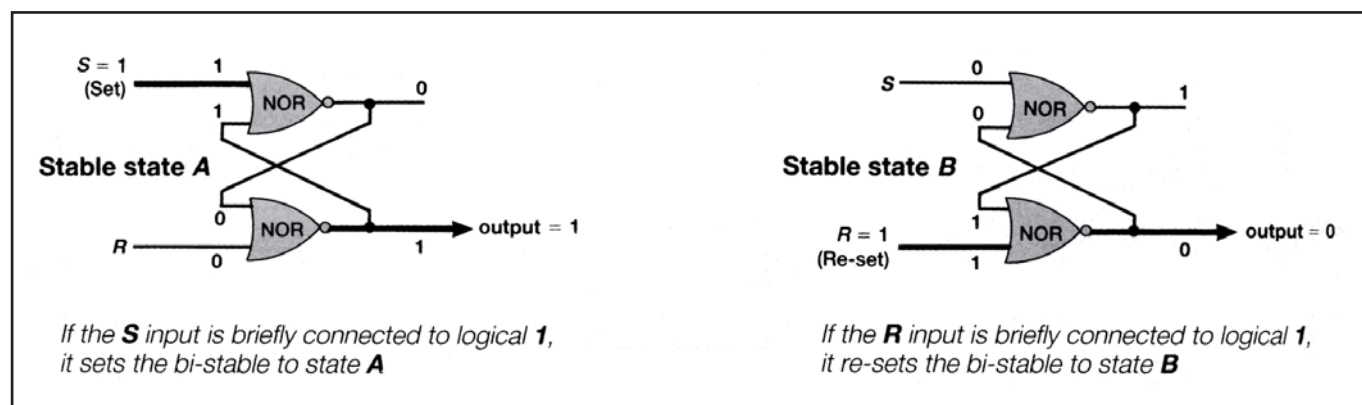


Some circuits can store information - they have a memory. Computers need memory circuits to store data.

The simplest memory circuit uses two NOR gates which are cross-connected.

This is called a **bi-stable** or a **flip-flop**, because it has *two* stable states.

Study the diagrams:



The circuit flips between state A and state B.

You should check the logic of each NOR gate (see the Truth Table on page 329).

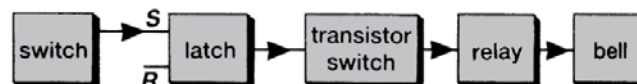
In effect the circuit remembers or 'latches' the last thing that happened to it.

A computer contains millions of these bi-stables in its RAM (Random Access Memory, see page 320). Each bi-stable can store one 'bit' of information.



Experiment A burglar alarm with a latch

If a burglar triggers a sensor, the alarm bell should continue to ring even after he has moved past the sensor. Try this system:



The switch might be a pressure switch under your door mat. What happens when you press the switch for just a moment?

The alarm stays on because the bi-stable latch 'remembers' that the burglar was there.

How can you re-set the circuit?