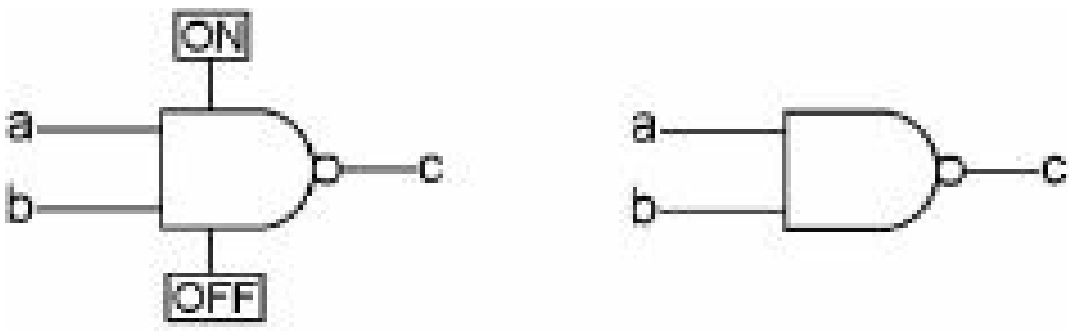
gate generates a third bit from two other bits, it doesn't open and close or stop or let anything through. The meaning of this computer term "gate" doesn't seem to fit into the common meaning of the word, but sorry, I didn't make up the name, that's just what it is called. You'll get used to it. At least it isn't some long word from the ancient Greek.

In the next few chapters, we are going to show how we can do something useful by connecting several gates together. We will use drawings like the following. The 'D' shape with the little circle at its tip represents the device we have described, and the lines represent the wires going in and coming out of it that get attached to other parts of the computer. The picture on the left shows a gate complete with its power wires, but as promised, we won't be concerned with them for the rest of this book. The drawing on the right shows everything we need:



This is a representation of a gate. The two wires on the left (a and b) are the inputs, and the wire on the right (c) is the output. All three wires are bits, which means that they are either on or off. Each input bit comes from somewhere else in the computer and is either on or off depending on what is happening where it came from, and then this gate sets its output on or off depending on the states of its two inputs.

Sometimes it is useful to make a little chart that shows how the various input combinations create the output, like this:

a	b	c