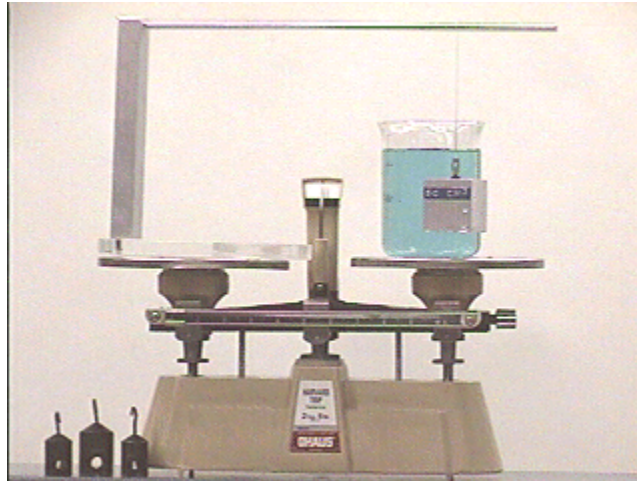# Question #40

A beaker of water is in equilibrium with an aluminum mass rigged on a beam as seen in the photograph below. At the left of the photograph are three hooked weights, including two 50g and one 100g masses. Note that in the photograph the hanging weight is in front of the beaker of water and is not touching the beaker or hanging into the water.

Now suppose that the mass on the beam, which has a volume of exactly 50 cubic centimeters, is rotated and placed into the water. This may make the system unbalanced, and require some mass to be put on one of the pans in order to re-establish equilibrium. Or it may not.

Which of the following actions would make the system achieve equilibrium after the 50cc cube hanging from a beam on the left pan is placed into the water on the right pan?

- (a) placing 50 grams onto the left pan.
- (b) placing 50 grams onto the right pan.
- (c) placing 100 grams onto the left pan.
- (d) placing 100 grams onto the right pan.
- (e) placing 150 grams onto the left pan.
- (f) placing 150 grams onto the right pan.
- (g) no additional mass is required; the system will remain in equilibrium.

Click here for [Answer #40](#) after November 27, 2000.

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