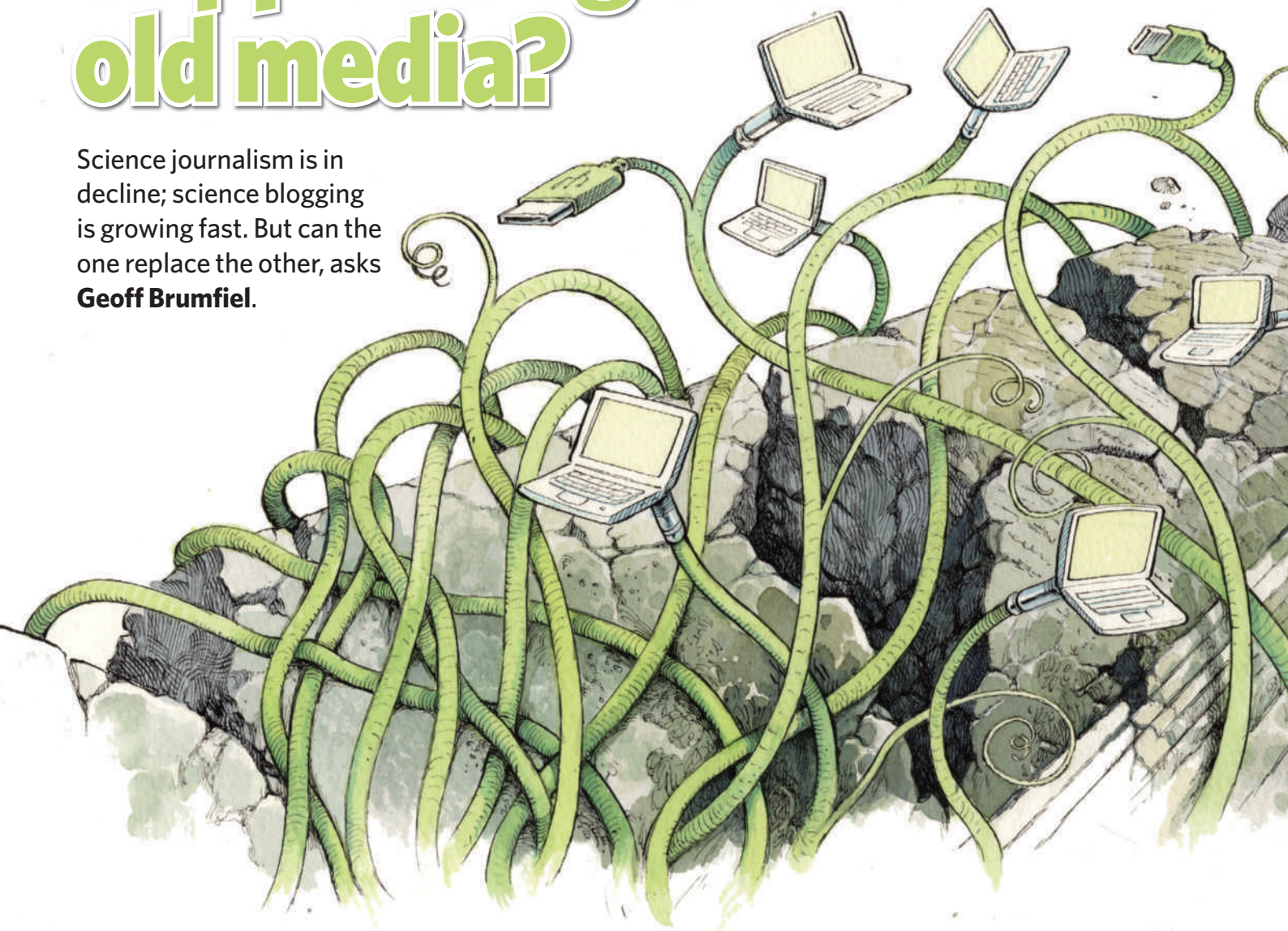
NATURE|Vol 458|19 March 2009

Supplanting the old media?

Science journalism is in decline; science blogging is growing fast. But can the one replace the other, asks **Geoff Brumfiel**.



