For Your Information

My Summer at National Public Radio

Each year the AMS sponsors a Mass Media Fellow through the American Association for the Advancement of Science (AAAS). This piece was written by the 2005 AMS fellow, Brent Deschamp. Information on how to apply for the fellowship appears in "Mathematics Opportunities" in this issue.

National Public Radio has a cult following. Addicts exist in every office, dutifully tuning in daily for the latest news, and for this past summer I was a dealer in this most potent of opiates. The experience took its toll on me, as I too am now addicted. And yet, despite it all—despite the fact that I had the unique opportunity of writing science news for an NPR affiliate in Columbus, Ohio, despite the fact that it was quite enjoyable—I left the experience yearning to return to my old life of research and teaching.

My fellow AAAS Mass Media Fellows seemed enthralled with their experiences at various media outlets across the country, and many are now planning careers in science writing. But I alone in the group did not find science news fulfilling. It seemed science news lacked something, but what? Being a mathematician, I looked to define what the news is, for to know the definition is to begin to understand the object.

My definition is a little strange.

In the end, I concluded that the news is nothing more than sanitized, fact-checked gossip. It follows the same traditions of passing on information as those found in the stereotypical beauty salon or at the office watercooler, but it is held to a higher standard in that it is cleaned up and the sources are verified. But it's still the same thing. What makes for good gossip makes for good news.

My mentor in Ohio, a veteran of news radio for thirty years, taught me two lessons about news. The first: "When it comes to news, I believe in two things: fear and greed." The second: "Every great news story has six qualities: timeliness, proximity, prominence, novelty, human interest, and conflict." It almost reads like a theorem.

But wait, it sounds so much like gossip. Gossip always comes from a "reliable" source about someone you know who has recently done something odd, and there's usually trouble brewing because of it.

If the Johnson boy got the good reverend's daughter pregnant and they ran off to live with his cousin, that's gossip. If a reporter called the cousin and the daughter's obstetrician for verification, captured the heartbroken words of the reverend, and threw in some statistics on teenage pregnancy in America today, that's news.

Near the end of my fellowship I began imagining the nightly news anchored by three old women who talked, not of NASA scientists, but of "those nice boys over at NASA" who were trying again to send "some new-fangled thing into space". Cut to Herb on the front porch: "Looks like rain tomorrow." Cut to commercial, back for a report on "how those boys in Washington were still wastin' money for no good reason," and that's a broadcast.

Cynical? Indeed. Would it be possible to substitute the usual material into this new format? Definitely.

With a definition in hand, I started to see why writing science news didn't suit me. Science news often contradicts the very properties that make for a good news story. Consider the announcement of a great scientific breakthrough: the corresponding news story would certainly have prominence, timeliness, and most likely novelty. The reporter would look for some application of this breakthrough to bring the discovery into the reader's/viewer's/listener's world and create human interest. But the big one, the one I found everyone tacitly wants in every news story, isn't there. Where's the conflict, the drama, the opportunity to bring in greed and fear? Unless you get "lucky" with radiation sickness or maybe the opportunity of widespread death, the story simply falls flat.

But more often, science is making small strides, and even the easier properties of prominence and novelty are lost. Human interest is usually impossible.

On the other hand, medical research is always big for the simple reasons that drug companies are viewed as greedy and everyone is afraid to die. It also doesn't matter how suspect the conclusions are, because a good story now about something that might kill you is just as good when it is disproved, since the inherent conflict of contradictory reports makes for a good story. The writer of medical news always has material. If your beat is quantum mechanics or molecular dynamics, you can roll over and go back to sleep—even if there was news, your editor would probably axe it.

And math? What chance does it have?

I think of the great moments in my mathematical education when I learned things that left me speechless: Galois Theory, the Radon-Nikodym Theorem, and the simple but poetic theorem by Lagrange about the order of subgroups. If any of these things were to be discovered tomorrow, they would never make the news.

