



## CAPTURING IMAGES ON THE HIGH-MAGNIFICATION MICROSCOPE

### Introduction

The Olympus BH-2 microscope in ACHS's microscope lab has objectives from 2x to 100x. It is equipped with a digital camera connected to a computer. This setup makes it possible for researchers to capture digital images for analysis, manipulation, and publication. In order to obtain accurate, high-quality images, the microscope, condenser, and camera must be properly configured and adjusted.

This document describes the setup and operation of the high-magnification microscope and digital camera when capturing images of specimens with unpolarized, visible light.

Setup is divided into three sections: initial set up, condenser adjustment, and camera use. The exact method of condenser adjustment depends on the desired level of magnification. These instructions start with the low-magnification setup and then add other steps to adjust for high-magnification viewing.

### Initial Setup

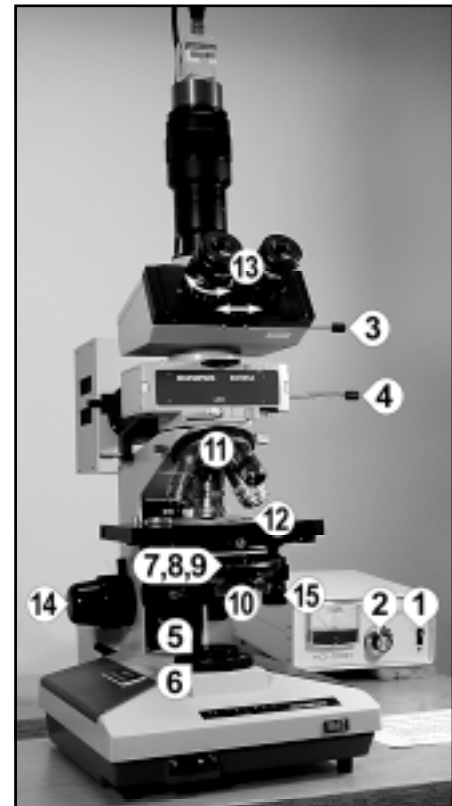
These steps are necessary for viewing brightfield specimens at any magnification. Refer to the picture at right.

- A. Turn on the power supply for the light source (1), and set it to **9 Volts** (2).
- B. Put the beam splitter rod (3) in the **center (green)** position. This divides the light between the eyepiece and the camera.
- C. Pull the fluorescent cube selector (4) all the way **out**. This removes the fluorescent filters from the light path.
- D. Place the light filter labeled LBD-2 (5) over the lower lens. This makes whites whiter and brights brighter.
- E. Rotate the field iris ring (6) clockwise to the fully **open** position.



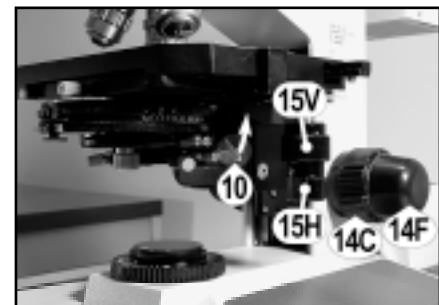
For steps F–H, refer to the photo at left.

- F. Rotate the condenser selection ring so that notch **1** (7) is under the white mark.
- G. Rotate the polarizing selection ring so that the range labeled **AS** (8) is under the white mark.
- H. Rotate the condenser iris adjusting ring (9) to position **0.9** (fully open).



For steps I, M, and O, refer to the photo at right.

- I. Raise the condenser lens lever (10) to move the lens **out** of the light path.
- J. Rotate the lens turret (11) to a low-power objective, either 2x or 4x.
- K. Place your microscope slide on the microscope stage (12) with the stain or cover slip on top.
- L. Move the eyepieces (13) to set the proper interpupillary distance.
- M. Close your left eye, and use the coarse (14C) and fine (14F) focus knobs to bring your specimen into focus in the right eyepiece.
- N. Close your right eye, and rotate the outer ring of the left eyepiece to bring the specimen into focus in that eyepiece as well.
- O. Use the stage translation knobs (15V, 15H) to move your specimen in the field of view. The top knob moves the image vertically; the bottom knob moves the image horizontally.



### Adjustments for the 2x and 4x Objectives (and Sometimes 10x)

At low magnification, the condenser does not have much effect on the lighting of the specimen.

1. Adjust the fine focus if you change objectives.
2. Contrast is improved by gradually closing the field iris (6). Resolution is improved by gradually opening the field iris.