DAVID PARKINS

John Timmer's slide into journalism was so gradual even he can't put his finger on the point at which he stopped being a researcher.

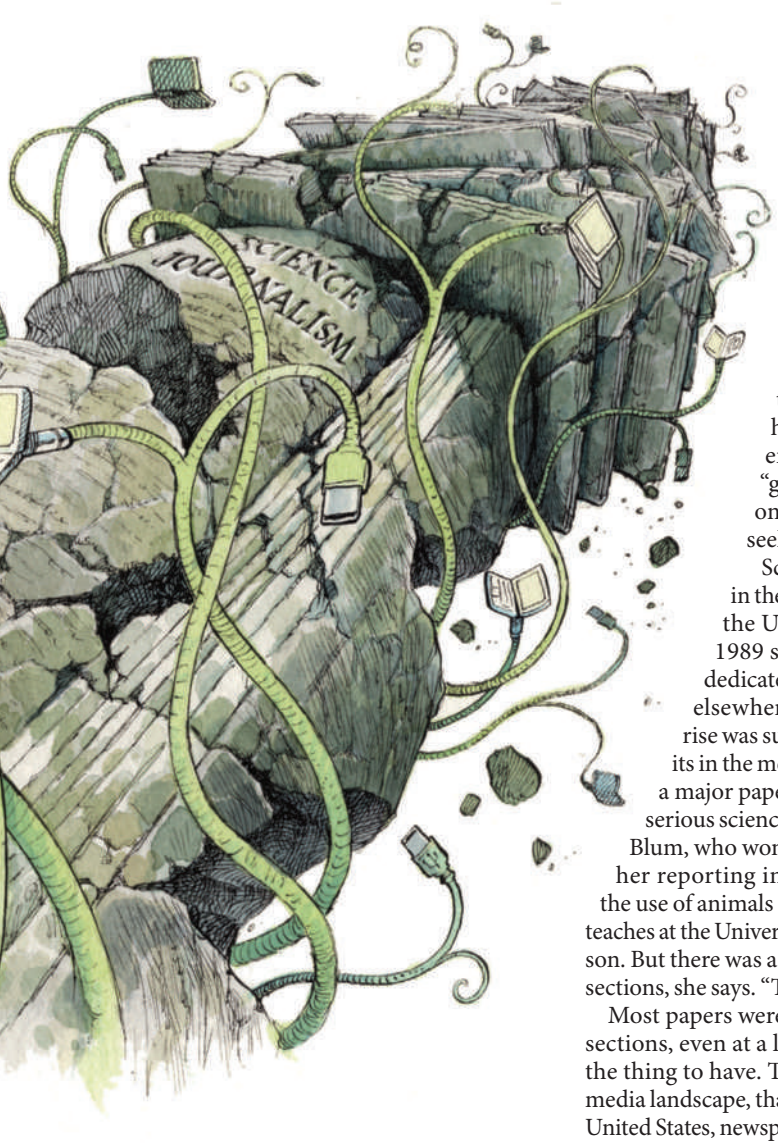
He started reading Internet websites and message boards a decade ago, while he was working as a postdoc in a developmental neurobiology lab at the Memorial Sloan-Kettering Cancer Center in New York. One day, one of his favourite sites, Ars Technica, announced that it was looking for someone to help with its science coverage. It was 2005, and a school board in Dover, Pennsylvania, had gone to court over the promotion of intelligent design. "I thought, wow, it really feels like the public has completely lost touch with what science is all about," says Timmer. "So I basically e-mailed the existing author and volunteered."

Over the next few years Timmer's work on the site grew steadily, while his research career stalled. Today the 42-year-old draws a full-time salary as Ars Technica's science editor. He works with writers echoing his earlier experience: graduate students and postdocs type up brief summaries on research in their areas of expertise during down time and lunch breaks. The write-ups are more technical than you might read in a newspaper — a recent post included a lengthy discussion on 'functionalizing' cells to bind them together with DNA — but that's fine, Timmer says. The idea is to provide people already interested in science with greater insight into how research works. A typical posting can earn a writer anywhere from the price of a pair of movie tickets to around US$100, and that is often incentive enough for young academics.

