

Donald Kennedy

The future of science news

At a recent lunch, I asked Phil Taubman, an old friend who has had a distinguished career at *The New York Times*, what he would say about the future of respected daily papers like his that are made by printing with ink on newsprint. Phil suggested that he wasn't sure they had a future. Neither am I.

I am particularly concerned with the news crisis because it has the potential to undermine the public understanding of science. Why is that so important? At this moment, more so than at any other time within memory, more of the policy decisions facing Congress and the administrative agencies of government have deep science and technology content. The nexus between science and policy is so vitally important that major efforts are under way to shape the proper relationship between science and its outcomes in regulatory policies or allocation decisions.

Before we go further, I should disclose my own personal relationship with news, and particularly the portion of it that deals with science and technology. It consists of regular breakfast encounters with *The New York Times* and frequent auditory contact with

National Public Radio. I advised the science unit of the *NewsHour* with Jim Lehrer from time to time, and watch the program almost nightly if I can. For eight years (2000 – 2008) I was editor-in-chief of *Science*, the weekly journal of the American Association for the Advancement of Science. It regularly supplies science news to mainstream media outlets and has an active news section itself.

The reader may conclude that I am hopelessly addicted to “trusted sources.” I am; that's why I am in mourning about this discouraging prognosis. We hear everywhere that the news business is experiencing a growing economic malaise. Regional distress and national attention followed the demise of the *Rocky Mountain News* and the flight to an electronic version by the Seattle *Post-Intelligencer*, one that conferred an unanticipated benefit on its rival, the *Times*. The near-death experience of *The Boston Globe* came about despite its ownership by The New York Times Company – doubtless a threatening sign to outlets such as the *Los Angeles Times* and the *Chicago Tribune* that were amid bankruptcy proceedings. Cities that were two-paper towns got joint operating agreements in the 1980s; some of them are now no-paper towns.

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All that is bad enough. But it is worse still that a large number of metropolitan daily newspapers have done away with special science pages as well as those reporters who had developed special talents for explaining difficult science to the public. In any given year, our democracy has to decide on a host of issues that have important scientific and technological content: what to do about climate change, how to organize human or robotic exploration of space, how to develop a sustainable national energy policy, how to treat the health potential offered by embryonic stem cells, and the like. To vote intelligently, citizens will increasingly require a level of scientific literacy. Of course, we also need to develop a layer of committed scientists who will lead the march of discovery, providing the basic research findings that will serve as seed corn for the next generation of new developments. In making that kind of commitment, young people are often inspired by the dramatic research accomplishments being made by scientists and interpreted by those who write about the work.

Those are the elements that support science in our culture, and they all depend on the singularly important relationship between scientists and science journalists. There are a number of respects in which that relationship is in good health: the best reporters have learned a lot of science and the best scientists have forged productive relationships with journalists. Nevertheless, complaints are being heard from both sides – enough to encourage a kind of caricature of misunderstanding. Scientist A complains that the reporter hasn't troubled himself to get some background on climate change science, and instead has to be educated from scratch; after a certain amount of that

background, the reporter writes a story in which A's view is paired with criticism from a denier of global warming. Understandably, the public wonders whether this really represents two equal sides of a scientific controversy, while A is left to ponder this case of "barnyard equity."

The traditional news sources rely on a cadre of professionals: reporters who cover events like congressional hearings about climate change, natural disasters, or the spread of disease caused by infectious pathogens. Reporting on such topics requires an experienced familiarity with science and technology, especially when these event stories are followed by background pieces. Sometimes called "the news behind the news," these pieces allow deeper analyses of the background of events. Working science journalists receive assignments from editors, who apply experienced judgments about what to cover. Editors also organize and prioritize the pieces by their placement within an individual issue. Editors must take some responsibility for the reliability of what is reported; therefore, if a central issue is scientific, it will be important for an editor to be at least science-literate. In the end, an editor's attention is what makes the paper accountable to the public for the validity of its reporting. That is the journalism of verification.

Before deciding whether newspapers are becoming extinct and, if so, what might replace them, it should be noted that this crisis is arising just as the definition of "writing" is expanding, and as the relationship between writers and speakers, on the one hand, and their audiences, on the other, is being changed and even intermixed. These analyses portend something that has already become visible: the role played by "citizen journalists," who are beginning to make news by blogging, by sending

their videos to television stations for the nightly news, or by developing Internet sites that function as regular sources of news.

