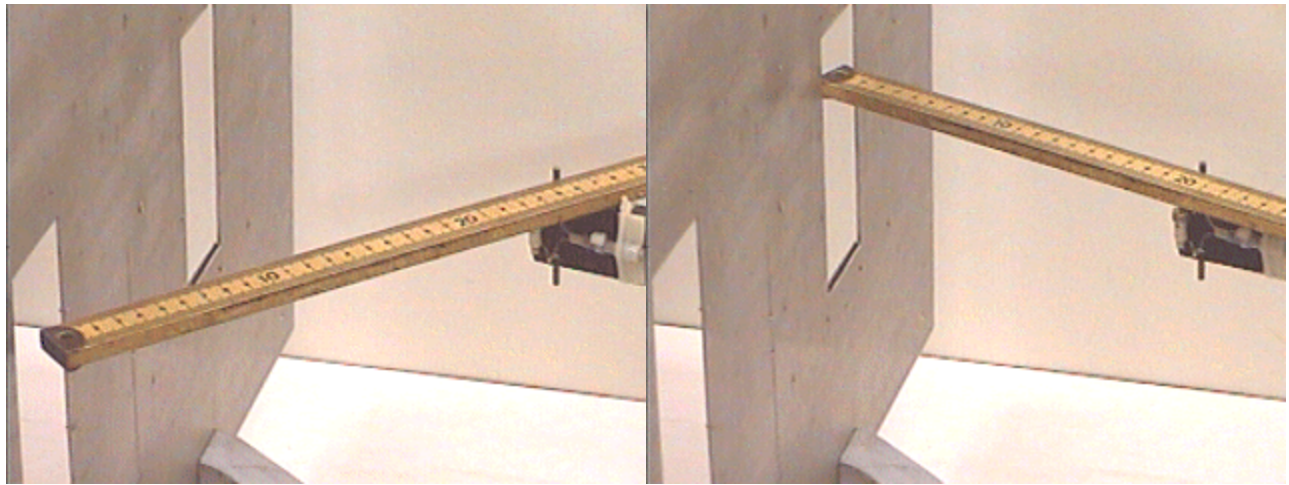# Question #146

A microwave double slit interference experiment is shown in the photograph below at the left, with a close-ups of the slits shown at the center and right. The source, at the left, produces microwaves that pass through the slits. The antenna at the right picks up the combined signal coming through the two slits and displays it using a meter on an overhead projector, as seen in the photographs.
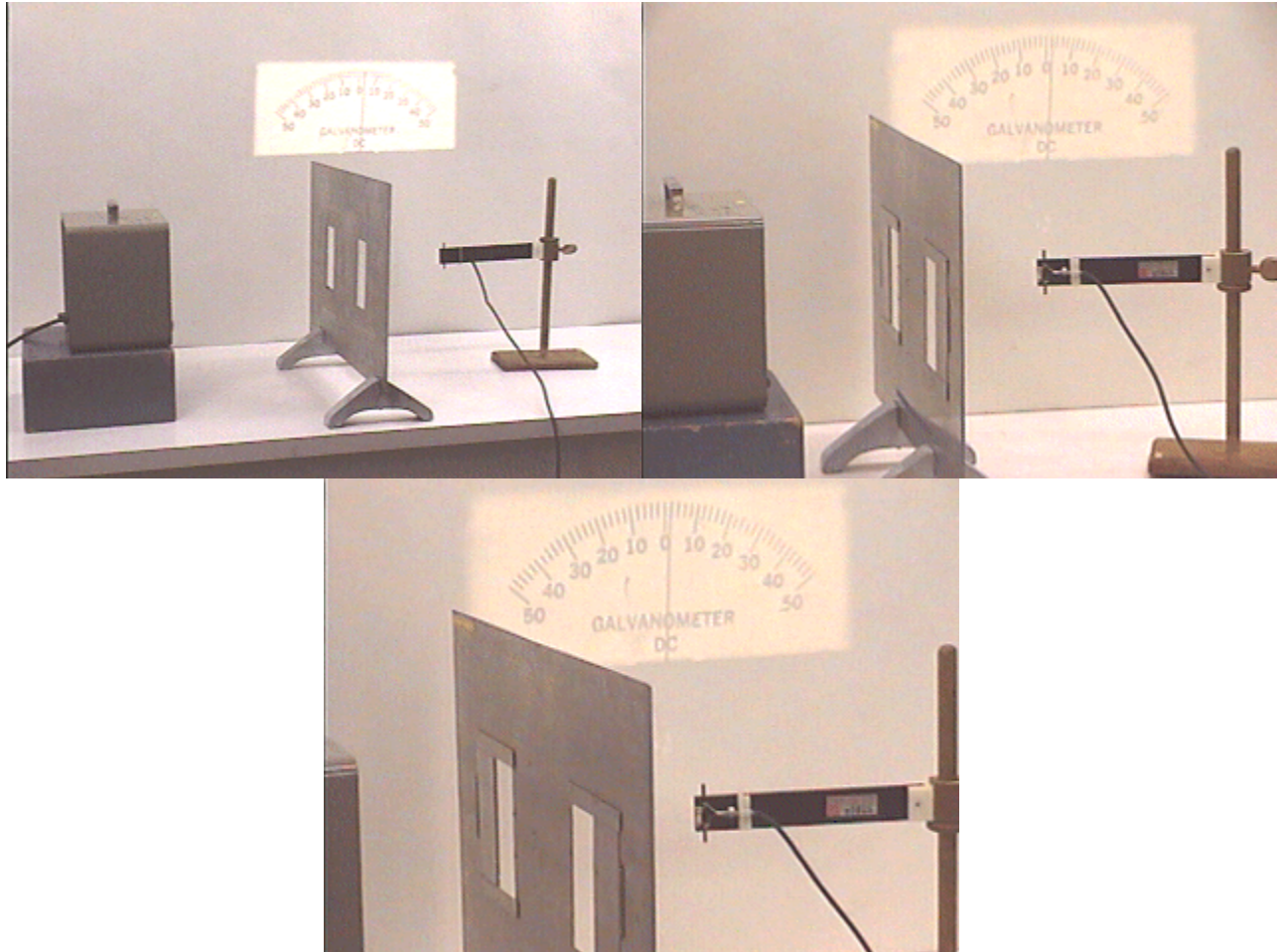
The distance from the source to both of the slits is equal. The distance from the front slit to the detector antenna, seen in the photograph at the left below, is about 26 cm, while the distance from the rear slit to the receiver is about 20 cm, as seen in the photograph at the right. The wavelength of the microwave source is about 12 cm. There seems to be about one microampere of microwave radiation coming through the two slits to the antenna, as seen on the microammeter in the pictures above.

Now suppose that the front slit is closed. What will happen after the slit has been closed?

- (a) The reading will be greater.
- (b) The reading will be less.
- (c) The reading will remain about the same.

Click here for <u>Answer #146</u> after April 7, 2002.

For questions and comments regarding the *Question of the Week* contact <u>Dr. Richard E. Berg</u> by e-mail or using phone number or regular mail address given on the <u>Lecture-Demonstration Home Page</u>.