Timmer's tale is emblematic of a shift in the way science meets the media. In part because of a generalized downturn, especially in newspaper revenues, the traditional media are shedding full-time science journalists along with various other specialist and indeed generalist reporters. A *Nature* survey of 493 science journalists shows that jobs are being lost and the workloads of those who remain are on the rise (for full results see http://tinyurl.com/c38kp6). At the same time, researcher-run blogs and websites are growing apace in both number and readership. Some are labours of love; others are subsidized philanthropically, or trying to run as businesses.

It's a blog world

Traditional journalists are increasingly looking to such sites to find story ideas (see 'Rise of the blogs', page 276). At the same time, they rely heavily on the public-relations departments of scientific organizations. As newspapers employ fewer people with science-writing



backgrounds, these press offices are employing more. Whether directly or indirectly, scientists and the institutions at which they work are having more influence than ever over what the public reads about their work.

The amount of material being made available to the public by scientists and their institutions means that "from the pure standpoint of communicating science to the general public, we're in a kind of golden age", says Robert Lee Hotz, a science journalist for *The Wall Street Journal*. But that pure standpoint is not, or should not be, all that there is to media coverage of science. Hotz doubts that blogs can fulfil the additional roles of watchdog and critic that the traditional media at their best aim to fulfil. That sort of work seems to be on its way out. "Independent science coverage is not just endangered, it's dying," he says (see 'Vox media', page 277).

What's more, the amount of material available is not a good proxy for its reach. Press releases and blogs will not find the same broad audience once served by the mass media, says Peter Dykstra, who was executive producer of CNN's science, technology, environment and weather unit until it was closed down last year. Now at the Woodrow Wilson International Center for Scholars, an independent think tank in Washington DC, he says that science and environment news will be "ghettoized and available only to those who choose to seek it out".

Science journalism boomed in the 1980s and early 1990s. In the United States — where by 1989 some 95 newspapers had dedicated science sections — and elsewhere, the field's precipitous rise was supported by buoyant profits in the media sector. "The model of a major paper was that they did really serious science coverage," says Deborah Blum, who won a 1992 Pulitzer Prize for her reporting in the *Sacramento Bee* on the use of animals in research, and who now teaches at the University of Wisconsin at Madison. But there was a problem with the science sections, she says. "They didn't make money."

Most papers were willing to support their sections, even at a loss, because science was the thing to have. Today, in a harsher mass-media landscape, that has changed. Across the United States, newspaper science sections have been shut down: this month *The Boston Globe* stopped running its weekly science and health section. Nor is the written word the only casualty, as the closure of Dykstra's seven-person unit at CNN indicates. *Nature*'s survey shows that, of those working in the United States and Canada, one in three had seen staffing cuts at their organization (see 'Hiring practices').

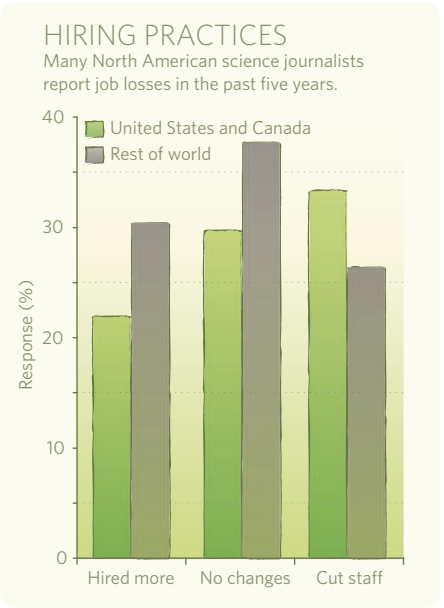
The European industry has not yet reached the level of crisis seen in the United States, says Holger Wormer, a professor of science journalism at the University of Dortmund in Germany. Many newspapers in Germany are considering staff cuts but, at the moment, science journalists are faring relatively well. "Science departments are still small but they are regarded as quite important," he says. Because larger German papers such as *Frankfurter Allgemeine Zeitung* have science sections, smaller papers are willing to support their own science coverage, at least for now. In France, declining circulations are also creating problems, according to Stéphane Foucart, a science writer at *Le Monde*. In the past six months, *Le Monde* has scaled back its science coverage. Newspapers and broadcast outlets in the United Kingdom are also under pressure, and science and environmental jobs are among those that have been lost.

