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SCIENCE COMMUNICATION

From page to screen

As print dwindles and online platforms grow, job prospects are changing for science writers.

BY KENDALL POWELL

Lena Groeger is not a conventional science journalist. She develops applications for ProPublica, a non-profit online news organization based in New York. Using software code and data sets, she builds searchable databases and interactive graphics to

accompany investigative-news articles. Ten years ago, such a job did not exist — and an online journalism position might have earned funny looks and consoling remarks from colleagues. Back then, web-based journalism was deemed risky and second-rate compared with ‘real’ journalism at newspapers or magazines. Now, those conventional jobs are in decline,

and Groeger’s former classmates from the Science, Health and Environmental Reporting Program (SHERP) at New York University congratulate her on her position.

Internet-focused careers are popping up in many realms of science communication. The field has gone through a similar revolution before, during the Internet boom of the 1990s — but that ended in a disastrous burst bubble. The current online-news trend seems to have more staying power, thanks to mature business models and readers more inclined to spend time and money online. At the same time, conventional outlets for science journalism are on the wane: last month, the *Columbia Journalism Review* reported that the number of US newspapers with weekly science sections had dropped from 95 in 1989 to 19 in 2012. The field’s future remains in flux.

The past few years have seen dramatic shifts in how the public consumes news. “Everybody using the web becomes their own editor, putting their own ‘newspaper’ together every day,” says Rick Borchelt, director of news and public affairs at the US National Cancer Institute in Bethesda, Maryland. He adds that readers are “curating their own streams” of information through blog subscriptions, web alerts or skimming favourite sites.

This has driven a shift towards a direct-to-consumer model in science journalism, communications and public relations. Rather than relying on conventional publications to get the word out, websites such as LiveScience.com take science news straight to readers and provide content to general online news sites such as Yahoo!. Universities and research institutions are also publicizing content directly to audiences through their own websites, social-media platforms and video channels.

THE NEW NEWS

Young scientists tempted by a career in science journalism still need broad curiosity and a knack for writing, but there is also a growing need for digital media skills — including writing for and posting on the web, and the basics of web design — that can be learned on the job or through journalism training. Opportunities are not restricted to North America and Europe: writers who can critically understand and translate science-related stories about topics such as pollution or climate change are in high demand among the newly independent media outlets of the Middle East and Africa. Uncertainties remain about how science writing and media will evolve, but prospects are ►

► good for candidates who remain flexible and willing to pursue unconventional opportunities at unconventional outlets.

Robert Irion took over as director of the Science Communication Program at the University of California, Santa Cruz (UCSC), in 2007. Since then, he has seen 15 out of 52 graduates get jobs dedicated to online writing or producing. Science websites such as OurAmazingPlanet.com and Space.com are hiring full news teams; writers with biomedical training are finding jobs with websites such as the Alzheimer Research Forum (alzforum.org). Although positions are generally 'entry-level', says Irion, they offer dynamic environments and opportunities to move up the editorial ladder.

ONLINE OUTLETS

"There are staff opportunities that didn't exist before," says Dan Fagin, director of SHERP. The scientific journal *The Proceedings of the National Academies of Science* launched a journalistic section this month; it has no staff positions apart from its editor, but has contracted 12 freelance writers. Quartz (qz.com), a global business-news website started last year and designed for delivery to tablets and smart phones, has hired writers for its energy and technology sections. Unlike their counterparts in earlier Internet booms, such web-only startups now appear to have more solid business plans and backing. Quartz is owned by Atlantic Media in Washington DC; the Alzheimer Research Forum is funded in large part by Banner Health, a non-profit health-care provider based in Phoenix, Arizona. It is not yet clear how secure the future of these sites will be in the long run, "but the market for our graduates is definitely better than it was even two to three years ago", says Fagin.

The picture is not bright everywhere. A popular dual master's programme in Earth and environmental science journalism at Columbia University in New York shut its doors to new applicants in 2010, mostly because of concern that graduates were struggling to find enough

work to pay off the substantial US\$89,000 tuition fee for the two-year degree, according to the *Columbia Journalism Review* (see go.nature.com/htnw8j). A note on the university's website states that the programme will not be accepting applicants for the foreseeable future "due to the current weakness in the job market for environmental journalists".

Fagin says that in the past few years, an increasing number of SHERP graduates who want to be storytellers have gone straight into



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Melissa Lutz Blouin

are highly skilled and well connected.

