OPERATION OF THE SDSU AX70 UPRIGHT MICROSCOPE

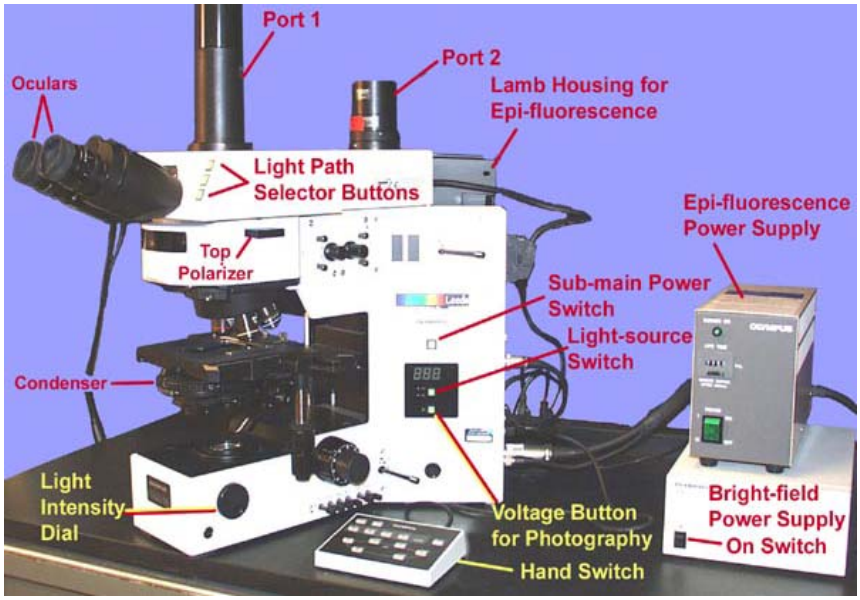

Figure 1

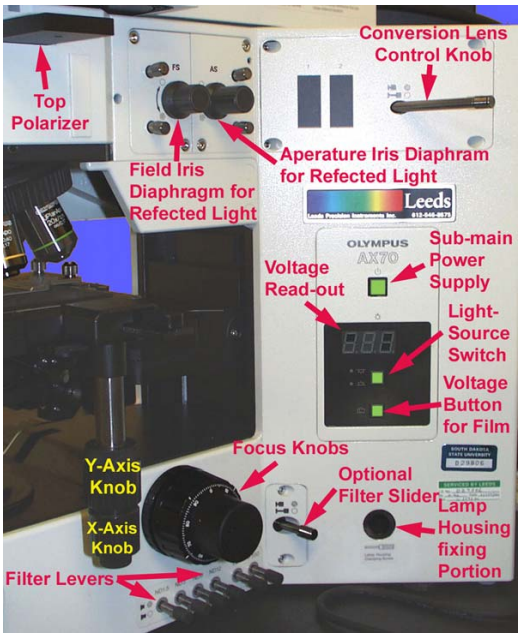

Figure 2

Figure 3

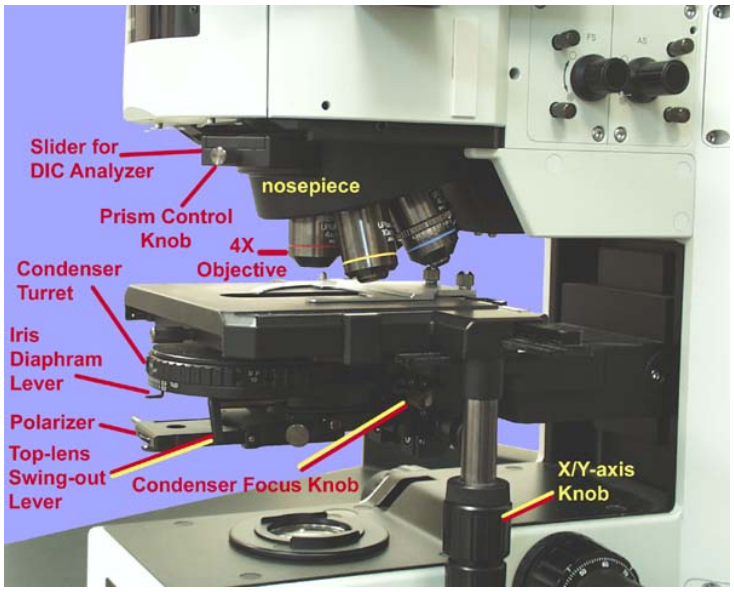

Figure 4

Microscope Procedure

1. Turn on the "**Bright-field Power Supply** by pushing in on the **On/Off Switch**" (Figure 1).
2. Turn on "**Sub-main Power Switch**" (on microscope frame) by pushing in on that button (Figures 1 & 2); the **Voltage Readout** display should light up, indicating the current voltage (Figure 2) and the microscope light should be visible coming up from the microscope base.
3. If the voltage readout does not light up, try pushing the **Switch for Transmitted Light** on the **Hand Switch** (Figure 7); if the microscope light still doesn't turn on, determine if the **Light Source Switch**

(Figure 2) is indicating that the light is coming up from the bottom of the microscope; if it isn't, push that button so that the light is coming from the bottom; if the microscope bulb still does not turn on, then the bulb might be blown out and so contact either Dr. Gu or Hildreth.

4. Looking through the **Oculars**, turn the **Light Intensity Dial** (Figure 1) until the light intensity is comfortable to your eyes (typically 3-5 volts); if you cannot change the voltage when turning the dial ("stuck" on 9 volts), then press the **Voltage Button for Film** (Figure 2), and then readjust the voltage.
5. If you cannot see the light coming through the oculars, slide the **Manual Light-Path Slider Bar** (Figure 11) on the microscope head completely in for observation through the oculars.