Unsurprisingly, among the science reporters who remain, the workload is on the rise. *Nature*'s survey reveals that 59% of journalists have seen the number of items they work on in a given week increase over the past five years. They are not just doing more reporting, but more types of reporting. Many are now being asked to provide content for blogs, web stories and podcasts — something they weren't doing five years ago.

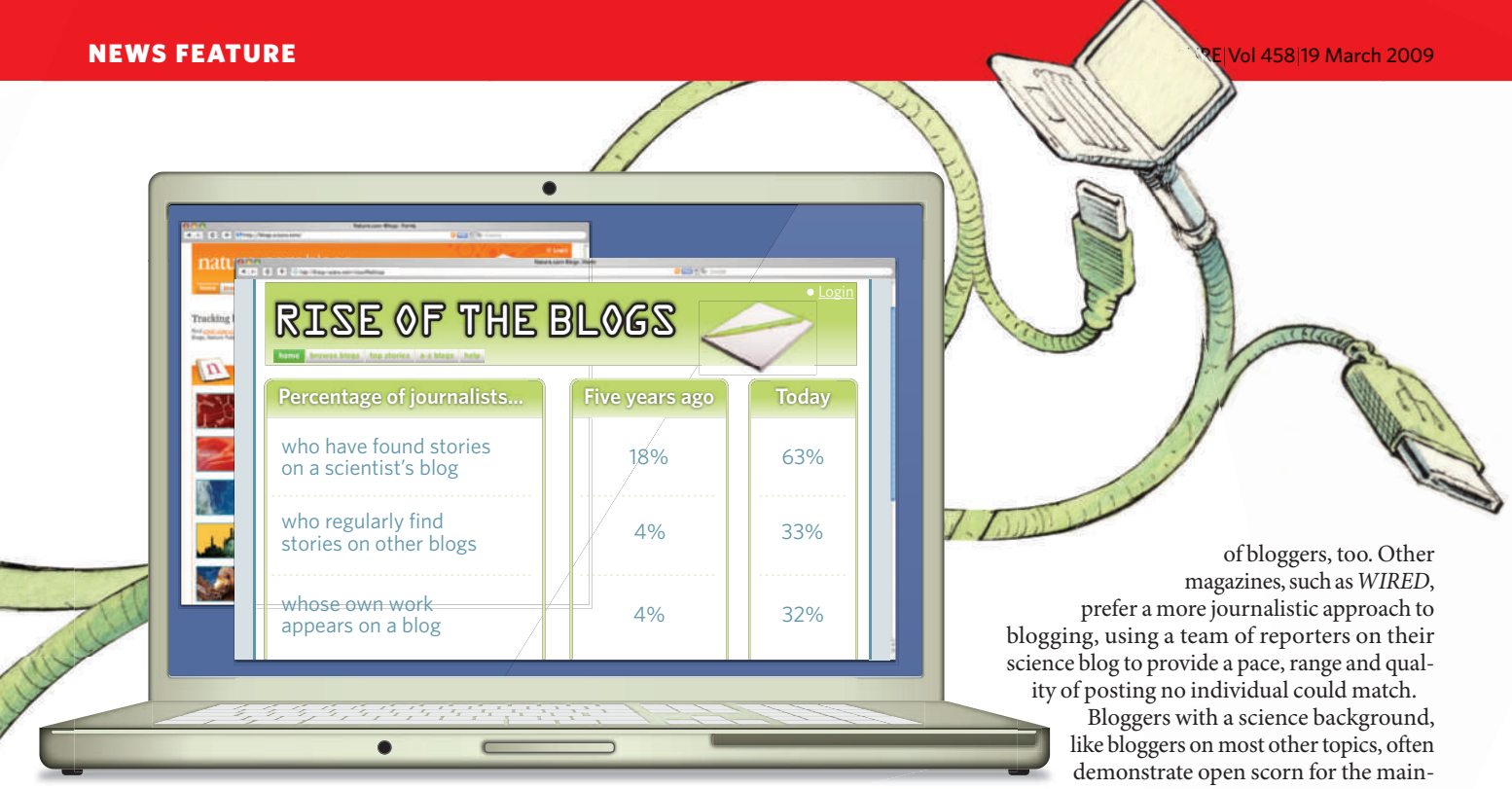
Fast and dirty

Under these straitened conditions the mainstream media's need for quick and accurate science content is being met primarily by public-relations departments, according to Fiona Fox, director of the Science Media Centre, an organization in London that supplies journalists with scientific information (*Nature*'s editor-in-chief, Philip Campbell, sits on the Science Media Centre's board, and the Nature Publishing Group provides support for it). Mark Henderson, science editor for *The Times*, based in London, says that he tries to avoid relying solely on releases "as much as possible", but "if there's a good press release and you've got four stories to write in a day, you're going to take that short cut". *Nature*'s survey shows press releases to be a top source of story ideas for science journalists, with 39% routinely quoting from them directly.

This demand for stories and ideas has been matched by an increase in supply. In Britain as



NATURE|Vol 458|19 March 2009



in the United States, contraction in the media has made jobs in public relations particularly attractive for students at science-writing programmes. "You'd be amazed at the diversity of places for science communicators," says Blum. Government agencies, universities, museums and non-governmental organizations have all hired her students, she says — almost all of whom are finding jobs, despite the woes of the traditional media.

The Science Media Centre demonstrates the new opportunities that exist now. It was started in 2002 by an amalgam of non-commercial and commercial interests seeking to influence the public debate on news topics such as genetically modified foods. What began as a relatively modest attempt to connect journalists to sources of scientific expertise has expanded dramatically over the past seven years. Today, the centre's six-person staff sends out daily e-mails filled with quotes from prominent scientists on the latest news that end up in tomorrow's stories. It has also begun providing fact boxes and background documents that journalists can insert directly into their coverage. Fox is happy at the centre's success, but uneasy too. Ideally, she says, science journalists should be picking up the phone and talking to scientists directly: "We are successful because of a serious problem in journalism, and it's not one to be celebrated."

