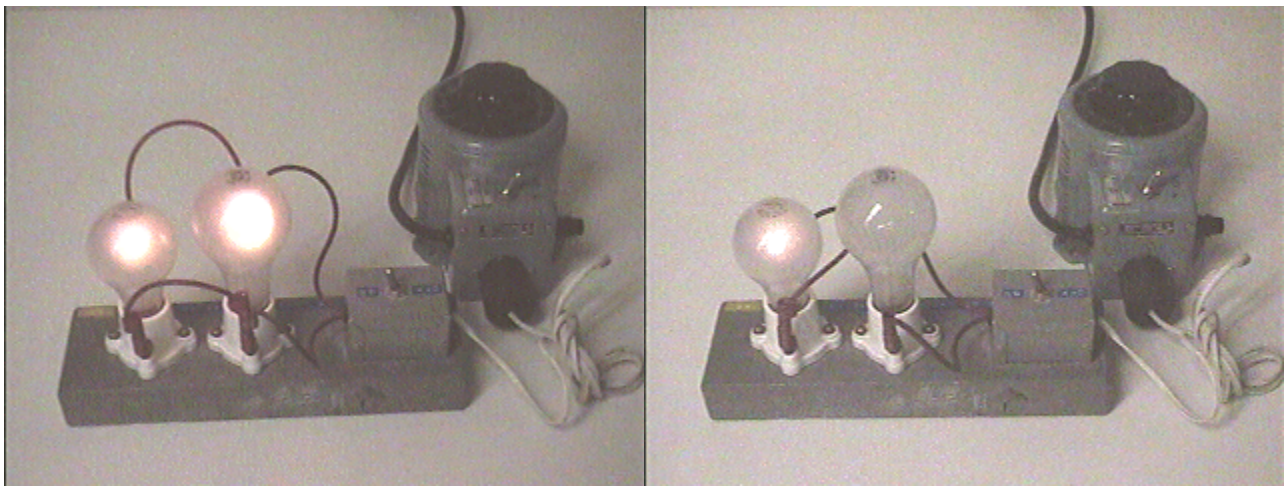
Answer #27

The answer is (b): the smaller bulb will glow more brightly, as seen in the figure at the right below.



A small light bulb has more resistance than a large one, so that it will pass less current and consume less power:

$$P=VI=V^2/R.$$

However, when the two bulbs are connected in series, the larger resistance has the greater voltage drop across it, while the currents in the two bulbs are the same:

$$P=VI,$$

so the *smaller* bulb consumes more power and therefore glows more brightly.

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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.