

Long Gone or Gone Wrong?

Last November, Mont Hubbard and colleagues argued in the *American Journal of Physics* that a well-hit curveball would sail farther than a perfectly struck fastball—even though the curveball moves slower and packs less energy, both before and after it's walloped. That's because a batted ball travels farther if it has more backspin to give it aerodynamic lift. The top-spinning curveball approaches the batter already turning in a direction that increases the backspin of the batted ball. On the other hand, the back-spinning fastball comes at the batter spinning the wrong way, which decreases the backspin of the outgoing orb. As a result, an optimally struck curveball will travel around 455 feet (138 meters), about 12 feet (3.5 meters) farther than a well-hit fastball.

Not so, contends Robert Adair, a physicist at Yale University and author of *The Physics of Baseball*. Although he can't say precisely what's wrong with Hubbard's calculations, he claims that balls moving at the speeds Hubbard quotes just don't go that far, so Hubbard and colleagues must have overestimated the lifting effect of spin. For his part, Gary Matthews, batting coach for the Chicago Cubs, says Hubbard's team may be right—especially if the curveball "hangs" high in the strike zone. "A hanging curveball will go a long, long way," he says. Although Matthews may not be an expert in aerodynamics, he did belt 234 homers in 16 seasons in the major leagues.

—A.C.