

root growth whatever at this season. Among these are *Citrus aurantium*, *Vitis vinifera*, *Prosopis velutina* and *Parkinsonia torreyana*. The period of root inactivity begins about the first of December and lasts until the latter part of March.

These observations were made by growing the plants in large wooden and cement boxes provided with plate-glass front, which made it possible for the roots to be easily seen and checked each day. Light was excluded by a well-insulated door, easily opened and closed. The boxes were made in two series, the smaller three by three feet square and holding twenty-seven cubic feet of soil, and the larger six by six feet square and holding 216 cubic feet of soil. The amount of soil in the latter case was sufficient to accommodate a tree, such as the peach or orange, for four or five years.

F. J. CRIDER

BOYCE THOMPSON SOUTHWESTERN ARBORETUM,
SUPERIOR, ARIZONA

AN UNEXPLAINED VISUAL PHENOMENON

THE following note is written at the suggestion of Professor J. P. C. Southall, of the Department of Physics of Columbia University, in the hope that some of your readers may be able to explain an observation that I made the other day. While coming down from Minneapolis with the Air Mail, I happened to notice that the propeller became visible upon turning the visual axes of my eyes laterally. The conditions of observation were as follows: I was seated in a cabin plane, about eight feet behind the propeller and about eighteen inches lateral to the median line of the plane. About half way between my seat and the propeller was an inclined windshield, forming a lateral angle with my visual axis of about 60° and a vertical angle of about 80° .

A setting sun was directly behind the tail so that no direct rays from the sun fell either into the cabin or upon the propeller. There was smooth air at about 2,500 feet with practically no lateral motion. The tachometer reading of propeller revolutions swung between 1,650 and 1,675 revolutions per minute.

The propeller was of white metal, about eight inches wide where it first became visible above the top of the cowl and tapered to four inches at the tip, which was about two feet beyond the point of the cowl line. It was a two-bladed propeller.

The observations were made with each eye alone and then with both eyes together without any variation being found. When the eye was in the primary position and the visual axis parallel to the axis of the plane, the propeller was absolutely invisible and there was not even a blur in the line of vision. As the visual axis was turned laterally (either right or left

made no difference), a blur corresponding to the arc of the propeller became visible. Upon increasing the angle, there could be distinguished within the blur the general outline of the individual propeller blades in terrifically rapid motion. These were clearest at about 45° from the primary position. As the angle was increased still more, the individuality of the blades moved into a blur corresponding with that seen at first. At about 60° , the blur was entirely lost. It seemed that for about 10° , namely, between 40° and 50° , the blades were seen as individual, and for about 10° to either side of these limits, the blades were seen as a blur. These figures are of course approximate, as I had no means of determining the angles accurately. When the accommodation of the eye was relaxed by fixing upon objects in the landscape a mile or more away from the plane, the phenomenon was much more apparent than when the eye was accommodated for points upon the plane three to ten feet away.

I must confess that I am entirely at a loss to explain the observation and would appreciate any possible explanation.

HARRY S. GRADLE

CHICAGO, ILLINOIS

THE MEASUREMENT OF ULTRA-VIOLET RAYS

DR. OTTO GLASSER has taken it upon himself in the issue of SCIENCE for August 3, 1928, to criticize the report by Science Service printed in the same journal for May 11, 1928, of devices for the measurement of ultra-violet rays described by us. While we are not responsible for the text of the report criticized and while no explanation of such a criticism is necessary to any one familiar with the field, we should like to make the following statement. The note in SCIENCE is a report of a paper read before the American Roentgen Ray Society in Montreal, on September 27, 1927, and published in the February issue, 1928 (Vol. 19, p. 144) of the *American Journal of Roentgenology and Radium Therapy*, that is, three months before the report appeared in the May number of SCIENCE. In the original paper full credit is given to all previous workers and a more complete bibliography than is mentioned by Glasser is published. A marked reprint of our paper has been filed with the editor of SCIENCE. Since the original paper is known to all workers in the field and since the note in SCIENCE is merely consistent with all others there published in not giving references and bibliography, Mr. Glasser's criticism is incomprehensible to us.

ERNST A. POHLE,
WALTER S. HUXFORD

UNIVERSITY OF MICHIGAN