UNIVERSITY AND EDUCATIONAL NEWS

Mr. Hobart W. Williams has given to the University of Chicago property to the value of $2,000,000, the gift being in memory of his father, Eli Buell Williams, and his mother, Harriet B. Williams. Part of the income of this great gift goes toward the development of the school of commerce and administration at the university.

The late Sir George Hare Philipson has by his will bequeathed £2,000 to the University of Durham College of Medicine, Newcastle-on-Tyne, for the foundation of two Philipson scholarships to be awarded to the undergraduate of the college obtaining the highest marks at the M.B. final examination.

Dr. T. Brailsford Robertson, formerly professor of biochemistry and pharmacology in the University of California, has been appointed professor of biochemistry in the University of Toronto. Also, Professor J. J. R. Macleod, formerly professor of biochemistry and physiology in the Western Reserve University, has been appointed professor of physiology in the University of Toronto.

Dr. Elias J. Durand has been appointed professor of botany in the University of Minnesota. Dr. Durand was formerly an instructor at Cornell, but since 1910 has held a professorship in the University of Missouri.

Professor Henry Blumberg, of the University of Nebraska has accepted a position in the mathematical department of the University of Illinois.

Dr. F. S. Nowlan, of Columbia University, has been appointed instructor in mathematics in Bowdoin College.

DISCUSSION AND CORRESPONDENCE

BROWN ROT OF SOLANACEÆ ON RICINUS

Bacterium solanacearum, the brown-rot organism, was first described by the senior writer from tomato, potato and eggplant in 1896 and from tobacco in 1908, on each of which it causes a widespread and serious disease. In recent years, chiefly through the studies of Honing in Sumatra, this organism has come to be known as a parasite not restricted to the Solanaceæ but capable of attacking plants of various orders from Urticaceæ to Compositæ, including Leguminosæ (peanut, and indigo), Euphorbiaceæ (*Acalypha*), and Verbenaceæ (young teak trees). Since Honing's discoveries it has been determined in the United States to be the natural cause of a wilt of the peanut (Fulton and Winston) and of the common cultivated Tropæolum (Katherine Bryan). More recently Stanford and Wolf in studying its effects on tobacco in North Carolina have found it also on Southern weeds (*Ambrosia artemisiifolia, Eclipta alba*) and have successfully inoculated it into a variety of plants including *Croton* and *Euphorbia.*

To the already considerable list of natural host plants must now be added the castor oil plant (*Ricinus communis*) on which it has appeared to a discouraging extent in several localities in our Southern States (Georgia, Florida) where *Ricinus* has been extensively planted this year to supply lubricating oil for army needs.

The *Ricinus* plants wilt in various stages of growth, often early, the woody part of the stem being stained brown and filled with a gray or brown bacterial slime which when cultivated pure yields the typical colonies an agar poured plates, browns potato cylinders, reduces nitrates, blues litmus milk, and otherwise in media behaves like *Bacterium solanacearum* from other hosts. When cross inoculated to tomato shoots it wilts them promptly, browning the vascular bundles, filling them with the typical gray slime and hollowing the pith into bacterial cavities. With it we have also produced the bacterial wilt on tobacco.

Furthermore, by needle pricks, using a subculture from a typical colony on an agar plate, which was poured from the interior of one of the wilting tomatoes above referred to, we have not only produced the disease again on tomatoes but also have produced it on several other plants known to be subject to *Bacterium solanacearum, e. g., Datura stramonium, Im-*

patiens Balsamina and *Tropœolum majus*. There can be no doubt, therefore, as to the cause of the disease, and land on which any of the common Solanaceous plants have wilted should not be planted to *Ricinus*, unless it is known positively that the wilt was not of bacterial origin. Dwarfing is usually the first sign of the disease in seedling *Ricinus* plants.

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CELLULOID LANTERN-SLIDES

LANTERN-SLIDES made by the simple process of merely drawing or writing with ink on thin sheets of celluloid are often useful in presenting to an audience simple diagrams and sketches, tabulated data, mathematical expressions, et cetera.

Some years ago Mr. E. D. Tillyer, one of my colleagues at the Bureau of Standards, told me of slides that had been made by tracing on sheets of gelatine, which were afterwards bound between plates of glass to keep them flat. I found these of great use in illustrating a lecture with diagrams that I copied from published articles—far more convenient than blackboard sketches or large paper charts. But the method is subject to three somewhat annoying defects:

(1) Continual clogging of the pen and spreading of the ink while tracing a drawing, (2) impossibility of making inconspicuous erasures, (3) necessity of binding each tracing between two sheets of glass. The first two defects were removed by substituting for the gelatine a less soluble material, the third by constructing a set of glass pockets into which the slides could be slipped.

A slide of simple character can be made by writing or sketching directly upon the sheet of celluloid, using an ordinary steel pen of proper fineness, with india or colored ink. More complicated drawings and diagrams from publications are most easily made by tracing. Mistakes may be erased by wiping with damp cloth or paper. For firm, smooth lines of uniform thickness the ordinary draftsman's tools are needed: straight edge, French curves, ruling pen, and compass pen. Very fine lines are produced by scratching the surface with a needle point. Although scarcely visible on the slide, these will show up black and sharp when projected on the screen. Typewriting directly on the celluloid also projects well.

Other transparent materials can, of course, be used instead of celluloid. Gelatine yields fairly good slides but is difficult to work because of its solubility. Even tracing cloth and waxed paper are usable; although their limited transparency produces a rather dark field, and the texture of the material shows plainly.

To fit the standard 3¼ inch × 4 inch lantern-slide cover-glasses the celluloid should be trimmed to 3 × 3½ inches. During the process of tracing, it is more convenient to have the celluloid somewhat larger than 3 × 3½ inches to allow sufficient margin for holding it against the original by means of thumb-tacks or a paperweight. The margins may be trimmed later, leaving the drawing centrally located on the slide.

A glass pocket to hold celluloid slides in the projecting lantern is easily made from two 3¼ × 4 inch lantern-slide cover-glasses. These are held apart by strips of card, 7/32 inch wide and somewhat thicker than the celluloid, pasted along the entire length of each short edge and along an inch or so at each end of one of the longer edges. The glass plates are bound together by strips of black paper pasted over the edges as in making an ordinary lantern-slide, except that the binding is omitted where the separating strips of card are absent. The longer edge that is entirely free from binding forms the top of the pocket; the central opening left in the opposite edge is for inserting a piece of card to eject the celluloid slide when it can not be shaken out. Both of the longer edges of each glass are ground smooth and are somewhat beveled on the sides that form the interior of the pocket, so as to facilitate insertion and removal of the celluloid. A small white lable in an upper right-hand corner serves as a thumb mark for guiding the lantern operator.