Those commentators predicting a cloudy future for print newspapers add to the crisis all by themselves, and too often the reaction of journalists is to consider moving on. Because I was involved with the editorship of *Science*, I've had a special interest in the fate of good science coverage in the media. Alas, I have watched as one metropolitan daily after another, out of economic necessity, has dropped its serious science page, and as the weekly Science section of *The New York Times* has gone steadily toward greater emphasis on issues of medicine and health rather than basic science. One explanation for the general apprehension holds that something autocatalytic is happening here. The loss has been selective for science journalists, and the climate of despair about news, especially science news, reminds me of the way Alfred Kahn, one of President Jimmy Carter's leading economists, treated the much-discussed growth of inflation in the late 1970s. Kahn said that the continuous talk about the phenomenon was itself scaring readers and encouraging more of the same! His solution was to refer to inflation in his writings as "banana," as in "double-digit banana."¹

Thoughtful observers have pointed to a number of plausible explanations for the demise of newspapers. One is the increasing control of news organizations by larger organizations – holding companies with other missions that sometimes have little to do with news. Another contributor is the growing incidence of mergers and assimilations, in which distinguished outlets merge with others whose larger markets give them

takeover capacity. Also, advertisers are deserting the traditional press in favor of online sources or the rampantly growing number of local no-cost journals. In my hometown of Palo Alto, California, where my ever-thinning copy of *The New York Times* is delivered daily to my house for \$700 each year, there is a serious, first-class local paper, the *Palo Alto Weekly*, linked to a daily e-version. Interested in local news, I gladly read it. But it now coexists in the same space with two daily print throwaways, called the *Daily News* and the *Daily Post*, each with smatterings of mostly local crime or sports news and endless pages of real estate ads. In these papers there is little or no attention paid to science and technology, even in the midst of Silicon Valley.

Such alternatives will account for some of the loss of product advertising experienced by mainstream papers. Perhaps a more significant loss has been in the domain of classified advertising – both for people and for services. This has had an interesting impact on the scientific job market, having damaged the traditionally reliable sites where professional opportunities have been offered. Craigslist and other Internet sites offer as much or even more exposure than the back-of-the-paper sheets that used to be part of your average metropolitan daily or professional scientific journals like *Science* or *Nature*. As a result, job seekers and hiring companies are happy to make use of these newer outlets.

The changes that are driving news to online outlets have had important effects on science news; but to understand them it is necessary to look at what has been happening to the structure of the "old news" as it is morphing into the "new news." Naturally, the traditional outlets began to fight back as soon as the downward trends

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for conventional newspapers became clear. At first, major newspapers experimented with e-versions that initially looked quite a lot like pages of newsprint, but these quickly evolved into much more navigable sites in which the reader can preselect the kinds of content he or she wants to access. But there is a diminished sense of how and where the priorities lie; try to get a clue from the *Times* online about what is “above the fold” and what isn’t! In a more recent development, your daily newspaper can increasingly be seen as pages displayed on a screen, like Amazon’s Kindle or Sony’s e-reader. You can subscribe to *The New York Times* on Kindle for only about \$14 per month, a quarter of what I pay for the one that lands on my porch. Now Plastic Logic has a much larger screen on which regularly updated news from any outlet can be displayed. The Hearst Corporation, owner of fifteen newspapers, is a major investor in e-Ink, the company responsible for the Kindle and other products still in the experimental phase. Some are predicting that moving images and clickable advertising will be features of the new “pages on a screen” world; we’ll have to see whether that happens and, if so, whether the customers like it.²

The economic plight of the traditional news outlets has been noticed by fringe alternatives. Their growth has been widely hailed as a triumph of citizen journalism. In discussing the contemporary state of “the news” it is impossible to ignore the omnipresence of news, including some very well-reported science news, that is available exclusively online (*Slate*, *Seed*, for example). The cable channels for television “news” can now be counted on to have a reliable political slant (*The O’Reilly Factor* on FOX News; *Countdown with Keith Olbermann* on MSNBC). Among blogs are the con-

servative *Drudge Report* and its liberal competitor, *The Huffington Post*, not to mention the social networking sites like Facebook and MySpace. The most interesting transition between the traditional and “new news” universes has been the growth of the Huffington blog into *The Huffington Post*, an Internet source that is sometimes cited in mainstream media. There is a new entrant in e-space that is hoping to take advantage of dwindling coverage of international news in the major metropolitan dailies in the United States. GlobalPost has added reporters from a number of major print media who will be based in other countries and living there.³ It should be watched in the future: an American audience may want a daily diet of the kind many now get weekly from *The Economist*, and owing to the distribution of GlobalPost reporters, readers may get more science than they get from other outlets.

