



## Ben Gets the Blues

**FOR AMERICANS, GREEN** means success, but our color lexicon may have to change when the government issues a multihued \$100 note in October. The latest in a series of redesigned notes, the new bill has less green than any C-note since the government began issuing federally backed currency in 1862 (not including the "Rainbow Notes" of 1869). For starters, the new bill's face has a blue background and "security ribbon," which is filled with tiny "100s" and adjacent Liberty Bells that appear when tilted. That also causes a copper-colored Liberty Bell that sits inside a copper-colored inkwell to appear green. Such paper pyrotechnics are called for because about two out of three Benjamins end up abroad, where they are more prone to counterfeiting. But the bill's other side remains mostly true to the hue of the original forgery-proof ink used to print the first bills. So you can still call it a greenback.

—PRESTON LERNER

### COLOR

OPTICAL ART BY  
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# Gaming the Brain

What happens when your eyes and brain don't agree?

**Focus on the ball** at the center of the image below. The scene appears to vibrate. If you move your head slightly forward and backward, the color fields of the rosette appear to pulsate.

Scientists have several theories about how our eyes and brain collaborate to create the illusion of movement—although the precise neural mechanics remain unknown. Still, what we do know makes it possible for artists such as myself to design visual pranks.

This vibrating rosette combines several illusory effects. To begin with, when

we fixate on a pattern, it momentarily remains on our retinas as an after-image. One theory is that small, involuntary eye movements cause this ghost image to overlap with the image on the page. The result is what's called a moiré effect: similar, repetitive patterns merged together at slightly different angles, creating a rippling effect. I enhanced this effect by adding two high-contrast colors, blue and yellow.

Also, when we approach an object, our brain normally makes adjustments so that the object's size and

brightness appear to remain constant. But when you move your head back and forth, the alternating dark and light patterns in my rosette seem to change in both size and brightness. One possible explanation is that our visual system cannot bring the blurred boundaries within the image into focus, and our brain cannot adjust.

Seeing is believing—except when the mind can be tricked into believing what it sees. —GIANNI SARCONI

See more of Sarcone's optical illusions at [Smithsonian.com/sarcone](http://Smithsonian.com/sarcone)