Straight to the masses

As journalists become more dependent on scientific public relations, scientists themselves have begun reaching out to mass audiences through the Internet. Such outreach is not new; but unlike books and lectures, science blogs operate with a quick turnaround that more closely resembles that of the traditional media. The most successful sites are drawing hundreds of thousands of visitors each month.

Many of those blogs were started by scientists who simply wanted to reach the public with information about their research. "I'd always find that people were interested in what I did," says Derek Lowe, a researcher with Vertex Pharmaceuticals in Cambridge, Massachusetts, and author of In the Pipeline, a blog about drug discovery and the pharmaceutical industry. "Most people have no idea how drugs are actually found," he says. Lowe started his blog in early 2002, and now it regularly draws around 200,000 page views a week.

Paul Myers, a biologist at the University of Minnesota in Morris, says that he started his blog Pharyngula "largely out of boredom", but now that he gets more than half-a-million weekly page views, he sees it as a valuable tool for talking to a public audience. Myers freely admits that his readers "are not just there for the science" — his attacks on religion are a mainstay of the blog's appeal. But he certainly considers himself a source of scientifically reliable information for his readers.

> "It feels like the public has completely lost touch with what science is all about."
> — John Timmer

Although science blogging did not start off as a business, there are attempts to make it one. Since 2006, the publisher of *Seed*, a magazine about science, has gathered more than 100 science blogs — including Pharyngula — on a range of topics on to a single website, ScienceBlogs, and now pays its bloggers on the basis of how many hits their posts receive. Fabien Savenay, a senior vice-president for marketing at Seed Media Group in New York, declines to say whether the blog site makes money for the organization. But, he says, the project "has been a successful franchise for us in that it has great traffic and engagement". Another US magazine, *Discover*, has recently been amassing a smaller but impressive stable of bloggers, too. Other magazines, such as *WIRED*, prefer a more journalistic approach to blogging, using a team of reporters on their science blog to provide a pace, range and quality of posting no individual could match.