Science-writing programmes now train students in a range of digital platforms and technologies. The courses at UCSC and New York University, for example, include work with digital photography, video and audio webcasting, blogging, social media and data-driven journalism — mining large, public data sets for science stories. Stephen Webster, director of the Science Communication Unit at Imperial College London, says that his programme, which offers two master's degrees, has blended

digital technologies into its five tracks of video documentary, radio broadcasting, writing, web design and gallery or museum exhibition.

"We caution incoming students, 'Don't imagine [the degree] means you'll be at a newspaper,'" says Webster. "If you are a good writer, it's more likely you'll be working on scripts for a radio documentary or in science communications." A 2012 poll that randomly sampled 251 alumni of the two programmes found that 44% were working in broadcast, print or online journalism and another 44% in science communications or related areas, including museums, policy and education.

The UCSC programme added social-media training because so many online positions require that writers and reporters be active across platforms such as Facebook, Twitter and Tumblr, says Irion. Hiring editors want writers who have built an online presence with thousands of followers, who know how to spread stories and "have a nose for news that has a potential to go viral", he says.

Fagin points out, however, that one thing has not changed much: a PhD is still by no means a prerequisite for a science-writing career. "Does it help? Sure. Is it absolutely necessary? Definitely not," he says. "Having the writing skills, journalistic instincts, facility with the tools and a deep understanding and appreciation of the scientific process are much more important."

LINES OF COMMUNICATION

In the past decade, science-communication jobs have grown to outnumber conventional science-journalism posts in both North America and Europe. Hard numbers are difficult to come by, but in 2012, the US National Association of Science Writers in Berkeley, California, conducted a survey of its members. Out of 1,982 respondents, 16% reported holding staff positions at academic institutions, 3% at newspapers and 9% at magazines.

Christian Heuss, former chief of science staff at Swiss Radio and Television in Basel, says that in Switzerland, there are nearly twice as many

GLOBAL OUTLOOK

An international snapshot of science writers

Science writers' perceptions of the prospects for their field vary greatly by region, according to an international study by SciDev.net, a non-profit science-news organization based in London (M. W. Bauer *et al.* *Global Science Journalism Report* SciDev.net; 2013).

Using data from four different surveys — one conducted at the World Conference of Science Journalists in London in 2009, another by a Latin American team in 2010–11, and two by SciDev.net teams in 2012 — the organization built a database of responses from 953 science journalists.

Across the entire sample, about 72% of respondents are satisfied in their jobs. But only 29% in Europe and 32% in the United States and Canada would definitely encourage a young person to pursue science journalism. Other regions seem more positive, with 80% in North Africa and 72% in southern Africa reporting that they would encourage aspirants; the figures are 60% and 55% in Asia and Latin America respectively. Survey responses suggested that the pessimism in the United States and Canada is at least partly attributable

to concerns about the decline in print journalism.

Overall, 10% of science journalists who responded to the surveys hold a PhD, but that jumps to 32% in Europe and 31% in the United States and Canada. Full-time staff writers account for 51% of respondents, full-time freelancers 18% and part-time freelancers 14%. At least half of respondents use Twitter, other social media or blogs in their work, with numbers in the Middle East and North Africa higher than the global average. **K.P.**

major-university communication positions as there are conventional science-journalism jobs. Heuss himself has just made the switch to become head of communications at the Swiss Tropical and Public Health Institute in Basel.

The change is rooted in the growing demand for online content and a need for institutions to keep the public informed about taxpayer-funded research. Some publicly funded US universities are under hiring freezes, but many other institutions around the world are beefing up their communications teams.

Science writers working in academia need many of the same skills as science journalists, including a solid writing ability, research experience and digital know-how. Communications jobs have shifted from putting out the university's news of the day to targeting select audiences directly with marketing messages. Rather than solely writing press releases, science writers at universities now also craft speeches to donors and multi-media web presentations meant to highlight undergraduate research. Audiences include patients, students, faculty members, alumni, donors, legislators and decision-makers, as well as the regional, state and global public.

Borchelt says that research institutions are experimenting with how best to woo online audiences. "We can't take our traditional news products, like press releases, and just transfer them over to a new medium. [New media] work a lot differently from how old media worked," he says.

