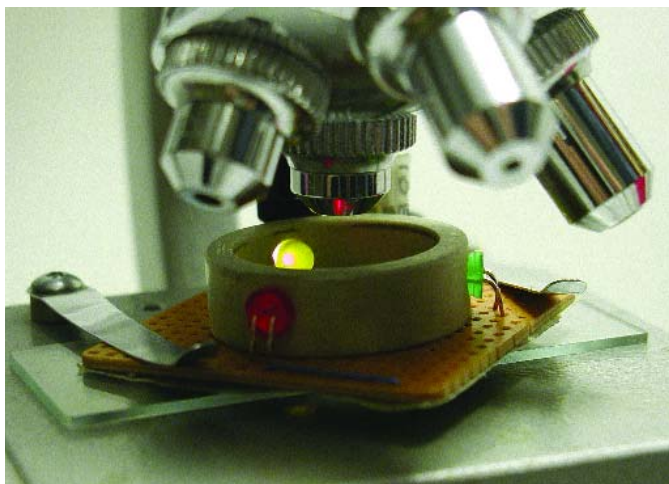


# Microscope 2.5-D Lighting

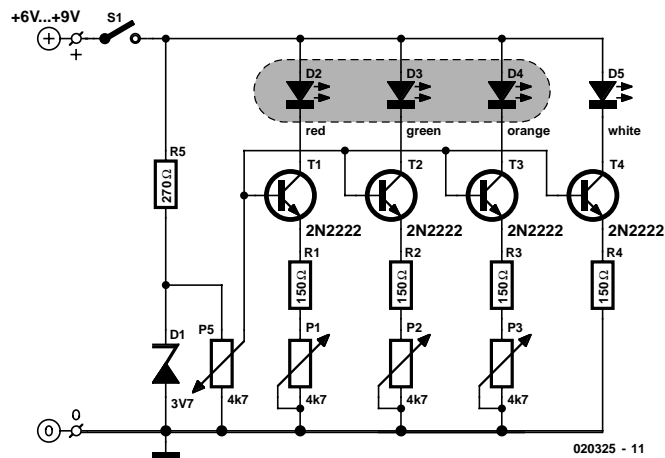
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## A. Bauer

Interesting, surprising as well as scientifically useful visual effects can be obtained by employing coloured LEDs instead of the normal lamp fitted in the lighting assembly in a microscope base. Of course, the lamp can be simply replaced by a white LED with appropriate changes in the supply current/voltage etc., but it is more interesting to have three colours available — here, red, green and orange (amber) which are individually adjustable for intensity.

The dashed line around LEDs D2, D3 and D4 indicates that they are fitted in a 10 mm long section of 1-inch plastic (PVC) pipe. The 5-mm holes for the LEDs are drilled at an angle so that the LED beams are pointed downwards at the centre of the holder. As shown in the photograph, a small piece of veroboard can be fitted under the ring, with a 1-inch hole in it so



that the centre of the ring remains open, allowing the assembly to be placed on top of the glass specimen carrier. The PCB, which is held secured to the ring by the LED wires, allows wires to be run between the lighting assembly and the driver electronics fitted in the microscope base.

The white LED, D5, takes the place of the (6-V) lamp in the lamp holder, and is connected to the driver circuit by wires. The potentiometers P1, P2 and P3 allow the intensity of each colour to be individually adjusted, while P5 acts as the master intensity control. Space allowing, the pots may be fitted in the microscope base. If there are problems with reflections in the ring, paint the inside black. Finally, in most microscopes there is a need for strong lighting which pleads for high-intensity LEDs to be applied in this circuit.