The Media and Mathematics Look at Each Other

The word **media** here will mean not only the newspapers and television, but also novels, stories, plays, movies, museums; in short, all modes of popular communication of mathematics.

The complaints of mathematicians. Briefly: mathematics gets very little media coverage of recent developments. It would like much more. And when mathematics *is* treated, the media frequently get it wrong. Technical details are mostly omitted, and the media's "take" is irksome.

The media's point of view. Gina Kolata, a widely-read science writer for the *New York Times*, wrote me

> Newspapers are not there to educate or to teach people about the mathematics that underlies search engines unless there is something you can say about that mathematics that makes it new and compelling. The fact that the mathematics is there is not enough. With most things we use—a car, an iPod, a DVD, most of us don't really care how it works.

Sara Robinson, a science writer who majored in mathematics and was Journalist in Residence at MSRI (Mathematical Sciences Research Institute in Berkeley) recalled that as a fledgling reporter, she was told by a senior reporter that the goal of science reportage was to give the reader merely "an illusion of understanding of the technical subject matter". She also reported a statement made by Rob Finer, a former editor of the *New York Times*, that

> Mathematics has no emotional impact. What physicists do challenges peoples' notion of origins and creations. Mathematics doesn't change any fundamental beliefs or what it means to be human.

Mathematical fiction. In fiction one finds the popular stereotype of the mathematician, as brilliant, somewhat mad, socially inept or reclusive, obsessive, living in the clouds, given to the arcane and/or the fantastic. The mathematicians or mathematics depicted come wrapped in the following sensational themes: magic, codes, espionage, the devil, ghosts, secret messages, other worlds, futurism, madness, autism, apocalyptism, mysticism, the occult, obsessions, prizes, dystopias, evil mathematical productions and cults, machines that turn into sorcerers' apprentices, alternate time concepts. Apparently, there is a steady market for this kind of literature, and mathematicians themselves are writers, producers, and readers of it. Mathematics is often regarded by the average person as a kind of magic, and this view fits right in with the fictional themes. It may be that, with its abhorrence of mathematics, the general public ignores the mathematics totally and simply goes for a whopping good story.

Where does the difficulty of communication lie, and what can be done? Does it lie with mathematics education in the lower grades, often taught by teachers for whom the subject is poison? Does it lie with the nature of mathematics, which at its higher reaches is a difficult subject? With the nature of the media? With the journalists who write about mathematics? With the mathematicians themselves? It would appear that all of the above are operative.

A number of programs intended to cure the situation are in place. The professional mathematical societies and a number of individual writers work hard to call attention to recent accomplishments in the field to a variety of clienteles. Some institutes such as MSRI have a rotating journalist in residence. The United States Air Force has given a grant to the University of Southern California to teach screenwriting to scientists in an attempt to produce movies and television shows that show scientists in more sympathetic ways. How all these professional projects diffuse into the popular media and public awareness is a matter of conjecture.

What kind of reportage would I like to see? In contradiction to what Kolata has said, why is it not the duty of a newspaper to educate? I would suggest that newspapers run articles that give a semblance of understanding of the degree to which mathematics underlies today's world—yes, a semblance. We are living in an age that is mathematized and is increasingly so. I would think that at the very least it should be possible for a newspaper to educate us to the fact that mathematics is formatting a good portion of today's life and to point out where this is occurring. It need not give readers an understanding of the technical mathematics; that is too much to expect. But I would hope that clever writers might point out how mathematics is altering our lifestyles and do it in a manner that would not lead Garfield the Cat to say "ho hum". Is it too much to hope that quality newspapers might in the future run such articles as

"Professors Smith and Jones show how eigenvalues help in search engine strategy. President asks science advisor what Egg Values are."

"Numerical algorithms of aero-hydro-elastodynamics used in the design of the Swiss yacht that won the America's Cup."

"Mathematical wavelets aid in gallstone treatments at Massachusetts General Hospital."

"The Surgeon General urges medical schools to require probability theory for admissions."

"The Attorney General urges law schools to require probability theory for admissions."

"Yogi Berra praises Markoffian applications to baseball strategy."

I hope that such items have already been run and that as I read my morning paper with my eggs and coffee, I have simply missed them.

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