Bloggers with a science background, like bloggers on most other topics, often demonstrate open scorn for the mainstream media (MSM in blogspeak). "You get a press release that is slightly rehashed by somebody in the newsroom and it goes in the paper! It's wrong, its sensationalist, it erodes the public trust in scientific endeavour," says Bora Zivkovic, author of A Blog Around the Clock on ScienceBlogs and an online community manager for the Public Library of Science journals. Myers takes a similar view. "Newspapers realize that they can get their audience by peddling crap instead of real science," he says. Not surprisingly, those who came to blogging from journalism — such as Carl Zimmer, who writes for a range of publications, including *The New York Times*, and blogs at *Discover* — tend to disagree. But Larry Moran, a biochemistry professor at the University of Toronto, Ontario, who blogs at Sandwalk, seemed to speak for many bloggers when he recently wrote "Most of what passes for science journalism is so bad we will be better of [sic] without it".

While journalists such as Zimmer expand their mainstream work into their blogs, bloggers with roots in the lab are moving into print. Myers will soon contribute a regular column to the *Guardian* newspaper in the United Kingdom. Derek Lowe now writes regular columns for *The Atlantic* and the trade magazine *Chemistry World* (both have also written for *Nature*). This work, though, tends towards opinion and analysis, not reporting. "Bloggers don't want to be journalists," says Zivkovic. "I want to write on my blog whatever I want. I may write a post about a new circadian paper, but the next eighty posts are about politics or what I ate for breakfast." Despite his distaste for how the trade is practised, he thinks that there will always be a need for professional journalists covering science. "Somebody has

Vox media

More than 100 science journalists responding to *Nature*'s survey offered their thoughts on the future of the field. Here's a sample of what they had to say:

"Science journalism is dying in the mass media. It has always been a niche subject, but only those really interested in it will continue to purchase specialist science media. Print publications will become more niche but will survive. TV news and documentaries will become dumbed down in order to compete with the idiocy on the Internet."

"The public remains interested in science. They pack science fairs and museums; they buy popular science books; they watch TV documentaries. But I'm not sure the public's appetite for science is so great that people need daily science news. So when this or that media outlet cuts its science desk, it could be in response to what they can now measure on their websites: which topics really engage the public day to day."

"I am a scientist who is freelancing occasionally for a science popularization magazine published by my institute. Most of the time, the description of the scientific result in a press release is so dumbed down that I cannot find out what the result actually was in the terms of an expert! Instead of dumbing down the science to the level of the general public, we should be trying to educate the public. "

"It has been shocking to see the public come to view science news as a bulk commodity. Readers seem to make little or no distinction between professionally written reports from independent news organizations and promotional writing masquerading as news on various blogs and science 'news' websites."

"Commercial pressures are polluting science journalism. The mainstream media has pitifully low standards of science journalism where the herd mentality prevails. There is a prevailing view among newspaper editors that science does not deserve as much coverage as other fields, founded probably on nothing other than these editors personal chip on their shoulder regarding their own scientific education."

"I'd love to know if the monks were wringing their hands over the horrible shallowness of thought sure to follow the invention of those funny little letter bits squashed on paper with a press." **G.B.**

to actually be paid to write about things as they come out," he says.

That is what John Timmer is looking for new ways to do at Ars Technica. But there is a problem: the online world, both in its bloggier reaches and elsewhere, is polarized; people go to places they feel comfortable. Many of the people that Timmer originally hoped to reach when writing about intelligent design and the Dover trial probably go elsewhere for their news, he says, because "it's easy for somebody to pick their news sources based on their politics, and get that version of scientific issues". Dykstra worries that in a more fragmented media world, "environmental news will be available to environmentalists and science news will be available to scientists. Few beyond that will pay attention."

> **"Science is just like any other enterprise. It's human, it's flawed, it's filled with politics and ego."**
> — Deborah Blum

Others worry about the less questioning approach that comes with a stress on communication rather than journalism. "Science is like any other enterprise," says Blum. "It's human, it's flawed, it's filled with politics and ego. You need journalists, theoretically, to check those kinds of things," she says. In the United States, at least, the newspaper, the traditional home of investigations and critical reporting, is on its way out, says Hotz. "What we need is to invent new sources of independently certified fact."