Writers must not only be comfortable with digital platforms and social media, but also be able to manage them wisely, says Melissa Lutz Blouin, director of news and publications for the University of Florida Academic Health Center in Gainesville. "Is [the news] conducive to a video or a slide show? A feature in a magazine that gets sent to decision-makers? Or is it short enough to do a tweet?" she asks. "If you can do all of that at some level, you're going to be more employable."

Recruiters stress the importance of being a collaborative 'people person', because a science writer will probably be part of a marketing team. "It's not yet a saturated market for people who can do both science and writing and do both well," says Borchelt.

GOING GLOBAL

Conventional science journalism is not in decline everywhere: in the developing world, it is thriving (see 'An international snapshot of science writers'). Newly independent media in countries such as India, Venezuela and some African nations have growing, highly educated audiences that demand science coverage. Editors need journalists who can cover stories about the effects of environmental crises and how technology booms are aiding regional economies. Jean-Marc

Fleury, executive director of the World Federation of Science Journalists, who is based in Gatineau, Canada, notes that in the past few years, newspapers in Cameroon, Nigeria and Uganda have brought in science desks or pages. Internet access is still patchy in many of these areas, so print publications retain their appeal.

"In the past decade, Egypt has our first independent newspaper and now the region has a lot of publications that have a section



"There are staff opportunities that didn't exist before."

Dan Fagin

or a weekly column talking about science," says Bothina Osama, the Cairo-based Middle East and North Africa news editor for SciDev.net, a non-profit organization based in London that provides science news focused on the developing world. "That's given a nice boost in science-journalism jobs."

Osama and about 20 colleagues founded the Arab Science Journalists Association in 2002. The organization now has more than 230 members. "Since the Arab Spring, people are becoming more interested in reading about science because they see it as a force of socioeconomic advancement in the region. There is a political will to have more science news," says Osama.

In 2006, the World Federation of Science Journalists launched its Science Journalism Cooperation Project (SjCOOP), which seeks to raise the profile and standards of science journalism in Africa and the Arab world, and is funded by government international-development agencies from the United Kingdom, Canada and the Netherlands. The programme matches general journalists from this region with science-journalism mentors from Europe and North America. Editors-in-chief in the Middle East and Africa are asking for good journalists who can cover science, says Fleury.

But as elsewhere, Fleury says, would-be science journalists in the developing world should be open to jobs not clearly labelled 'science correspondent'. Irion suggests that young science writers must be go-getters in the job market. "I'm optimistic for any student who is willing to be entrepreneurial and wants to explore writing about science across different platforms," he says. "Yes, parts of the science-writing ecosystem have withered on the vine. But opportunities keep popping up." ■

Kendall Powell is a science writer based in Lafayette, Colorado.

UNITED STATES

Geospatial shortage

US agencies face a shortfall in employees who can visually depict and assess global security threats, finds a report released on 25 January by the National Academies in Washington DC. *The Future U.S.*

Workforce for Geospatial Intelligence cites a need to measure Earth for surveying and environmental monitoring; determine objects' geometry through photos; and use visual data to synthesize information. It predicts personnel shortages at the US National Geospatial-Intelligence Agency owing to retirements, changing defence priorities and the need for international humanitarian support. Keith Clarke, a geographer at the University of California, Santa Barbara, and chairman of the report committee, suggests that interested scientists develop their skills in spatial thinking, mathematics and statistics.

EUROPEAN UNION

Inclusive rankings

The European Union on 30 January launched U-Multirank, a university ranking system based on broad criteria. In addition to research, used in most existing systems, it assesses universities' quality of teaching and learning; international networking; external partnerships; and regional engagement. Some 500 universities are expected to participate. A consortium led by the Centre for Higher Education in Gütersloh, Germany, and the Centre for Higher Education Policy Studies in Enschede, the Netherlands, will compile the first round of rankings by February 2014. The system is meant to improve transparency and reduce elitism in rankings, says a European Council representative.

ENDOWMENTS

University assets fall

Values of and returns from US university endowments have fallen, says a survey, but faculty recruitment is unlikely to be affected. The National Association of College and University Business Officers (NACUBO) in Washington DC and the Commonfund, an investment-management firm in Wilton, Connecticut, studied 831 institutions and found that endowments fell by an average of 0.3% between 2011 and 2012. Ken Redd, NACUBO director of research and policy analysis, says that faculty hiring is usually supported by other accounts and probably will not tighten as a result of the drop.