An interesting aspect of this transition is the change in political impact of the “new news” compared with traditional media. In a thoughtful article in *The New York Times Magazine*, Michael Sokolove reports revisiting his hometown of Philadelphia to watch the threatened *Inquirer* (long a solid source of good science, especially relevant to environmental issues) and the *Daily News* (his old paper) struggle to stay afloat. He points out that a major metropolitan newspaper, unlike most Internet sites, has an additional local focus that is important to it and its readers. That feature adds significant value, but Sokolove concedes that it also makes the *Inquirer* vulnerable in a way that *The New York Times*, *The Washington Post*, and *USA Today* are not. These papers have brands, and if they survive and even prosper, it will be in part because of the strength of those brands. A few other news outlets will survive by being really good at local

news. Finally, stellar investigative reporting, especially on issues entailing science and policy, will still weigh positively, both for metropolitan newspapers and for major national outlets that can command increasing reputational benefits.

Although some insist that a number of traditional outlets may hold on based on special kinds of value, most observers point to the likelihood that we are experiencing a major transition, one in which citizen journalists and bloggers are using the Internet to dispense news, opinion, and anything else that seems important or interesting. One feature of this transition is that the roles of deliverer and audience (source and sink) become intermeshed: news is captured by volunteer videographers, and new insights or hypotheses about science and its possible influence on public policy may spread widely on the Internet. Because the traditional media are on average more dedicated to fact-checking and editorial caution, some view this transition as unfortunate. In a recent program on National Public Radio, Terry Gross quoted Alex S. Jones, the director of the Joan Shorenstein Center on the Press, Politics and Public Policy at Harvard, as describing the transition as one from “the journalism of verification to the journalism of expression.”⁴

Some observers have noted that the economic template has changed radically in the news universe. From a system in which the major outlets functioned in an oligopolistic fashion, we have entered an environment closer to perfect competition. What has changed is that the supply of news and information is widely distributed and has become a public good, without significant barriers to entry. Most news outlets can get a lot for nearly nothing, and there will be free competition among them.⁵ The

competitive challenge, then, will be which among the multiplicity of new outlets earn more trust than others.

The disruptive reorienting of the news terrain has raised other questions, including some about whether good science journalism can survive the transition. In the old geography, news people were generally regarded as respected professionals. Bloggers and other citizen journalists now have ambitions that go well beyond second-class citizenship. They would hope for – and they very well may achieve – a status that entails professionalism of a recognized sort.

Indeed, some of the best-known bloggers are cited as news sources by traditional TV or newspaper people. Matt Drudge, whose outlet is best described as an Internet news aggregator, assembles information primarily designed to please conservatives. He received attention for revealing the name of Monica Lewinski and for introducing the mainstream press to the Swift Boat campaign against John Kerry. Now the liberal *Huffington Post* has developed a more successful Internet formula, with a greater circulation than all but a few newspaper sites. Its *modus operandi* is quite different from Drudge’s; it has developed a community through Huffington’s personal connections to a network of writers, politicians, and celebrity bloggers who contribute news and commentary. In a fascinating *New Yorker* piece, “Out of Print,” Eric Alterman explores how one of the *Huffington Post*’s organizers describes its strategy. He calls it “business up front, party in the back.” Distrustful of most user-generated commentary, the site puts most of that at the end, reserving the front page for news material that gets careful editing for quality control. Thus the site wins loyalty from sponsors and mainstream news outlets;

meanwhile, its fans are posting and carrying on arguments in the back.

The migration of interested and often knowledgeable members of the public into the news space has naturally generated debate about verification and certification. What is “journalistic credibility” in this context? Just as the First Amendment mentions freedom of the press without defining what makes up “the press,” laws that confer limited protection on journalists do not generally say what a journalist is. In federal law, the narrow constitutional protection afforded journalists has rarely been used or tested. But thirty-three states have “Shield Laws,” and in most of the applicable cases, judges have sought to balance the relevance and importance of the information the journalists are being asked to provide, against the damage to the journalist and his or her sources. There has been some discussion of a strengthened privilege in federal law for journalists. Some bloggers have insisted that they should belong to that protected category. At this writing, however, the matter remains undecided, and may well be settled on a state-by-state basis.

