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MICROSCOPE SLIDES OF VEGETABLE MATERIAL FOR USE IN DETERMINATIVE
 WORK. BY JOHN S. WRIGHT.

In the determination of plants it is frequently necessary, or at least desirable, to make examinations of various organs with the aid of a lens. Seed markings, glandular structures and many portions of the flower upon which determinations are partly based may be so minute as to necessitate slight magnification for satisfactory work. For example we have in the *Euphorbias* and *Lobelias* many species in which the seeds are to the naked eye mere granules, but under a hand lens their surfaces are seen to be decidedly marked with irregular ridges and pits, or are handsomely sculptured. Many leaves contain glandular structures, or are covered with hairs or scales which can be best seen under the lens. In determining specimens on which such structures exist and are of value in classification, it is often desirable to compare them with like material from well determined herbarium specimens. Commonly the material for these comparisons is dug out of or cut off the herbarium specimen as it is needed from time to time and placed

loosely under the lens for examination, and after it has served the purpose of the moment is brushed aside and lost, or at best preserved in packets upon the sheet with the specimen from which it was taken. This method is messy and eventually impairs the mounted specimens of an herbarium, and where there are many workers it is not economical of time. To avoid this is quite practicable through the preservation of all such materials dry in cells upon glass slips as opaque mounts for the microscope. The cells are built by gluing to the glass slips brass ring-, and the specimens are enclosed by cementing to the top of this ring the ordinary circular cover glass. The method of building this form of cell was suggested by Dr. Griffiths some years ago and is quite familiar. A cell of this form will not accommodate leaves and some other plant structures as well as another form of cell, which is made by gluing a rectangular frame cut from cardboard to the glass slip. A cell of this construction will contain small leaves entire or the tip and basal portions of larger leaves, which can be viewed from either side. A cell of this type must be enclosed by a rectangular cover glass. A supply of slips, upon which cells of various sizes have been built, may easily be kept on hand, and whenever it becomes necessary to remove from an herbarium specimen material for examination, it may be placed in a cell in manner best adapted for its display, labeled, and you have at once, at very small expense, a slide of vegetable material which will be ready for use at any future time; and, if such a collection of slides is properly classified and arranged, it forms a working adjunct to the herbarium of much value, and, besides, provides one constantly with available material for numbers of demonstrations in botanical work.

HEMAGLOBIN AND ITS DERIVATIVES. BY A. J. BIGNEY.

On subjecting a dilute solution of arterial blood to spectroscopic examination, certain parts of the spectrum of natural or artificial light will be absorbed. The amount of this depends upon the degree of concentration of the blood; if a one per cent. or two per cent. solution be used, two narrow dark bands are seen in the orange-yellow between the Fraunhofer lines D and E, the one next to E being a wider, but not so deep a band as the one next to D. A little of the red is absorbed and the violet, indigo, and a part of the blue. This is the spectrum of *Oxy-Hemoglobin*.

If arterial blood or venous blood which has been shaken with air be treated with some reducing agent such as ammonium sulphide or alkaline iron sulphate with tartaric acid, a decided change occurs in the spectrum, instead of the two