Baseball and Quantum Theory

For some time it has been apparent that physics has run amock: all this talk of superstrings, parallel universes, glueballs, wackos, hot fusion, and so forth. It seemed that after the exquisite failure of physicists to prove that the curve ball does not really break (they claimed it was an optical illusion), they had returned to the world of arcane phenomena and had conceded baseball to the fans and Stephen J. Gould. Apparently, however, the wicked know neither rest nor shame. Thus I was dismayed to read Robert Pool's recent account of the "theories" of David Mermin ("Can you help the Mets by watching on TV?," Research News, 19 May, p. 773), the so-called "Baseball Principle" and the "Strong Baseball Principle"; dismayed because they are back attacking baseball again and because I know from my own research that Mermin's "theories" are without merit. "It's déjà vu all over again."

Because of recent political developments I have not attempted to publish my theories on baseball and action at a distance until now. Nonetheless, Mermin's groundless assertions cannot go unchallenged. The organic chemists must be heard. The experiments that led to the two principles outlined below, which I call the "Cap Principle" and "The Pencil Principle," will not be discussed because the papers are to be submitted (possibly to *Baseball Digest*, with my dissertation on Art Fowler and the spitter) and the press conference has not yet been set. For the moment, a brief description must suffice.

I listen to Giants' games on the radio and found that on days that I did not wear my ball cap, the Giants were .500 but were .675 on days I did wear it. Removing the cap during the game causes the Giants to slump, putting it back on leads to a rally, and so forth. I interpret this to mean that whether or not I wear my cap affects the team's performance. In fact, this happened tonight when the team was in Ohio, certainly action at a distance. The "Pencil Principle" is a variant of the "Cap Principle." I score games using electronic marking pencils; because of the soft lead, it is necessary to change pencils often. (Much excess heat has been observed during scoring, but experiments on this phenomenon are not yet complete.) Changing pencils between innings leads to Giants' victories, but changing pencils between the top and bottom halfs leads to defeat. In one spectacular instance, changing from among to between innings resulted in a six-run rally against the Dodgers. At the appropriate time I would be happy to supply my scorecards to the Secret Service for analysis, should that be necessary. With their newfound prowess it should be possible to verify the precise dates the cards were written by measuring the C_{12}/C_{13} ratio for CO_2 adsorbed onto the graphite lattice of the pencil marks. This technique may be especially useful for contests involving Baltimore.

It should be clear from these results that Mermin's untested "thought experiments" have no validity. There are three apparent reasons for this. First, his "principles" were based on watching the Mets on TV—two fatal errors in one. Baseball is meant to be heard at a distance or seen at the ballyard, and a true transposition of pictures onto sound is not possible. Second, he chose the Mets, a team that has been out of control for years, as his control. The proper control, of course, would have been the Mariners, a team that has no fans. Third, Mermin's attempts to explain the Copenhagen Interpretation through baseball are meaningless—baseball has never been played regularly in Copenhagen because the Danes find it boring.

Finally, let me note that Mermin missed two aspects of baseball that do confirm parts of quantum theory. The probability of parallel universes is strengthened by the mere presence of major league teams in Montreal and Toronto. Moreover, the effects of K-Y Jelly on the motion of a pitched ball is a well-documented but unrecognized consequence of the Fifth Force, in which the ointment and the earth interact through some yet-to-be-identified exchange particle, hereafter known as Perry's Boson, which causes the ball to break in the oddest ways. In addition, one of Dirac's famous numbers, 1/137, is in fact within an order of magnitude of Tom Lasorda's batting average in the major leagues (.070). ("You can look it up.") Beyond these few examples, however, the concepts of baseball and the quantum theory remain as disparate as night games and Wrigley Field.

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Educational Computing

Constance Holden's downbeat article "Computers make slow progress in class" (News & Comment, 26 May, p. 906) accurately describes the disappointing side of educational computing today, but it ignores another side that is far happier—and far more significant in terms of educational impact.

The experts interviewed for the article share what might be called the "ed-tech" view of the computer, in which the computer is a technology whose main educational purpose is either to deliver traditional instruction in a more efficient and effective way, or else to transform—perhaps even revolutionize—the entire educational process. No one should be surprised at failure along this path. The 100-year history of information technologies is dazzling elsewhere but dismal in schools. Walk into a classroom at random today, and you are unlikely to see any instruction delivered by telephone, radio, audio recordings, film, or TV. Why, suddenly, should we expect to see vast amounts of instruction delivered by computer?

In the meantime, tens of thousands of teachers, and the majority of schools, have taken an entirely different view of the computer. They (like my Dartmouth colleagues some 25 years ago) see the computer not as a teaching machine but as a machine to be taught *about*. Walk into a typical school today and, as numerous surveys testify, you will find a computer lab where students are debugging programs, learning word processing tools, and working on spreadsheets and data bases—for their *computer* class. Most junior high schools and nearly all high schools now have full-time computer teachers and a lab-based curriculum that goes from introductory computing to advanced programming. Although the traditional curriculum remains largely unaffected, students today are emerging from computer classes with new, empowering skills for the world they enter. This is certainly progress, and rapid progress, for which educators deserve praise.

Will these computer skills be integrated seamlessly into the traditional curriculum? Will most teachers soon use the computer as casually as the chalkboard? I am pessimistic, but a friend sees things differently. "Remember this," he says. "It took 20 years for the overhead projector to make its way from the bowling alley to the classroom. I'm optimistic. I'm beginning to see computers in bowling alleys."

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Erratum: In the report "Honeyguides and honey gatherers: Interspecific communication in a symbiotic relationship" by H. A. Isack and H. -U. Reyer (10 Mar., p. 1343), the third and fourth sentences of the first full paragraph of column 2 on page 1344 should have read "This whistle, known in Boran language as "*Fuulido*," is produced by blowing air into clasped fists, modified snail shells, or hollowed-out doum palm nuts (*Hyphaene coriacea* Gaertn.) Shouting and knocking on dry wood are also used to draw the birds' attention."