Insofar as science and technology converge with public policy, the conversion of news to information is critical. In this transaction, traditional sources of science – universities and government laboratories, for example – produce data and experiments that will be noted and analyzed by science journalists. Eventually, if the news treatment is convincing and the findings are confirmed by later studies, the news becomes information, available for use by other scientists or by those who make public policy.

In this context, news on the Internet has some values that news as ink on paper cannot claim. One of these is trace-

ability. When a major blog or a newspaper’s site contains a number of stories, their individual fates can be followed as readers move to other sources. The success of a news posting thus can be estimated not only by the number of readers who accessed it directly, but also by the destinations they visit next. This traceability has potential value for editors, but one can expect that individual readers may eventually be linked to particular product purchases they have made – a potential source of value for publishers, too!

The Obama campaign has been hailed as a triumph for citizen journalism, including the roles played by email and social networking sites, both of which were important elements in securing Obama’s election success. It is true that contact through “new media” can affect democratic outcomes by broadening the opportunity for political positions and commitments to be communicated to voters. Since Obama’s election victory, those same networks have been deployed in support of the new administration’s interests in securing legislative objectives – in particular, its hopes for significant revisions in health care policy.

The speed and facility with which people who are subjected to repression or danger can get their messages out is another important development. Following the 2009 election in Iran, for example, American and other sympathetic audiences became fascinated by the news emerging via the Internet from Iranian citizens themselves, many of whom were unhappy about the election results and were suspicious of fraud. These communications were reminiscent of ones following the Tiananmen Square event in 1989 in China, where activist students managed to get the word, even spectacular videos, out to the world.

What are the various forms and formats in which we will be reading the news of the future – and will the new arrangements be good or bad for the public understanding of science? Naturally, I am rooting for some good news on the ink-and-paper front. Thoughtful people in the news business put favorable odds on the survival of the classic brands in print: *The New York Times*, *The Washington Post*, *The Wall Street Journal*, and a few others. There will probably even continue to be a high-end consumer population that will pay the higher price for the print versions – not merely because those consumers are wealthy or old-fashioned, but because e-news designers have not yet figured out a way to make those sites navigable in the way a physical newspaper is. Those concerned with the science education of the American public hope that better navigation will make good science pieces more easily accessible. In any event, e-versions are likely to have far more readers than their print equivalents, and this gap presumably will grow as boomers are succeeded by their children.

There will also be room for local news and creative editors who have learned to tap into their communities' values. Most really newsworthy events have a strong local sign – and they are trailed by stories. The local university is a prime source for such events involving science and technology. Who did the breakthrough research? Who supported it and why? How will the discovery aid the national interest? Will it resolve a major controversy? Such an event may go national quickly, but the secondary effects are apt to stay local as well as last longer. Furthermore, local papers often develop investigative reports that work well in print but not on the screen.

The new media that have developed to fill the economic and news space left by

the shrinking press are more difficult to characterize and predict. To annoyed critics of the blogosphere, it is an intellectual flea market; to its admirers, it may portend the triumph of citizen journalism in an emerging news democracy. Some smart, creative bloggers have earned loyal cadres of followers, including some reporters from the mainstream media who read and cite them. That's fair enough, since many blogs recycle mainstream news. One blog author who has developed strong stories by good sleuthing is Joshua Marshall, founder of a group of sites that originated from his *Talking Points Memo*. Marshall, who is given credit for breaking the story of the firing of U.S. attorneys that ultimately cost Alberto Gonzales his job, was the first blogger to win a major news award that had previously been restricted to mainstream journalism. He is unlikely to be the last.

But the blog universe has also become a supermarket for the propagation of all kinds of nonsense, including, alas, the organized promotion of some of the political untruths that led to angry shouting at recent "town hall" discussions about health care reform. The "journalism of announcement" also is capable of providing an abundance of scientific nonsense, which can quickly become reified into "information": that vaccination can lead to autism, for example. Will society come to profit more from the thoughtful and informative blogs like Marshall's, or will it instead risk a damaging reconstruction of democratic politics by scientific untruths and conspiracy theories marketed by others?

