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## Letters

### Batter (and letter writers) up!

Bahill, Karnavas, McBeath, and Bootsma, with their studies of rising fastballs and breaking curveballs ("Baseball pitchers hurl illusions home," SN: 2/20/93, p.116), are all out in left field. They seem to think that baseballs do not really curve but fall more or less, depending on how long they are in flight. While the effect of gravity is important in the flight of a baseball, I thought everyone knew that baseballs curved because of Bernoulli's principle. Because of its rotation, a thrown baseball is subject to a very real force other than gravity. All baseball players know this, even if they do not understand the physics.

Perhaps what is at issue is the apparent abruptness of the curve. If so, this easily can be explained if one considers three things: The batter's line of sight is roughly straight into the path of the approaching baseball, so any deviation from a purely gravitational path will seem to be exaggerated. The pitch is in flight for less than one-half second, so it is difficult to

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Cover: Researchers prepare to launch a balloon-borne instrument, the Microwave Anisotropy Experiment, at Fort Sumner, N.M. The instrument searches for tiny fluctuations in the microwave background — radiation left over from the birth of the universe. (Photo courtesy Andrew Lange, Phil Lubin, et al.)



### Departments

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Science Service, which publishes SCIENCE NEWS, is a nonprofit corporation founded in 1921. It gratefully accepts tax-deductible contributions and bequests to assist its efforts to increase the public understanding of science, with special emphasis on young people. More recently, it has included in its mission increasing scientific literacy among members of underrepresented groups. Through its Youth Programs it administers the International Science and Engineering Fair, the Science Talent Search for the Westinghouse Science Scholarships, and publishes and distributes the *Directory of Student Science Training Programs for Precollege Students*.

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characterize any movement as "gradual." Because of inertia, aerodynamic forces are not immediately noticeable, but once movement is large enough to be noticed, the pitch seems to "break."

Mark A. Maharg  
Atlanta, Ga.

Your article has finally shown me why I have never been able to cure that magnificent slice that I "imagine" each time I use the driver off the tee! To think, all those hours hacking out of the deep rough were mere illusions. No wonder the game of golf seems so fantastic.

I assume that Bahill and Karnavas would also contend that all defensemen "momentarily shift" their gazes as the pitched ball moves away from them and all share the illusory experience occurring at the plate. Imagine the frustration of the poor catcher, who demonstrates such skill in catching the curveball and rising fastball, yet when at bat suddenly loses the ability to concentrate and falls prey to the illusion!

McBeath's contention that a rising fastball would have to defy gravity supports my great-grandmother's claim that *nothing* the size of a 747 could possibly fly.

John A. Thorpe  
Gainesville, Ga.

### A flat-out error

I could not believe it. SCIENCE NEWS commits one of my pet peeves. It is hard enough to convince the lay person that a male has a *prostate*, not a *prostrate*, and now a scientific publication adds to the confusion (SN: 2/20/93, p.115).

Twenty lashes with a wet noodle as you lie "prostate"!

Ellen J. Menara  
Nutley, N.J.

Several eagle-eyed readers caught the typographical error on the contents page. Since it wasn't repeated elsewhere, we're hoping it didn't ensnare the unwary.

— The editors

MAY 8, 1993

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