What Makes Science Newsworthy?

by Susan M Fitzpatrick
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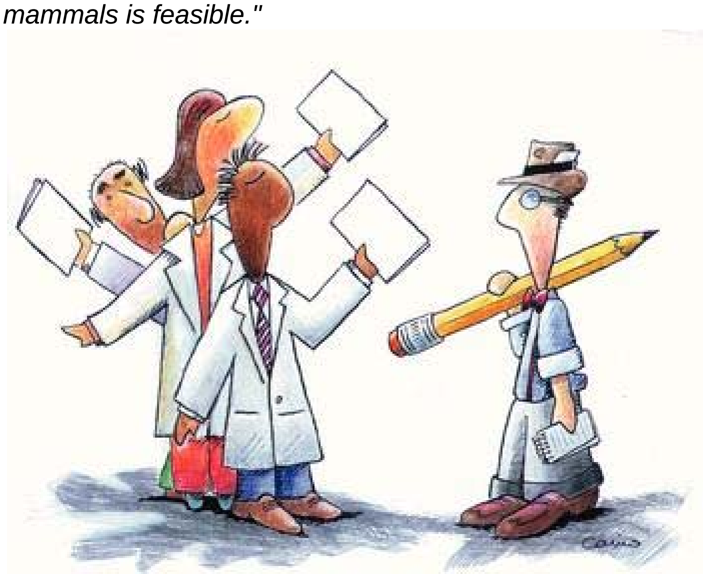
"Our results suggest that a genetic enhancement of mental and cognitive attributes such as intelligence and memory in mammals is feasible."



This sentence, from a scientific paper published in the Sept. 2 issue of the international journal *Nature* by the laboratory of Joe Tsien of Princeton University,[1] ignited a firestorm of publicity. The study, using genetically modified mice (I'll get to the actual scientific findings in a moment), was reported as news by major print and broadcast outlets. *Time,* in a Sept. 13 feature inspired by Tsien's research, asked, " ... should we use genetics to make people brainier?"[2]

For me, the *Nature* article and the resultant media frenzy raises a more disturbing question. Although the sentence quoted above is provocative, the actual scientific findings, building on several years of research, are not what one could call revolutionary. What was it about this particular scientific study, as opposed to the hundreds of other important scientific findings published each week, that made it news?

In the Sept. 28 issue of the prestigious *Proceedings of the National Academy of Sciences* (*PNAS*), a paper authored by Todd Preuss and his colleagues asserts that their reported finding " ... is the first documented feature of brain organization ... that distinguishes humans from apes, our closest relatives." The authors go on to say that their results " ... might lead to a more complete understanding of developmental dyslexia ...."[3]

Is It News?

Sounds controversial and intriguing. Is it news? A reasonable response in light of the reaction to the Tsien study would be to suppose it is. But the findings reported by Preuss and colleagues were virtually ignored by the press.
Before turning to the scientific substance of the two papers, let's look at some of the obvious things that might explain the press' enthusiasm for "smart mice" and indifference to what differentiates humans from apes. Was it due to the scientific prestige of the journals in which the papers appeared? Aficionados of science could argue one way or another, but both *Nature* and *PNAS* are high-prestige journals where scientists communicate "cutting-edge" research. These two

publications are among the handful of journals, including *Science* and the *New England Journal of Medicine*, regularly scanned by scientists, the science media, and the science-savvy public. Was it the prepublication publicity? In both cases, the press was alerted by institutional public relations efforts including press releases, direct phone pitching to science journalists, and electronic postings. It is true that Tsien's laboratory is at Princeton while Preuss works at the University of Louisiana at Lafayette, but the angle of an important paper published by an institution somewhat off the beaten track could contribute that all-important touch of human interest to the story.

Perhaps it was the relevance of the findings to people? Tsien reports findings on genetically altered mice performing laboratory-based behavioral tasks. Preuss studied the brains of monkeys, apes, and humans. Though each paper represents an important piece of work, neither falls into the "news you can use" category. Neither of the two papers reports information immediately affecting our lives.

