

The collection numbered 510 species, distributed among 459 Phanerogams and 51 Pteridophytes. In this limited space no mention has been made of species, the object being only to present the general character of the flora of the mountain, as shown by the distribution of certain families and genera. A more complete report will be published later, with notes on species.

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AN APPARATUS FOR DETERMINING THE PERIODICITY OF ROOT PRESSURE. By  
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[ABSTRACT.]

The paper presented the need of a self-registering apparatus for determining the periodicity of root pressure, and gave an outline of the ones now in use, all of which were seen to need constant attention. An apparatus made in the following manner was suggested. The base of the instrument is about 1'x3" and is supported by legs about 3" high. About 10" from one end and in the center of the base is erected a standard about 2' high and 4" in width. On the short end of the base and near the post is fastened a set of strong clock-works. The works are covered with a box and the end of a cylinder 6" in diameter and 1' 10" high is fastened to the hour pinion of the clock by means of a pin passing through a hole in the end of the pinion and fitting in a slot in the end of the cylinder. The top of the cylinder is held in place by a pin passing through a support from the main pillar and a hole in the end of the cylinder. To the large upright pillar is fastened a U tube of about  $\frac{1}{2}$ ' in diameter; one arm being nearly as high as the pillar and the other but half the height. The tube is filled with mercury to within about an inch of the top of the short arm. The stem of the plant is cut off near the base and placed in position. An inverted U tube is fastened to the stem in the usual way by means of a rubber tube fastened with wire while the other end of the U tube is connected with the larger one in the same way. The small U tube is filled with water through an opening in the top. The cylinder which is made of light tin is blackened by revolving it slowly in the flames of a candle or gas jet. The indicator consists of a light steel wire with a cork at the end somewhat smaller than the diameter of the tube. This rests on the mercury. It is then at the top of the tube bent twice at right angles and allowed to extend to the bottom of the cylinder where it is again bent twice at right

angles and the end allowed to rest against the smoked surface of the cylinder. A pin driven in the pillar prevents the wire from turning to one side because of the friction of its end with the cylinder. As the root absorbs water the pressure upon the column of mercury increases, causing it to rise in the tube lifting the cork and indicator with it. The indicator then marks a continuous spiral course on the cylinder. The hourly variation can be studied by observing the distances between the lines. The supply of water given to the plant must be kept constant. An eight day clock should be used and the apparatus need scarcely be touched until the plant is exhausted.

THE DISTRIBUTION OF TROPICAL FERNS IN PENINSULAR FLORIDA. By LUCIEN M. UNDERWOOD.

To one who makes a visit to Florida for the first time, constant surprises appear on every hand; sand, palmetto and spanish moss were expected, but the excess of dry pine lands over hamaks, the multitudinous lakes of every size and shape, the comparative purity of the waters, and the variety of elevation apparent in short distances, formed elements that were not looked for and that serve to modify the botanical features of the country to a considerable extent. The river systems are mostly in a north and south direction, and the rivers are sluggish and often rather deep. Throughout the interior of the state, lakes of all sizes are abundant; twenty-five to thirty lakes in a single township (six miles square) is not unusual. Most of the small lakes are without outlets, and frequently stand in deep hollows. Sometimes you may find two lakes a half mile or so apart with a difference of elevation from 50 to 100 feet. Except for a slight discoloration from roots, the water is remarkably clear and few algæ were seen. With the exception of river borders where clay and black mud are found, there is everywhere the loose gray sand that rolls under foot of man or beast, making progress slow and tedious, that supports no turf and only a scattered vegetation, that absorbs moisture rapidly, and that contains a fine dust that filters through the clothing and renders one black and grimy after even the shortest tramp. Occasional swamps occur where a former pond has given way to a bog, or where a small stream is choked up and thus overflows its usual bounds; here a variety of deciduous trees stand thick together interwoven with the omnipresent and exceedingly spiny