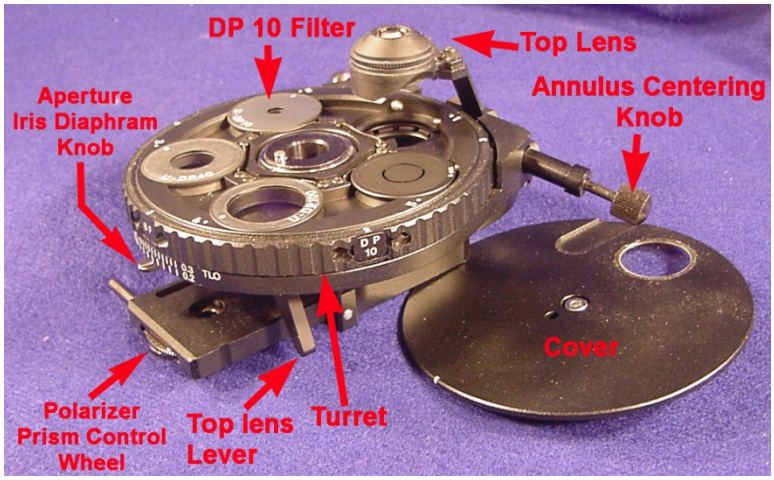

Figure 5

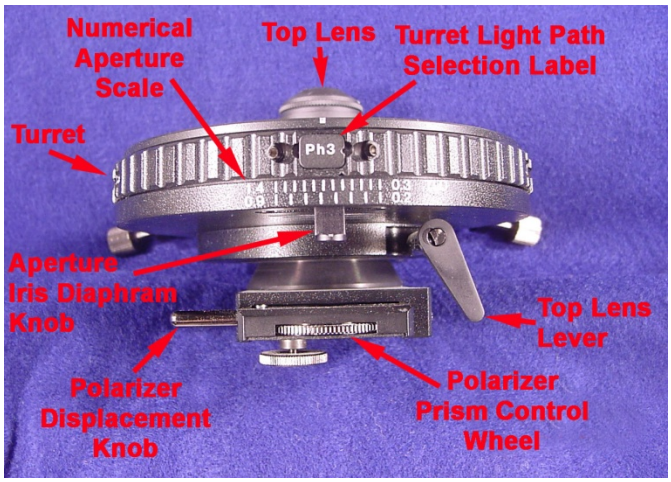

Figure 6

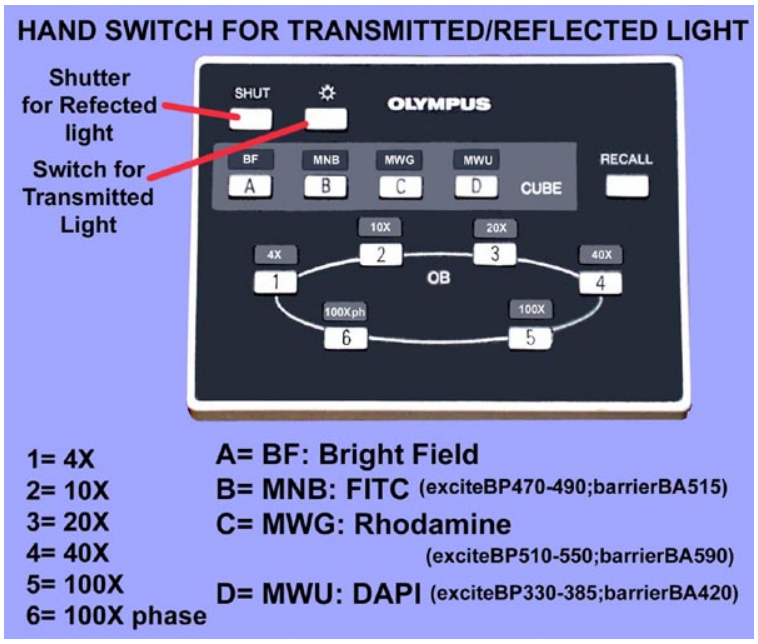

Figure 7

6. Verify that the microscope components listed below are set to their Starting and Ending Positions (make sure that you return them to this position when you finish using the microscope).
    a. **Objective** (Figure 4) at 4X (rotate the nosepiece so the 4X objective is pointing straight down)
    b. **Manual Light-Path Slider Bar** (Figure 11) on the microscope head pushed in completely for observation through the eyepieces (oculars)
    c. **Condenser Top-lens** (Figures 4-6) pushed to the "in" or "up" position (push the lever down)
    d. **Condenser polarizer** (Figure 4, at the bottom of the condenser) pulled out of the light path.

e. "**Condenser Turret**" (Figure 4-5) selected to BF (bright-field)
f. "**Condenser Iris Diaphragm Level**" (Figures 4-6, in condenser) open completely (to the left-most position)
g. "**Field Iris Diaphragm Ring**" (Figure 3) completely open
h. "**Switch for Transmitted Light**" (Figure 7; button on the Hand Switch for Transmitted/Reflected Light) pushed to the on position
i. **"Filter Cube"** on hand switch (Figure 7) to the "A" position for bright-field; selection can be verified by seeing a "AO" in the mirror cube indicator window.
j. All "**Built-in Filter Levers**" (Figure 2) in their out position (to get them to their out position, slightly press in on one of the levers until all of the lever pop out)
k. **Optional Filter Slider** (Figure 2, for frosted filter) pushed in

7. Adjust the interpupillary distance (distance between the 2 oculars, Figure 8) by swinging out the oculars until they are comfortable for your eyes (i.e. left and right fields of view coincide completely)


