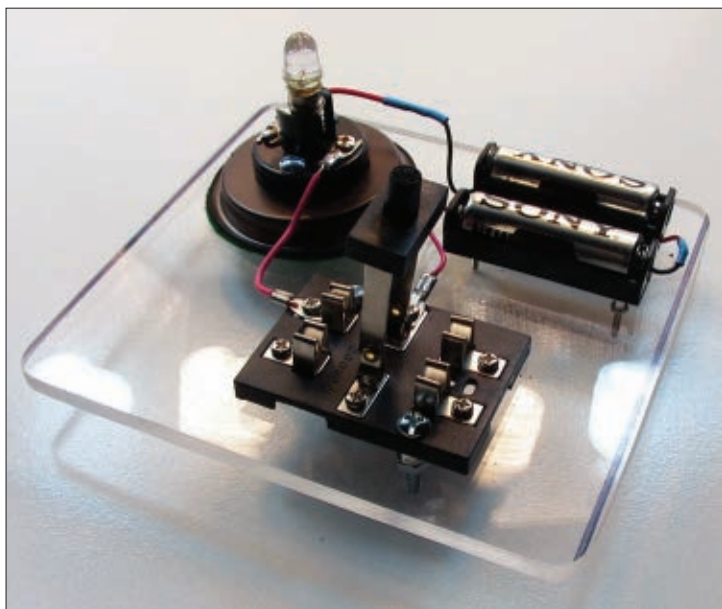




BUILD A LITTLE ELECTRONIC MISCHIEF

BY WALTER NOON III



Free energy, aliens, psychic phenomenon ... Why is it that we just can't stop clicking on these things everytime we see them on the net?

I think that the answer is pretty simple because whether you love or hate them, they're almost always highly entertaining!

For this article, I am going to focus on real ESP! That is to say, this is an article in which we have "everything strictly phoney."

With April 1st just around the corner, it's my strong suggestion that we dust off the saw in the garage, warm up the soldering iron, and create a project designed to confound, confuse, and even possibly cause concern to all the engineering minds who encounter it! I'm talking about

P.T. Barnum's great American pastime: the humbug.

In this article, we'll feature two devices. One is a classic source of circuitry illogic and confusion (and who hasn't been there in the real world) that will cause one of the simplest circuits possible to give "impossible" results.

The other is a simple — yet seemingly incontrovertible — demonstration of both free energy and perpetual motion.

The thinking behind the creation of these devices is addictive! I hope it will spur many thoughts and a little electronic mischief from *Nut & Volts* readers. I'm always ready to be humbugged myself, and hope to hear of some of your designs.

Perhaps we could create a running feature for every April Fool's Day!

The Perplexer

Our first candidate for confusion is the infamous Perplexer circuit. Oddly, I remember seeing one of these in an old electronics magazine from the early 1900s.

The basic gag is simple. A wooden block has a switch, a battery, and a light bulb. All the wires between the

components seem to be clearly visible. However, when the switch is closed on the circuit, the light goes off instead of on! Then, when the switch is opened (clearly leaving no electrical path to the bulb) the light comes back on!

Everything is fully inspectable, and the very simplicity of the device is one of the strongest confounding factors in the illusion.

The method is simple, of course, and hidden inside what appears to be a solid wooden block are the real wires that connect to the lamp base. Closing the switch simply shorts the connection!

A wooden block may have been great for the 1900s, but with the amazing components we have today, we are going to take this great little illusion up a huge step! **Figure 1** shows my attempt to modernize and (hopefully) improve this classic illusion.

In place of a wooden block (where things could be hidden), we now have our circuit on a completely transparent piece of Plexiglas®, with all the wires and components isolated and completely visible from both sides of the board.