If someone were to develop a polynomial-time algorithm for factoring large numbers, that would make the news for about as long as it would take to state the fact, hear a quote from the mathematician involved that it took a lot of work, and hear another quote from a leading mathematician in the field that this was one of the great breakthroughs in mathematics. Elapsed time: 45–60 seconds for radio.

Then it would be off to a reporter warning that the Internet is no longer secure and that your personal information can be easily stolen, ideally including a quote of an individual talking about how his life has been ruined by identity theft and how he will cease to interact with the modern world for fear of being victimized again. Elapsed time: 3–4 minutes.

If someone actually remembered the impetus for the story, it would be because the news drove the story into the ground day after day and the "peg", the reason for listening, was this discovery. Every story would begin with some variation of "It's something a grade schooler might complain about doing for homework, but the difficulty of factoring numbers has kept information safe for decades. Now, following a major breakthrough in mathematics, factoring is as easy as multiplication. In response, Congress has called an emergency session to evaluate the security of the nation's communications. Adrianne Featherbright reports from Washington."

Much like gossip, the news is often shallow. The need to maintain interest creates short stories that skim the surface of the facts and switch focus quickly. And like gossip, it is only the truly juicy stories that are given more time, depth, and repeat exposure.

As one Fellow remarked, "I want to stop writing these cute stories with a science angle and write about real science." My advisor suggested a different approach by talking about the new puzzle Sudoku. It's math, it's fun, and the human interest property is easily satisfied by interviewing a local nut who never misses his Sudoku puzzle in the morning. Problem: most papers don't have a Sudoku puzzle; and if conflict is the number one property of a news story, then proximity and timeliness are the next. Just like gossip, the story must be tailored to the audience; and if news about some yokel in the next county isn't interesting, a report about a new puzzle in a paper distributed elsewhere certainly won't fly.

The most telling experience I had as a Fellow came over lunch with the Research Communications Staff at Ohio State University. The goal of these four people is to inform the world of the accomplishments of the OSU faculty. All four also freelance regularly for other publications writing science news. With a collective experience of over fifty years of science writing, they admitted they had never once written a straight math story and only once or twice had written one in the context of an application.

Their reasoning was that mathematics lacks a recognizable element: an atom is at least familiar to most audiences, but a matrix? Also, the context of the problem usually takes up as much space as the problem itself. Readers need to be drawn in quickly before they move on to another story, and taking three paragraphs to explain the setup is tantamount to suicide. Your headline might as well be "More interesting story to be found on next page". While they never said it was impossible to write such a story, the message is clear: in a world of many new scientific developments that are much easier to explain and capture audience attention, the world of mathematics is often overlooked.

So, in the end, writing science news grates against me because I believe so heavily in the properties of good science. The news simply looks at the science through a lens I feel distorts what is important. The science, for me, is the story, but more often than not, the news views it only as a means to tell a different story.

I was born a cynical man, and I left this fellowship a little worse for wear. And yet I still find myself listening to NPR hoping to hear from Richard Knox, David Kestenbaum, or Richard Harris about something new in the science world. I doubt I'll ever hear about math, and it's rare that they are on; but still, when I hear the anchor lead into a story about science, I get a little thrill because I know what it took to get it on the air, the fight to tell a story that doesn't have the properties of great news. They're rebels in many ways, and to science writers everywhere I say, "Keep up the good fight."

Last, I think of the multiple definitions of compactness that eventually found the best properties to do the most good, and I hope that the news will slowly undergo such a transformation. Like AAAS and AMS, I see the need for good science news, and I can only dream that the news begins to see that as well. As a friend once told me, "Every cynic is really a closet romantic." In this case, I'll admit to that.

—*Brent J. Deschamp, University of Wyoming*

Correction

An alert reader pointed out a typo in my *Notices* article "What Is the Role of Algebra in Applied Mathematics?", which appeared in the November 2005 issue of *Notices*. On the left column of page 1196, in the two displays between (9) and (10), the last generator should be $(x^2 y^2, 0, 0, 0)$, not $(x^2, y^2, 0, 0)$.

—*David Cox, Amherst College*