Examining the scientific results published in these two papers makes the question of how science journalists, and their editors, decide what is and is not news no less perplexing. Both papers would be considered basic science, and each is highly technical. Both are scientifically important but require deep neuroscientific knowledge for the reader to put the results into a meaningful context. Tsien's study builds on a line of research he and his collaborators have pursued for several years. Nerve cells (neurons) in the brains of mice were genetically modified to overproduce the normal number of one subtype of receptor for the neurotransmitter glutamate--the NMDA receptor. There exists a substantial body of research implicating NMDA receptors in learning and memory. The genetically altered mice performed better than control mice on some behavioral tasks, including maze running and swimming toward a hidden platform, skills thought to tap specific aspects of the neural systems for spatial memory. To leap from improved performance on the behavioral tasks described in the paper to "intelligence"--with all that word connotes in humans--seems a bit of a stretch.

Preuss, presenting novel, first-time results, used biochemical and anatomical markers to compare the structure of a part of the brain's cerebral cortex important for processing visual information in monkeys, apes, and humans. Malfunction of the part of the visual system Preuss studied has been implicated in developmental dyslexias. His findings, that the cellular anatomy of the human brain differs from that of our closest ape relatives, challenges the bias of neuroscientists who tend to emphasize the similarities rather than the differences between monkeys, apes, and humans. Much of experimental work on brain systems is carried out in animal models, and unless we know precisely how the brains of different species compare, the ability to interpret such work is seriously impaired.

Historically, scientists and journalists have interacted with a certain degree of wariness. The traditional complaint of science journalists is that scientists cannot talk about their results without the excessive use of modifiers and qualifiers. Scientists, fearful that their results would be overinterpreted or misrepresented, were overly reluctant to be interviewed. This reluctance has melted away during the past decade, in part, as a result of large-scale public awareness and lobbying efforts such as those associated with the Decade of the Brain and the Human Genome Project. Scientists are now very aware that outspoken public support for research funding influences federal budget allocations. Universities and research institutes actively promote their scientists, many of whom are polished communicators.

There is a definite upside to all of the "outreach." But this "buzz" also has a downside. Science journalists, flooded with press releases, tip sheets, and media alerts, now seem to be playing the awkward role of information gatekeepers, standing between scientists and a public eager for science *news*. In fact, some science journalists are now seen more in the role of science "spokespersons" and are included as prominent participants at high-profile scientific meetings.

So how does a scientist and her institution, eager for public recognition, stand out above the noise? This brings us back to the original question I raised. How do journalists decide which of the hundreds of scientific papers published each month is news?

Why were Tsien's findings, rather than Preuss', big news? Was it because Tsien used the hot button words "genetic enhancement" and "intelligence" in the same sentence? It's easy work for journalists to hype a coming day when science might engineer smarter kids--regardless of whether such stories accurately reflect the science. Without detracting from the scientific elegance and importance of either study, it seems safe to say that neither paper presented work so "newsworthy" that we, the general public, needed to be made immediately aware of it. To my taste, the Preuss paper seems more amenable to the style of lengthy feature that *Time* devoted to Tsien's research. Understanding how the brains of humans differ from those of our closest biological relatives leads us to complex discussions of what makes us uniquely human. Could that be the difference? Are complex discussions simply harder to hype? Or does it just take more time, more effort, more resources--all in short supply in today's market-driven world--to develop a story that thoughtfully unfolds and takes us beyond the obvious speculation?

News vs. Newsworthiness

Certainly science, scientists, and journalists benefit from the publicity and excitement generated by snappy headlines and full-color feature stories. But does the public? It may be time for those who make the *news* to reevaluate the criteria they use to judge the *newsworthiness* of science stories. Scientific findings may not lend themselves to being reported as news in the traditional sense. One scientific finding does not stand alone. Even if it goes against the conventional wisdom, it requires historical context for interpretation. I certainly do not want to go back to the "dark ages" when scientists rarely felt obligated to inform the public. But perhaps scientists need to regain, if not quite reluctance, a touch of reticence when it comes to pitching their work. Scientists and reporters should also honestly evaluate their motivation for taking certain scientific findings public. Is anyone truly benefiting from the increasingly sensational spin and the escalating extrapolation?

Eventually the public, weary of *breakthroughs* and empty promises, will turn a deaf ear. The challenge is to create science journalism that matures beyond merely capitalizing on the public's enthusiasm for science to generating a true public appreciation and understanding of science. I think we can do it.

Susan M. Fitzpatrick, Ph.D., is program director at the James S. McDonnell Foundation. Todd Preuse has received support from the MacDonnell-Pew Program in Cognitive Neuroscience. Joe Tsien was shortlisted for a James S. MacDonnell Centennial Fellowship. Web site: www.jsmf.org; E-mail: susan@jsmf.org

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