regular table by blocks to an amount exactly determined by trial. With 90 X objective and 30 X ocular and with mirror arm fully extended, the microscope base needs raising approximately 1-1/2 inches above the drawing level on the table.

Anthes, E.H. Critical illumination for microscopic research

The need for a correctly designed illuminating unit for use with a research microscope is no less than the need for carefully constructed optics. The Bausch & Lomb Research Lamp is specially designed to meet the requirements of the critical microscopist. Its source, enclosed in a light tight, yet well ventilated housing, consists of a 6 Volt 108 Watt Tungsten Ribbon Filament bulb which is used with a transformer on 110 Volt A.C. The bulb is of the prefocused type which eliminates tedious centering and alignment with the condensing system when lamps are changed. The lamp housing is fitted with a highly corrected condenser with iris diaphragm. The condenser can be focused by means of a lever. A support protruding from the front of the lamp house carries a water cooling cell and filter holder. Since it is necessary to control the intensity of the illumination to meet specific conditions a set of four neutral glass filters are supplied, having densities of 0.3, 0.6, 0.9 and 1.5 respectively. These can be used alone or in conjunction with Wratten or other filters. Best results are obtained when the source or Ribbon filament is focused sharply on the mirror of the microscope. The condenser of the microscope will then form a uniformly illuminated image of the front surface of the condensing system of the lamp in the plane of the object. When the specimen on the microscope is properly illuminated, the field of view will be completely and evenly filled with light if the object is viewed through the eyepiece. In addition, the light entering the microscope objective must completely fill the aperture of the objective. This may be checked by observing the back lens of the objective by removing the eyepiece and by viewing the back lens through a pin hole cap. It will be found that in order to secure the best results the condenser of the microscope should be carefully focused for each objective. In the case of an oil immersion lens, the back lens of the oil immersion should be completely filled with light, thus making certain that its numerical aperature is fully utilized. In the case of a dry objective (4 or 3 mm) the back lens need not be fully illuminated when working with lightly stained specimens as too much light tends to obliterate fine details in the specimen. It is suggested to reduce the iris diaphragm of the condenser of the microscope so that only 2/3 of the aperature of the back lens of such an objective is filled with light. When working with oil immersion lenses, care should be taken that the iris diaphragm in front of the condensing system of the research lamp is reduced as otherwise too much of the object is illuminated resulting in "glare". This field diaphragm should be wide open when low power objectives are employed. The full numerical aperture of an oil

immersion objective is utilized only when cedar wood oil is put between the front of the microscope condenser and the back of the slide. If this condition is not fulfilled, the numerical aperture of the observing objective is reduced to 1 as light leaving the condenser passes through air whose refractive index is 1 as against 1.5 of cedarwood oil.
(This contribution by Mr. E. H. Anthes of the Bausch & Lomb Optical Co. was prepared upon request of the editors.)

Lebedeff, G.A. · Method of mounting the reproductive organs of Drosophila. The fly is placed in a drop of physiological solution and the abdomen is separated from the rest of the body. With two needles the reproductive organs (duct and gonads) are cleared from the rest of the abdominal organs. At this time it is advisable to transfer the organs to another drop of physiological solution (on the same slide) in order to eliminate small bits of foreign tissue which may adhere to the organs. Next, the organs are transferred into a drop of white of egg on to another clean slide (with shallow concavity) where the organs are placed in the desired position. Excess of albumen is removed by means of blotting paper. This transfer helps the organs to adhere to the slide and prevents their drying. After leaving the organs in the white of egg for about 12 to 24 hours, the slide is then placed into absolute alcohol, then transferred into solutions of 85, 50, 35, 15 percent alcohol for about 30 minutes or less in each. Then the slide is ready to be placed in tap water. If it is desired to have the colorless parts of the duct and the ovary differentiated, the slide may be stained with "light green". The testes, however, will preserve natural color. The preparation then is ready for dehydration and is passed through alcohol solution, ending with absolute xylol. Thirty minutes or less is a sufficient period of time for keeping the preparation in each of the alcohol solutions. Finally, the preparation is mounted in balsam or euparal.