Will the world of citizen journalism eventually take over the news business? I would venture a guess that the outcome will depend not only on the public's patience with reading news on a screen,

but also on how the controversy over “Internet freedom” is resolved. An abundance of ethical passion now clouds that issue because we exist in a world in which anything that can be said, *will* be said. The Electronic Freedom Foundation vigorously defends the view that any limitation on freedom of Internet speech – by government or private entities – amounts to censorship. The debate has led to serious contests over intellectual property, particularly in terms of the swapping of music files, which the music industry views as theft. One enthusiastic activist on behalf of openness describes the struggle as follows:

The movement to keep the Internet free will be the defining fight in the information age, just as the environmental movement is the defining fight of the industrial age. As our physical make-up is reduced to a string of ones and zeros, and knowledge replaces property and labor as the means of production, democratic access to information becomes a basic civil right.

That is quite an extravagant claim, but it is not an unusual one from the advocates for electronic freedom. The copyright battle may be central in this war, but concerns about Internet freedom may come from quite a different source. In several well-publicized cases, sites such as Facebook have been used by bloggers with personal vendettas who employed Internet power to humiliate victims to the point of suicide, or in another case, to destroy the legal careers of applicants to Yale Law School.⁶ In such cases, no legal remedy has been available to the victims – although had the same damaging assertions made against them been published in a newspaper or by a television station, those news outlets likely would have been vulnerable to a lawsuit based on a claim of slander or libel. No doubt the parties

doing the damage took some comfort from their anonymity online. But my Stanford Law School colleague Mark Lemley, a pro bono attorney for the two Yale women, points out that “such behavior in the future may have to be accompanied by an understanding that you are not as private as you think!”⁷

Can the barrier to legal action in cases like these be breached? It took some time before the freedom of speech issue had to be dealt with directly in the case of incitement. For some time, the canonical exceptions were pretty much limited to crying “fire” in a crowded theater. But the Supreme Court, in *Brandenburg v. Ohio*,⁸ broadened the exemption, fixing on incitement in two ways: first, to include speech that is directed at inciting or producing imminent lawless action, a clause including intent; and second, to include speech likely to incite or produce such action, irrespective of intent.

The perils of citizen journalism, and the capacity of modern search engines like Google to recycle endlessly any assertion about anyone, are coming to be understood by persons anxious about their careers. Many shun the permanent exposure guaranteed by social networking sites, and an ambitious politician would have to be crazy to post his or her latest idea in a place where it would be discoverable later by political enemies. College admissions officers are giving informal advice to new students to set their security settings carefully because much of what they post online can end up publicly accessible.

Of course, it is premature to predict the onset of a regulatory regime for the Internet. But there are serious questions out there, and much about the future of news will depend on the answers society gives. This much is clear: the terrain of news and information is being recon-

figured by new information technologies; but it is also being reconfigured by consumer convictions, loyalties, and preferences that are changing before our eyes.

From my perspective, public understanding of science may well be the most important social value at stake in this transformation. We must count

on the surviving sources of news – those that practice the journalism of verification – to provide science coverage that is careful, cautious, and responsible. So far, the “new news” has given us scant encouragement that reliable science coverage will be as strong after this transition as it was in the past.

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ENDNOTES

¹ Historians differ about Kahn’s penchant for substituting fruit names for worrisome economic trends. *Time* magazine said it was about inflation, others say recession. There is a suspicion that the White House required Kahn to make the substitution.

² See, for example, Eric Taub, “New E-Newspaper Reader Echoes Look of the Paper,” *nytimes.com*, September 7, 2008.

³ See also Ethan Zuckerman’s essay in this issue on the future of international reporting.

⁴ Alex Jones’s new book, *Losing the News: The Future of the News that Feeds Democracy* (New York: Oxford University Press, 2009), is a richer source of his argument that we are in danger of eroding our national faith in news that feeds democratic institutions.

⁵ A lively and highly readable exploration of this and other issues discussed here is Eric Alterman, “Out of Print – The Death and Life of the American Newspaper,” *The New Yorker*, March 31, 2008.

⁶ See, for example, Christian Nolan, *The Connecticut Law Tribune*, March 6, 2008.

⁷ A recent op-ed by Maureen Dowd (*The New York Times*, August 25, 2009) calls further attention to the kind of personal mischief that can be caused by these efforts of blog vigilantism.

⁸ <http://laws.findlaw.com/us/395/444.html>.