Figure 8

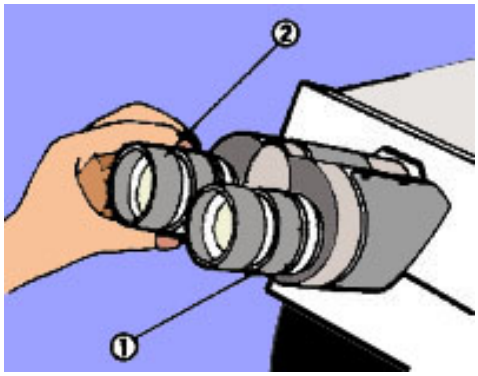

Figure 9

8. Place a microscope slide on the stage and clip it into the **Specimen Holder**
9. Find an area of interest on the specimen slide with the 4X objective; switch to the 10X objective and then focus the specimen with the "**Course and Fine Focus Knobs**" (Figure 2) using the right ocular only
10. Close your right eye, and focus the specimen with the left eye by turning the top of the left ocular until the specimen comes into focus (Figure 9).
11. Make sure that the "**Condenser Top Lens**" (Figures 4-6) is swung to the up position
12. Close down the "**Field Iris Diaphragm Ring**" (Figure 3) to about 50% of the field of view
13. Position the opening of the iris diaphragm into the center of the field of view (Figure 10) using the "**Condenser Centering Screws**" located under the stage (Figure 3).
14. Use the **condenser focusing knob** (Figure 4) to raise or lower the condenser until the edges of the iris diaphragm ring are in focus (Figure 10).
15. Open up the **field iris diaphragm ring** until the ring is just out of the field of view (adjust accordingly for each objective used)

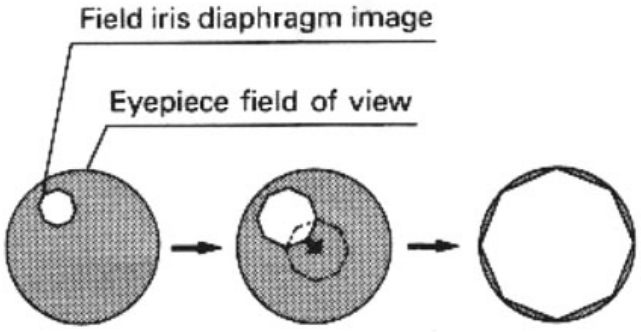

Figure 10

16. Adjust the **Condenser Iris Diaphragm Level** to match the numerical apperature (N.A.) of the objective (you can close it down more if contrast is needed up to 80% of the N.A.)

17. Observe the specimen through the oculars and focus the image
18. When changing magnification, it is necessary to re-adjust the **Field Iris Diaphragm Ring** to keep the ring just outside the field of view

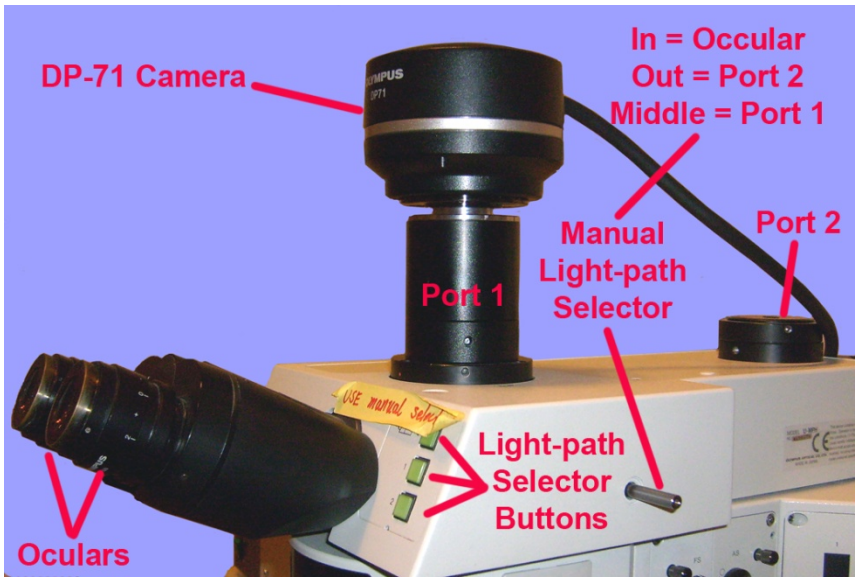

Figure 11

19. If you need to take any photographs, use the **Manual Light-Path Selector**-bar to select Port 1 (by sliding it to the middle position),
20. then follow the directions provided in the website for the Olympus DP70 Digital Camera
21. When finished for the session, return microscope components listed above to their proper positions (see above)
22. Turn off "**Sub-main Power Switch**" (Figure 1 & 2) on microscope frame) by pushing in on that button
23. Turn off the "**Bright-field Power Supply** (Figure 1) by pushing in on the **On/Off Switch**"
24. Replace the plastic cover on the microscope