Culture mash

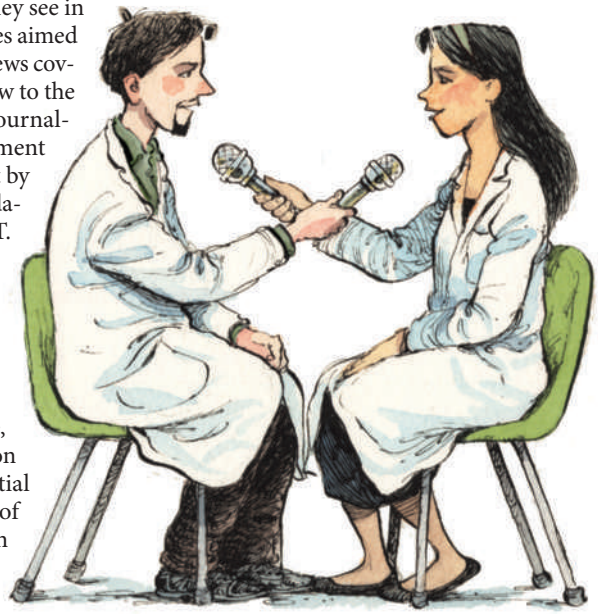
Two Ivy League giants, Princeton University in New Jersey and Yale University, are trying to do something about the problems they see in environmental coverage with websites aimed at generating scientifically accurate news coverage. "We're bringing something new to the table," says Roger Cohn, a veteran journalist who now edits the Yale Environment 360 website, which is funded in part by the William and Flora Hewlett Foundation and the John D. and Catherine T. MacArthur Foundation. The site is home to reports by journalists and opinions by scientists on subjects such as climate change, but it has "no axe to grind on any one of these issues", says Cohn.

At the Princeton University website, Climate Central, the focus is mainly on video material. "We're just in the initial stages of preparing a weekly series of news stories about climate based on papers in journals," says Michael Lemonick, a long-time science writer for *Time* magazine who now works at the site. As well as appearing on Climate Central, he says, the stories will be offered to the websites of big media outlets; some of the group's work has already been aired on the Public Broadcasting Service's evening news show *The NewsHour with Jim Lehrer*, which reaches millions of viewers. Climate Central is funded by the Flora Family Foundation and The 11th Hour Project, a non-profit organization supporting climate awareness, based in Palo Alto, California.

Lemonick says his new job requires him to listen more closely to researchers. "If they say, 'you really left out this important fact,' I don't get to say, 'Sorry it's my story'," he says. That doesn't mean that researchers make his story into a dry scientific paper, he adds. "They have to recognize the needs of the journalist, but we have to recognize the needs of the scientists. We're kind of fusing the two cultures." Timmer's path has also led him to a fusion of science and journalism. In May, media giant Condé Nast acquired Ars Technica, and he was brought on full-time. "When I'm interacting with press officers or researchers, I'm acting as a journalist," he says. "I don't think anybody would consider me a working scientist any more." But when asked how he sees the scientists writing for him, he becomes more philosophical: "Basically, however they see themselves." ■

Geoff Brumfiel is a senior reporter in *Nature*'s London office.

See Editorial, page 260.
Full survey data accompany this article online.



DAVID PARKINS

Climate experts urge G20 to make stimulus green

Climate-change analysts have urged leaders of the world's largest economies to invest more of their stimulus packages in reducing greenhouse-gas emissions.

Ottmar Edenhofer, co-chair of the Intergovernmental Panel on Climate Change, and Nicholas Stern, chair of the Grantham Research Institute on Climate Change and the Environment at the London School of Economics and Political Science, are aiming their report, *Towards a Global Green Recovery*, at politicians attending the G20 summit in London on 2 April.

The report estimates that almost $400 billion of the total $2,610 billion in economic-stimulus packages unveiled so far by the G20 nations has been earmarked for green measures such as renewable-energy projects (see chart). China says it will devote almost 35% of its stimulus spending (about $200 billion) on green projects in 2009 and 2010, and South Korea plans to devote more than 80% of its $38-billion stimulus on green measures in the next four years.

