, thirty or forty dogs at a time might be killed instantly and painlessly. The wires could be led along the floor connecting with every staple to which the animals are secured. The chain and metal collar would serve to conduct the shock to the body.

WATERPROOF SILK PAPER.—Silk paper is allowed to float for a little time on the surface of an aqueous solution of shellac in borax, and then dried in the air. By the admixture of a small quantity of an aniline color with the borax, colored papers are obtained.

Korting's Condenser.

We notice that a Mr. Körting has invented and introduced a novel condenser, in which the work required to eject the condensed water is performed by its own velocity, instead of by the old-fashioned air pump and hot well. The condenser is of the old injector principle, in which the exhaust steam is admitted by various concentric cones around a stream of falling water. This disposition of parts causes the exhaust steam from any cylinder to offer a large surface to the cold water. Condensation is thereby effected, and a very considerable velocity is produced in the descending column of water. This causes a considerable vacuum behind the falling column. In order to produce the required effect, it is necessary that the falling water should have a small initial velocity. In M. Körting's arrangement, the water has a velocity due to a head of 9·85 feet. The water is pumped up into a tank at that hight by means of a pump attached to the engine; so that the power required to work this pump must be deducted from the effective gain of the condenser. The advantages of the apparatus are thus summed up.

1st. Its price is not more than from an eighth to a quarter of an ordinary condenser. 2d. There is no need for any foundation, and consequently it is easily applied to existing engines or to new ones. 3d. It works without air pump, which saves the loss of work and the inconvenience of setting up and of operation of the latter. 4th. There is nothing to regulate, and, in consequence, it demands no particular care from the attendant. 5th. As there are no moving parts (pistons, valves, etc.), there is no wear, repairs, or interruption in work. 6th. Its application is especially advantageous to small machines, where the inconvenience and the price of an air pump is very great.

Atmospheric Dust.

M. Vorlet d'Aoust says, in *La Nature*, that in Mexico deposits of atmospheric dust occur in beds of sufficient thickness to stamp them as true geological layers. These strata, which have frequently formed a puzzle to geologists, are composed of a yellowish clayey earth, which not only envelopes isolated mountains but forms the flanks and bases of some of the most elevated ranges, such as those of Popocatepetl and Ouzaba. The revetment extends upward to a hight of about 12,000 feet and in its lower portions varies in thickness from 180 to 320 feet.

In the midst of the deposit are found blocks if stone and detached fragments which have rolled down the mountains and which have become agglomerated by the dust as if by cement.

The dust is raised by dust storms (*remolieros de polvo*), which frequently occur on the Mexico plains. These throw up great clouds to hights of 1,500 and 2,000 feet in the air, often obscuring the sky and changing its blue to a yellowish color. The dust is then blown by wind currents toward the mountains, which act as a barrier and check its further progress; for, once deposited on their slopes, it cannot again rise as the storms take place only on the plains. It is curious to notice that this action of the atmosphere completes a circle begun by the water. The latter carries earth from the hills down to the plains, where it is transported back to the mountains by the winds, and so a continual circulation is maintained.

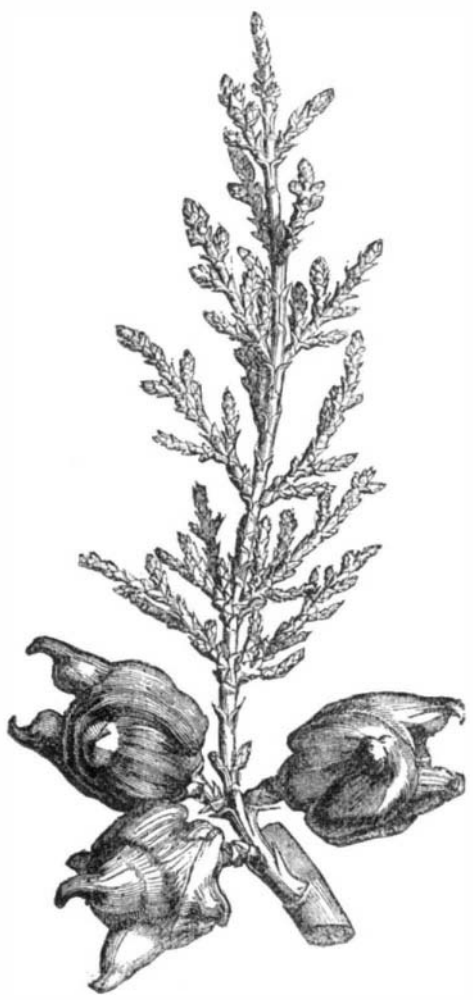

FIG. 4.—CONES OF CUPRESSUS CORNUTA.