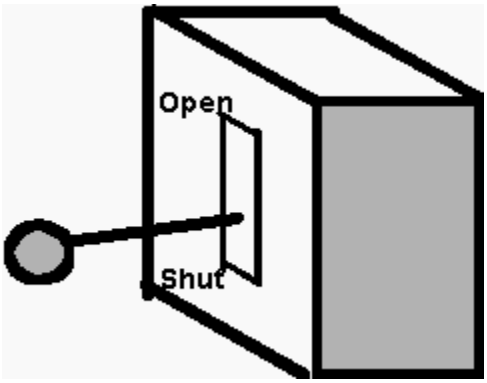
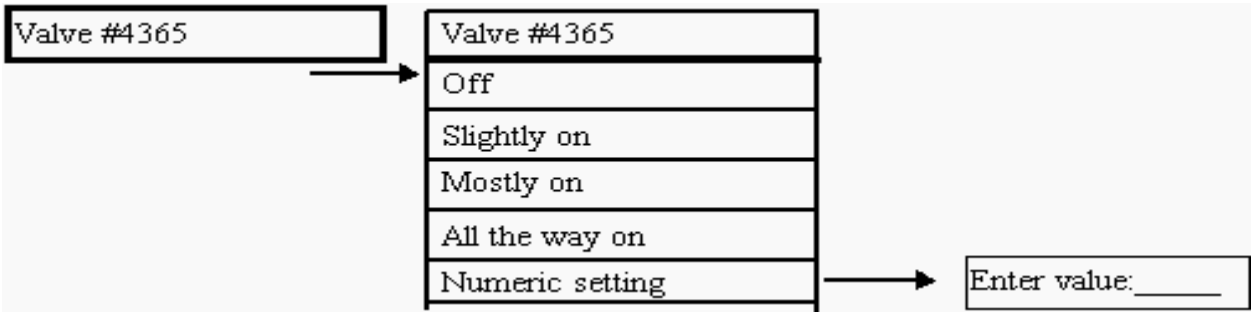
Exercise: Applying the Psychology of Everyday Things

A particular power plant had many valves situated around the plant. When something had to be changed, operators had to physically walk to the room where a particular valve was located, and move it by hand to the desired setting. The physical valve was controlled by a lever that looked something like this. If the lever was in between the two positions, the valve would be partially open.



The valves recently became motorized and controlled by computer. Elroy and his team was asked to create a new interface widget that represented these valves on the operator's display. After thinking about it, they decided that this valve could be powerfully modeled by combining conventional buttons, popup menus and dialog boxes as follows:



Here's how the widget worked.

1. The button (on the left of the figure) works as follows (note the shortcuts):
    - left mouse button: pop up the menu (shown on the right)
    - middle mouse button: turn the valve off
    - right mouse button: turn the valve all the way on
    - shift left mouse button: set the valve slightly open
    - shift middle mouse button: set the valve mostly open
    - shift right mouse button: bring up value numeric setting dialog box

2. When the menu is raised, a person moves the mouse over the desired item and then releases the mouse button on it. The menu disappears, and the valve is adjusted by the system.
3. If the 'numeric setting' menu is selected, a small dialog box is raised and the person enters a value between 0 and 1000, where 0 is off and 1000 is fully open. This allows the operator a fine degree of control over the valve.

Using your knowledge of design, critique this design, sketch an alternative control, and justify the new controls.