other negatively charged colloids will restore the activity of true cholinesterase. It will be of great interest to determine how effective acacia gum may be in protecting other enzyme systems. Such work is at present in progress.

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SCIENTIFIC APPARATUS AND LABORATORY METHODS

A LIGHT BOX FOR TAKING PHOTOGRAPHS IN BLACK AND WHITE OR COLOR

FOR photographing plants to show disease symptoms a light box (Fig. 1), which overcomes many of the problems usually encountered in taking such pictures, has been built and used at the Agricultural Experiment Station at the University of New Hampshire.

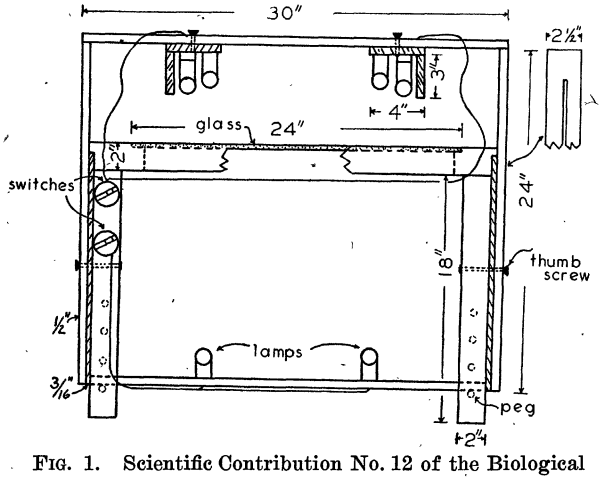

FIG. 1. Scientific Contribution No. 12 of the Biological Institute of the University of New Hampshire.

The box, except for the legs and frame supporting the glass, is made of five-ply (½ in.) and three-ply (3/16 in.) wood as shown. A cover 29 × 29 × ½ in. is used to cover the glass when the box is not in use. The box is painted white inside and varnished on the outside with a light oak stain.

By releasing the thumbscrews on the sides, the frame holding the top-lights may be raised or lowered, the bolts sliding in the grooves in the frame. The top-light reflectors may be moved in or out to fit the object.

Six unmounted General Electric light kits composed of the following parts were mounted directly to the wooden reflectors and base and controlled by the two switches: fluorescent T8 daylight lamp, 15 watt, 24" long; No. 58G670 auxiliary; No. FS2 starter; No. 7019HH, No. 7013HH sockets.

An opal glass 24 × 24 in. flashed on both sides is supported by the 2 × 3 × 29 in. frame, the frame being grooved so that the glass is flush with the wood on the upper surface. The base holding the two bottom lights is adjusted by moving the pegs shown. The camera is mounted above the box on an adjustable frame attached to the wall.

The daylight setting on the photometer, held at the camera lens, is used to determine the exposure for the type of film employed. Regular Kodachrome is used with the fluorescent lamps, thus avoiding the use of filters or shifting to type A Kodachrome which would be necessary if tungsten or photoflood lamps were used. Since the heat from the lamp is negligible, plant specimens and the operator do not wilt during the working period.

With the bottom lights on, the opal glass gives a white background without shadows for specimens up to 20 inches wide.

In photographing mosaic leaves or leaf variegations, the top-lights are moved up and outward or the bottom lights may be moved toward the glass to increase the light transmitted through the lighter areas of the leaf to give greater contrast.

Filters and filter factors may be used as with daylight. Pan X film and a Wratten A (No. 25) filter have given excellent contrast in photographing Halo-blight lesions on bean leaves and raspberry leaf mosaic.

When a black background is desired, a piece of black velvet cloth is placed over the glass with the bottom lights turned off. In photographing specimens with Kodachrome, a large 24 × 24 in. blue blotter may be placed on the glass to give a blue background which to some workers is more pleasing than white for certain plant specimens.

In photographing objects, such as apples or tomatoes, reflection of the lights on the fruits is obtained. This is not objectionable in color photographs as it adds life to the pictures. In black and white, however, it can be avoided by fastening a very thin piece of tissue paper over the lights.

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