For more G20 coverage see www.nature.com/news.

SOURCE: TOWARDS A GLOBAL GREEN RECOVERY

Geometric work secures top maths prize

Mikhail Gromov won the 6-million-Norwegian-kroner (US$900,000) Abel Prize last week for his work on advanced forms of geometry. The Russian expatriate holds appointments at the Institute of Advanced Scientific Studies outside Paris and the Courant Institute of Mathematical Sciences at New York University. The Abel committee cited Gromov for his contributions to the study of Riemannian geometry, symplectic geometry and group theory.

Gromov is "renowned among mathematicians for his original approach", says Ian Stewart, a mathematician at the University of Warwick, UK, and his work has guided many other mathematicians and physicists. The Abel Prize was founded in 2003 by the Norwegian Academy of Science and Letters to complement the Nobel prizes, which do not reward work in pure mathematics.

For a longer version of this story, see http://tinyurl.com/abelprize.

Grazing limits effects of ocean fertilization

Preliminary results from a controversial Indo–German ocean fertilization experiment (LOHAFEX) have cast doubt on whether stimulating algal growth can help the sea sequester substantial amounts of carbon dioxide.

Earlier this year, researchers aboard the German research vessel *Polarstern* (pictured) poured 20 tonnes of iron sulphate over a 300-square-kilometre area of the Southern Ocean around the Antarctic (see *Nature* **457,** 243; 2009).

ALFRED-WEGENER-INST.

However, grazing by small crustaceans prevented blooms from growing as much as some had hoped, according to Germany's Alfred Wegener Institute for Polar and Marine Research in Bremerhaven, one of the experiment's backers. Furthermore, a lack of silicic acid in the water restricted the growth of diatom plankton, which are more resistant to predation than the algae. The fertilization therefore removed only a "modest amount" of carbon from the environment.

Drug patent pools start to take shape

GlaxoSmithKline, the world's second-largest pharmaceutical company in terms of sales, has fleshed out proposals outlined last month to create a pool for companies to share patents to boost research into neglected diseases (see *Nature* 457, 1064–1065; 2009).

The company says that it will put some 500 patents and 300 pending applications into the pool, and has confirmed that on 1 April it will cut the price of its drugs in the world's 50 poorest countries to no more than 25% of prices in the developed world.

On 24 March, Ivan Lewis, the UK minister for international development, called for other pharmaceutical companies to contribute to both GlaxoSmithKline's patent pool and another pool for AIDS drugs that is being established by UNITAID, an international organization that negotiates lower drug prices.

Gates supports Chinese tuberculosis drive

China this week announced new measures to tackle its growing problem with tuberculosis (TB). On 1 April, health minister Chen Zhu and Bill Gates announced a partnership, supported by a 5-year US$33-million grant from the Bill & Melinda Gates Foundation, to pilot new diagnostic tests, monitoring strategies and treatments for the disease. The Chinese government will scale up the most effective of these trials.

A day earlier, the Chinese Academy of Sciences and the Gates-supported Global Alliance for TB Drug Development signed a partnership to search for anti-TB drugs among Chinese herbal medicines.

The announcements came at the start of a three-day meeting in Beijing, organized by the World Health Organization, where health officials from 27 countries are discussing how to control multidrug-resistant TB.

Fossils protected in US land legislation

After nearly 20 years, US scientists have won approval for a law that seeks to protect vertebrate fossils found on federal lands.

The US Vertebrate Paleontological Resources Preservation Act was included in omnibus land-management legislation signed into law on 30 March by President Barack Obama.

The bill means a permit is needed to collect any scientifically significant vertebrate fossil, officials say. But it would allow 'casual collecting' of common fossils. Details of how the law will be applied are yet to be finalized.

Officials at the Society of Vertebrate Paleontology have pushed for the legislation because of the widespread practice of commercial collecting, where important specimens may be sold and not recorded in the scientific literature.

Correction

The article 'Supplanting the old media?' (*Nature* **458,** 274–277; 2009) incorrectly stated the web traffic received by Derek Lowe's blog, In the Pipeline. The blog receives around 200,000 page views each month, not each week.