

# The Open Notebook and the art of science journalism

The importance of quality science journalism has been widely recognised throughout the long months of the COVID-19 pandemic. What is less frequently discussed is the unique skillset that is required to undertake this vital form of translation: ensuring that the complexity of cutting-edge research is communicated in such a way that it remains exciting, accurate, and digestible. The Open Notebook has therefore set itself a critical task: to ensure science, health and environmental journalists have the requisite skills and assistance to convey their message. Research Outreach spoke to Siri Carpenter, co-founder and editor-in-chief of the organisation, about the challenges and rewards of this most interesting form of journalism.

More and more researchers are recognising the importance of verifiable and accurate science outreach as a means of countering the tide of scientific misinformation. However, it can be remarkably difficult to communicate science to an audience who may have no scientific background. It requires a unique blend of creative flair and technical prowess to keep an audience informed and engaged. Siri Carpenter co-founded *The Open Notebook* as a means of sharing the tricks and tools which contribute to a strong piece of scientific writing. *Research Outreach* were privileged to speak to her about her background, the work of the organisation, and the myriad elements which make for great science journalism.

## Could you give us an introduction to your professional background?

I was working on my PhD in social psychology when I realised there was

such a thing as science writing, and I immediately knew that's what I wanted to do. During my last two summers of grad school, I was lucky to get two fantastic internships, one through the [American Association for the Advancement of Science Mass Media Science & Engineering Fellowship program](#), working at the *Richmond Times-Dispatch* in Virginia, and one at *Science News* magazine, in Washington, DC. After I graduated, I got my first "real" job, at the *APA Monitor on Psychology*, which is published by the American Psychological Association. Two years later, my husband and I had our first child, and we decided that we wanted to move back to Madison, Wisconsin, to be closer to our families. When we moved here to Madison in 2002, I became a freelancer, and I've been self-employed as a reporter and editor for most of my career (with an interlude as an editor at *Discover* magazine).



Siri Carpenter co-founded *The Open Notebook* to shed light on the practice of science journalism.

## What motivated you to start The Open Notebook?

Back around 2009, I had become friends with another journalist, Jeanne Erdmann, and the two of us had set ourselves up

"In an era where facts are under assault, this book is especially welcome."

— Jacqui Banaszynski, Pulitzer Prize-winning journalist and editor of *Nieman Storyboard*

## THE CRAFT OF SCIENCE WRITING

Selections from *The Open Notebook*

EDITED BY SIRI CARPENTER

as "accountability partners". Once a week or so, we'd get on the phone and talk about what we were each working on – ideas that we wanted to pitch to editors, stories that we were struggling with, adventures in procrastination, stuff like that. Often times we'd find ourselves talking about some story that we had just read and admired, and we'd wonder how the writer did such-and-such thing: how they got the idea to structure the story the way they did, or how they got access to certain documents, and so on. Out of

people could also benefit from them. That was the seed of the idea for *The Open Notebook*. Back then, I think we imagined that maybe we'd do a dozen or so interviews, probably not much more. I distinctly remember saying that I figured people might want to read, like, 15 or 20 story-behind-the-story interviews, but it's not like they'd want to read 50 of them. I hope I was wrong, since at this point we've published about 150 of them.

## Could you introduce us to some of the many aspects of the work currently undertaken by The Open Notebook?

Sure! As I said, we started by doing those story-behind-the-story interviews, and those are still one of our favorite things – it's so delicious to have the opportunity to get a peek behind the curtain and learn

so on. We also publish annotations of noteworthy science stories, where we break down, in painstaking detail, what makes that story so good and then talk with the writer about how they did it. We publish mini-profiles in which we try to shine a light on how people have broken into the field and what the daily life of a science journalist is like. We also have a database of more than 250 successful pitch letters, which freelance journalists can use to improve their skills at "pitching" ideas to editors. A couple of years ago we began translating some of our stories into Spanish.

In addition to what we publish at the website, we run several mentoring programs, the most longstanding of which is an intensive, 10-month mentored

## What makes great science writing great? It's been such a joyful surprise to discover, over the years, that there seem to be nearly limitless answers to that question.

those conversations, the idea emerged to do some interviews with writers, to learn the stories behind specific stories that we liked. We thought that maybe if we did a bunch of those interviews, we would learn from them and become better writers ourselves. (Plus, it was a totally justifiable, productive form of procrastination).

It wasn't long before it occurred to us that if we were going to do these interviews, maybe we should put them on the Internet somewhere so that other

about how other writers do their work, how they think about their work, what they struggled with, what blind alleys they went down, what they've learned that the rest of us might be able to emulate.

In addition to the interviews, we publish a lot of in-depth reported articles on various aspects of the craft of science writing, such as how to read scientific papers, or how to write about probability, or how to find scientist sources, or how to conduct interviews for investigative stories, and

internship for early-career science journalists. Just about two years ago, we published our first book, *The Craft of Science Writing*. And this past year, we began offering free, online courses, which are delivered by email.

