

of Tournefort, in which we are interested at present, is equal to *Ficoïdes* or *Ficus* of Commelinus' Hortus Amistel (1697), equal to *Ficoïdes* or *Ficus* of Plukinet Almag. Botanica (1696), equal to *Echino-melocactus* of Hermannus Hortus Lugdbt. (1687).

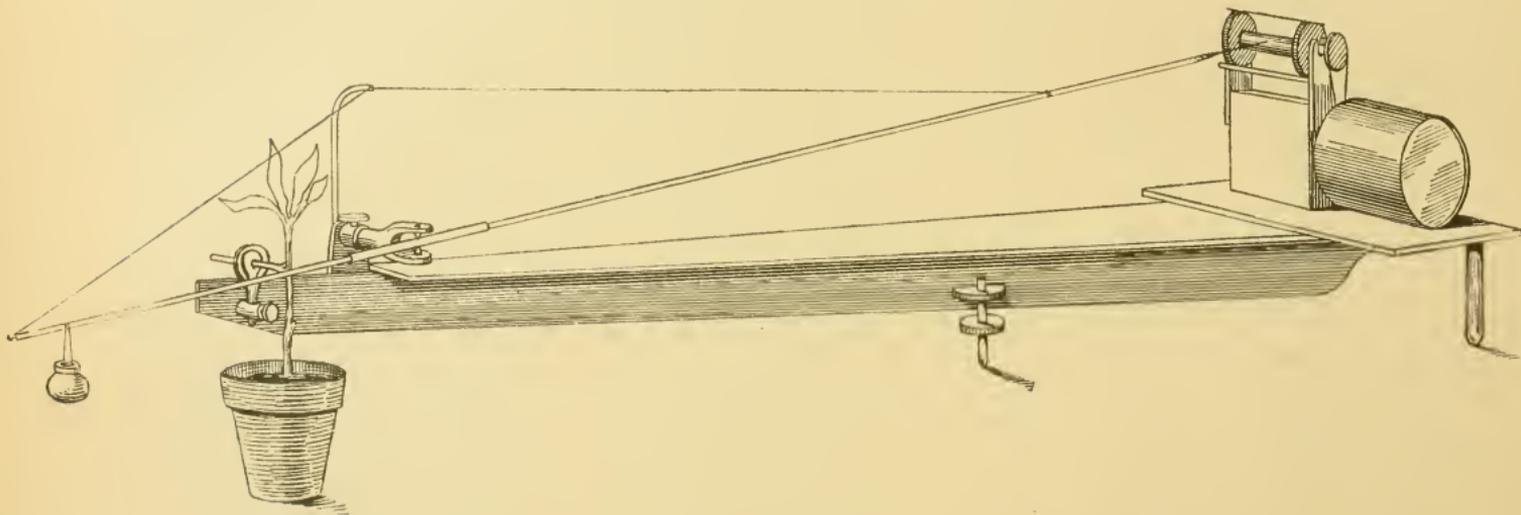
Commencing again with Linnaeus (1753), we find that he first described the species *Cactus mamillarius*, which thus seems to stand as the type of the genus. This genus of 28 species was not disturbed until 1812, when Haworth, in his Synopsis Plantarum succulentarum, separated it into five genera, *Mamillaria*, *Echinocactus*, *Melocactus*, *Cereus*, and *Opuntia*, discarding Linnaeus' name, *Cactus*. He called *Cactus mamillariïus* Linn. *Mamillari simplex* Haworth, which was the only species of Linnaeus that would fall in the new genus *Mamillaria*. At this time (1812), *Mamillaria* consisted of five species. In 1830 eight species were recognized. This state of affairs was not molested until last year, when Dr. O. Kuntze published his Revisio Genera Plantarum and re-established the Linnæan genus *Cactus*, which thus equals *Mamillaria* Haworth, changing over 300 species of *Mamillaria* to the genus *Cactus*. In summary, we have *Cactus* L., re-established by O. Kuntze (1891), *Mamillaria* Haworth (1812), *Cactus* L. (1753), *Melocactus* Tourn. (1719) in part, *Ficoïdes* or *Ficus* Commelinus (1697), *Ficoïdes* or *Melocactus* Plukinet (1796), *Echino-melocactus* Hermannus (1687).

The revision of the genus *Cactus*, like the other genera of Cactaceæ, is made under great difficulties, because of the lack of types, and insufficient flowering material. Since this is true, and because a specimen is almost useless without flowers, according to the present system of keys, we have attempted with the types at command to revise the genus without using flower characters but by using those parts of the plant which are always present, the tubercles and spines.

SOME CAUSES ACTING PHYSIOLOGICALLY TOWARD THE DESTRUCTION OF TREES IN CITIES. By J. C. ARTHUR.

AN AUXANOMETER FOR THE REGISTRATION OF THE GROWTH OF STEMS IN THICKNESS. By KATHERINE E. GOLDEN.

The main feature of this auxanometer for measuring growth in thickness is a balanced glass arm, supported near one end. The long end has a bristle fastened to it that comes in contact with a blackened glass rod carried round on a brass spool, the spool being revolved by a clock.



THE AYNAMETER.

[Plate loaned by the publishers of the Botanical Gazette.]

The glass arm is supported in a short glass tube that is held between two hardened steel points, the points being adjustable through the arms of a brass *y*. Close behind the steel points is a small fork; this fork, with the glass arm embraces the stem of the plant, the fork permitting an adjustment for large or small stems. These pieces of mechanism are supported by a long wooden beam, that has a beveling near the end supporting the arm. This adjustment is to accommodate plants of varying height.

At the long end of the glass arm, and supported by the beam, is a small wooden platform that in turn supports the revolving spool. The axis of the spool is extended at one end beyond its supports, and carries a grooved pulley, which is connected with a similar grooved pulley attached to the hour hand spindle of the clock by means of a small rubber band. The friction between the rubber and the grooved pulleys, and the uniform tension obtained, precludes slipping.

The way the instrument is used is to place the stem of the plant between the fixed fork and short arm of the glass rod. The distance between the point of contact of the plant and the pivot is $\frac{1}{40}$ of the distance from the blackened glass rod to the pivot, so that any growth of the plant is magnified 40 times on the blackened rod. Thus a growth of $\frac{1}{1000}$ of an inch will be represented by $\frac{1}{25}$ of an inch on the blackened rod.

One of the features of the blackened glass rod is that a permanent record can be obtained by making a print of it on sensitized paper, from which direct measurements can be made.

A STATE BIOLOGICAL SURVEY—A SUGGESTION FOR OUR SPRING MEETING. By L. M. UNDERWOOD.

THE APICAL GROWTH OF THE THALLUS OF *FUCUS VESICULOSUS*. By D. M. MOT-
TIER.

SYMBIOSIS IN ORCHIDACEÆ. By M. B. THOMAS.
