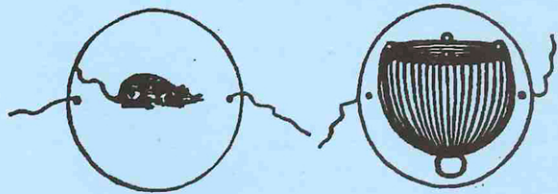


The thaumatrope

History & drawing instructions

"One day (Sir John) Herschel, sitting with me after dinner, amusing himself by spinning a pear upon the table, suddenly asked whether I could show him the two sides of a shilling at the same moment. I took out of my pocket a shilling, and holding it up before the looking-glass, pointed out my method. 'No' said my friend, 'that won't do'; then spinning my shilling upon the table, he pointed out his method of seeing both sides at once. The next day I mentioned the anecdote to the late Dr. Fitton, who a few days after brought me a beautiful illustration of the principle. It consisted of a disc of card suspended between two pieces of sewing-silk.

These threads being held between the finger and thumb of each hand, were then made to turn quickly, when the disc of card, of course, revolved also. Upon one side of this disc of card was painted a bird; upon the other side, an empty cage. On turning the thread rapidly the bird appeared to have got inside the cage. . . . Some months after, during dinner at the Royal



Society Club . . . I heard (talk of) a wonderful invention of Dr. Paris, the object of which I could not quite understand. It was called the thaumatrope, and was said to be sold at the Royal Institution, in Albemarle Street.

“Suspecting that it had some connection with our unnamed toy, I went next morning and purchased for seven shillings and sixpence a thaumatrope, which I afterwards sent down to Slough (the Herschel homestead) to the late lady Herschel. It was precisely the thing which her son . . . had contributed to invent, which amused all their friends for a time and then had been forgotten.”

—from “Passages from the Life
of a Philosopher”

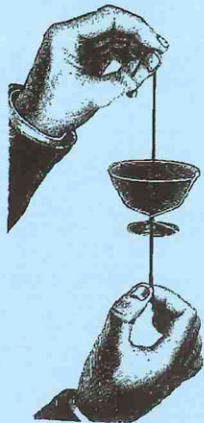
The autobiography of Charles Babbage,
the inventor of the 1st computer

About 200 years ago in the late 1700's and the early 1800's, scientists began noting a strange phenomenon whereby an object in rapid motion might leave traces of its image while actually being in another position. If an object were moving fast enough, it would appear to blur in a stream of positions. This phenomenon was soon called “persistence of vision”. The eye retains an image it has seen for a split second. One of the most common

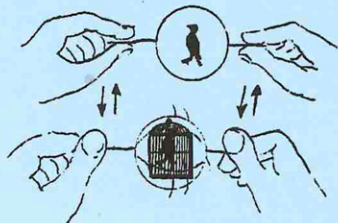
occurrences is the fourth of July sparkler. When you whirl it around, you see more than just the point of the sparkler rod, you also see a stream of the path of the whirling. In the 1820's, to show this newly discovered phenomenon, a spinning disc device was created, such that one could see images that were printed on either side as if combined into one picture. The device was called the thaumatrope, from Greek words meaning spinning wonder. Though it began as a scientific curiosity, it became a wildly popular toy. It was sold commercially in sets, and often used for political satire. There are even fine, antique examples to be found that are

one-of-a-kind drawings, something that someone once drew for their own amusement.

Here is a interesting example of persistence of vision that you can do for yourself. Take a piece of string, or a cut length of rubber band, that has some thickness to it. Take a thin piece of wire (a paper clip will work) and bend it into any sort of shape. Pierce an end through the string or rubber and catch it in place at a bend



in the wire. Spin the string by holding it at either end with thumb and forefinger. As you spin fast enough the wire will appear to envelope a 3-dimensional shape. With some practice you can create shapes in the wire that will create various shapes, like drinking glasses, bottles or vases.



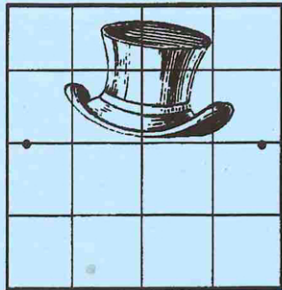
Thaumatrope are spun in much the same way, but instead of focussing on the illusion of 3-dimensions created by the card, you view what is pictured

on both sides of the card, as if they were one picture. Try viewing some of the examples included. The discs in this package were first published in France in the late 19th century.

Thaumatrope are pretty easy to make. If you want you can plunge right into it, drawing part of an image on one side of the disc and the rest on the other side. But with a little care, you can place the images with certainty and precision.

Take the thaumatrope blank that is provided. With a light pencil, draw in a grid of equally spaced lines, the same being on both sides. In the least, you could get by with just a cross that is drawn

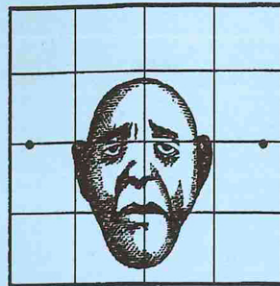
Edge A



both vertically and horizontally through the center. This grid, or cross, will help you to place both parts of the split-up drawing, so that when it is spun, both parts come back together in just the right positions.

Now, you can start your drawing. Try some-

thing simple. Maybe a cartoon face, for starters. On one side of the disc, draw only part of the face, perhaps leaving out the hat as in the example



Edge A (opposite)

shown here. (Another idea would be to leave out parts of the face.) Flip the card over, making certain that you flip top for bottom, and bottom for top, with the drawing facing away from you, or around the horizontal axis of the card. You will draw the completing picture now in a right-side up fashion. If you could see through the card, you would now see your first picture upside-down. You must turn the card over in this way to insure that when

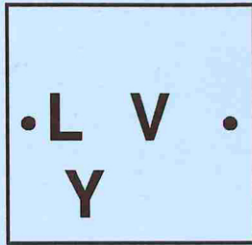
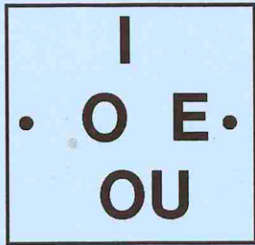
you are finished, the twirling thaumatrope shows each image facing in the same direction.

But take a peek at your first drawing. Find where the missing hat or facial parts should be on the grid. Are they missing in the upper left square? Should an eye be placed in the 2nd square from the left on the 2nd row? In the example above, what row is the top of the head for placing the bottom of the hat? As you judge this, keep it in mind as you flip the disc over. You are using a grid as a way to transfer and place parts of your drawings. Now, draw the missing facial part in the areas where you judge they need to be. At this stage,

don't worry about being too exact. If there are other parts you need to add, do the same for them; flip the card often to the other side to help you with placement. When you are done, try a few twirls and see how it looks.

What other types of pictures might work well on a thaumatrope? Consider an element of surprise, where the viewer won't know what to expect until the disc is twirled. You don't even have to draw. Cut out two pictures from a magazine. Glue one of them on one side of the disc, flip it over and glue the other picture there. This toy works great for split messages, where you'll have part of a

phrase on one side, and the rest of the message on the other. For instance, "Happy" on one side, and "Birthday" on the other. Or you can create "secret code" such as the message shown below.



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