## Are there any common pitfalls you notice science journalists falling into at the beginning of their careers?

That's a great question! I think one thing that's very common, when you're starting out, is to feel a lot of uncertainty about





Thought Leader

whether you're cut out for this – science journalism is a complex skill, and it takes time to learn, and I think it's easy to feel frustrated, early on, that you don't already know as much as you feel you should, or to be mortified the first time you get edits back on a story and it's a sea of Track Changes. Many science journalists, maybe most, are basically self-taught, and there's a lot to learn! How do you find expert sources with the right expertise for your story? How many people should you interview for a given story? What makes a good quote? How do you report on topics where the science is unsettled or is moving very fast? How do you figure out when you're done reporting and should start writing?

any new skill. And this is a shame because not only does it engender a lot of (usually) unnecessary existential angst, but also I think it sometimes prevents people from seeking out help within their community as they learn and grow.

**What are some of the winning ingredients you look for in a remarkable piece of scientific journalism?**

There are some basics, of course. It has to be true and accurate, and it has to be written clearly and be understandable to the intended audience. And it has to fundamentally engage readers to care about it and want to read it. So that's sort of baseline stuff. The question of what

writer has exclusive access to a group of researchers or a research site whose presence in the story makes it shine. It might be that the writer has included characters, or sensory details, or scenes, or dialogue, that bring an otherwise dry or forbidding subject to sparkling life. Or it might be that the writing is so exquisitely rendered that it elevates the story to a different level and makes us feel transported as we read it.

A big part of the delight of running *The Open Notebook* is that I get to spend my days thinking about just that question: What makes great science writing great? It's been such a joyful surprise to discover, over the years,

because of the pandemic. It's always been true that science is part of every story, at some level, and that science permeates our lives in countless ways, whether we're fully aware of it or not. We rely on scientific information, sometimes explicitly and maybe more often implicitly, to make any number of decisions throughout our lives. The pandemic has just magnified, to a tremendous degree, how much that is so and how core it actually is to how we live our lives. This virus has been grinding us all down for two years now, and through all the shifting sands of this pandemic, the one constant has been confusion and uncertainty. It's so hard to get a clear understanding of even the most fundamental questions about what we should do. Can kids go to school? How long should we quarantine if we've been exposed to Covid? What counts as an exposure? Should I get this vaccine or some different one? Who should get a booster and who should wait? What counts as "immunocompromised"? Should we wear masks in this or that circumstance, and if so, what kind? Is it safe to have a family holiday gathering? The questions are endless, and the constant risk calculations are exhausting. Adding to the confusion, there are some very bad actors with deep pockets who are heavily invested in spreading misinformation. And to top it all off, we often lack clear, consistent, honest guidance from the institutions that we might have thought we could depend on for that. So in that context, high-quality, trustworthy journalism has been so incredibly crucial in a way that is very hard to overstate.

**Broadly speaking, how do you feel about the future of science journalism?**

That's such a hard question! It's definitely the case that science journalism, like all journalism, is struggling financially, and has been for a good 15 years or longer. The number of newsroom jobs, including jobs for science journalists, has decreased precipitously, along with the advertising and subscriptions revenue that media outlets have historically depended on to pay for those jobs. Publications have relied more and more on freelancers to do jobs once done by staffers, but also freelance pay rates have declined and it's harder than ever to make a living doing science journalism. And all of that does have an effect not just on the individuals whose jobs are lost or who struggle to pay their bills, but also on the quality of journalism.

And the financial struggles aren't the only challenges that science journalism faces. Low public trust in journalism is a problem, and that's both reflected in and compounded by the proliferation of misinformation and conspiracy theories.

So that all sounds pretty pessimistic. But actually, I'm not depressed about science journalism. Part of that has to do with what I was saying earlier, about how the importance of science journalism has never been more clear. And despite the looming presence of the pandemic, it's actually always been true that science journalism plays an essential, vital role in society. Whether publishers are making a profit or not, people fundamentally need good science journalism, and so I

believe that one way or another, however messily, science journalism will forge ahead. And despite all the challenges that we as a field have faced over the past decade or two, I see so much talent and creativity and dedication among my colleagues, who keep finding new and exciting and impactful ways to tell science stories that matter. I'm really fortunate in that, because of my role with *The Open Notebook*, I have the opportunity to work closely with many young journalists who are just getting started, and seeing the energy and brilliance that they bring to the field is incredibly inspiring.

So, the shorter answer to your question, I guess, is that I feel science journalists have the power and ability to impact society like no other profession does, and for that I'm grateful, and that's why I love being part of this community.

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Figuring all that out, and a whole lot more, takes time, and it can be hard to tell how you're doing. You may not often get frank feedback from editors, and if you're a freelancer – which is very often the case – you probably experience a ton of rejections, and it can be awfully hard to know what to make of that. Am I terrible? So I think a lot of people make the mistake of attributing all that rejection and uncertainty and making of mistakes to some inherent failure on their part, rather than recognising it as inherent to learning

makes a story "remarkable" is a tougher one! I think it can be any number of things. It might be that the story dives exceptionally deeply, or with unusual acuteness, into some extremely thorny question or problem and, whether through data or interviews or descriptions of unfolding events, reveals something that no one has previously understood or appreciated. It might be that the story brings something previously unseen into view – an historical figure, or an injustice, or a simmering crisis. It might be that the

that there seem to be nearly limitless answers to that question.

**Do you feel that the importance of quality science journalism has increased as a result of the pandemic, with a reading public in serious need of accurate scientific information?**

I don't think the importance of quality science journalism itself has increased, but I think that maybe, at least in some quarters, people's awareness of its importance has been heightened



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