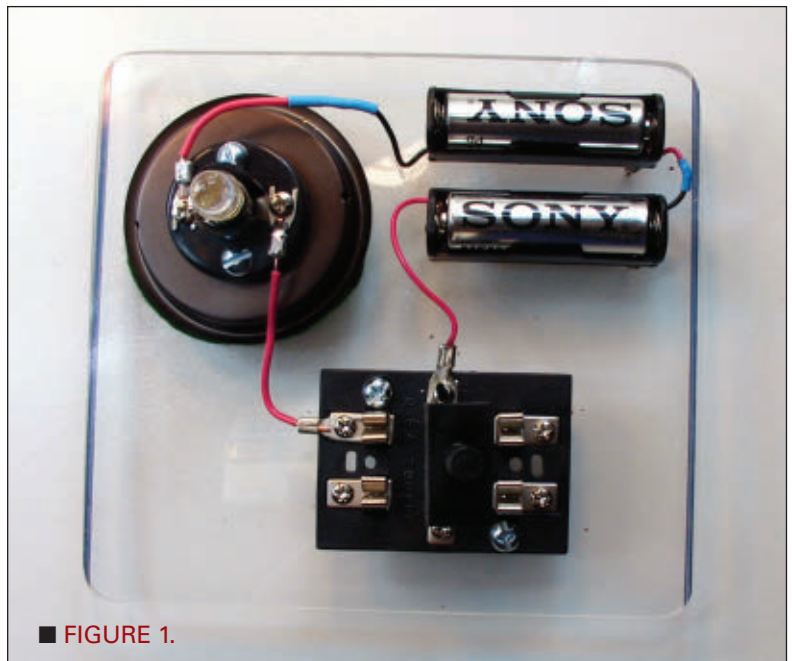
An old style "knife" switch is used (making it obvious contact has been made), and it's even possible for the skeptical to trace the circuit with a VOM — everything will read correctly right to the bulb! Yet, when the switch is thrown the light will extinguish; when the switch is opened, the light will stubbornly stay on. If that isn't enough to cause confusion, the light will return to normal function and operate properly at your command!

The Workings

The secret of the new circuit is shown in **Schematic 1**. Inside the tiny base hidden under the light bulb is a small lithium cell and basic inverter circuit which actually power and control the light. The function of the circuit is as follows:

- B2 is the pair of AA batteries seen mounted to the Plexiglass, and B1 is the small lithium battery hidden in the lamp base.
- When S1 is closed, LED 1 lights, triggering phototransistor Q2.

Note: You can use an optoisolator for this combo. I happened to use an LED (RadioShack #276-0019) and phototransistor (RadioShack #276-145) which I had on



■ **FIGURE 1.**

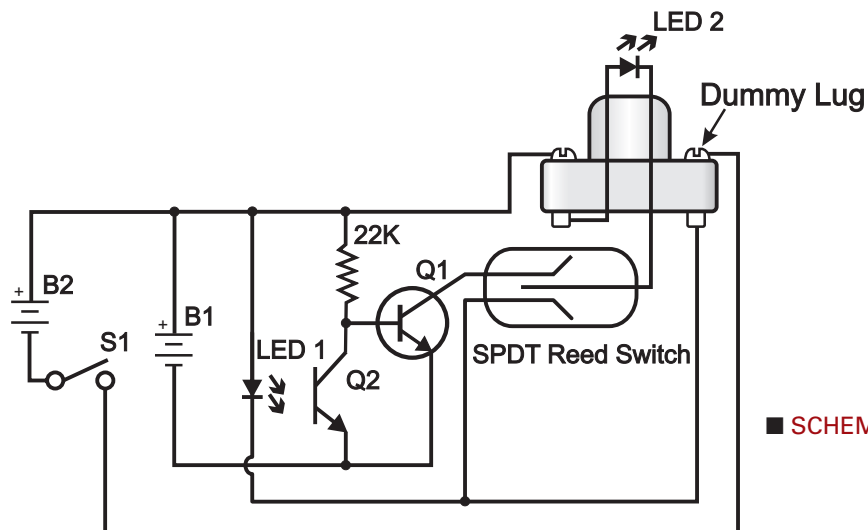
hand. I linked them nose to nose in a piece of heat shrink tubing. Don't forget the proper current-limiting resistor for the LED if you use an optoisolator.

- Q2 pulls Q1 low, and the light goes out.
- When S1 is again opened, the light will — of course — go back on.

In addition to this, I added an SPDT magnetic reed switch. The reed switch determines whether the circuit will act normally, or in reverse. This is the gimmick that allows you to secretly control the circuit's forward or reverse operation.

Mechanical Modifications

In addition to the circuitry, a few mechanical



■ **SCHEMATIC 1.**