

MATTER

How You Should Read Coronavirus Studies, or Any Science Paper

Published scientific research, like any piece of writing, is a peculiar literary genre.



By Carl Zimmer

June 1, 2020

A lot of people are reading scientific papers for the first time these days, hoping to make sense of the coronavirus pandemic. If you're one of them, **be advised the scientific paper is a peculiar literary genre that can take some getting used to.** And also bear in mind that these are not typical times for scientific publishing.

Premise: non-scientists are reading more science articles during COVID -- articles may be "peculiar" for them

SIGN UP FOR SCIENCE TIMES: *Get stories that capture the wonders of nature, the cosmos and the human body.*

Sign Up

It is hard to think of another moment in history when so many scientists turned their attention to one subject with such speed. In mid-January, scientific papers began trickling out with the first details about the new coronavirus. By the end of the month, the journal *Nature* marveled that over 50 papers had been published. That number has swelled over the past few months at an exponential rate, fitting for a pandemic.

More research published this year due to COVID

The National Library of Medicine's database at the start of June contains over 17,000 published papers about the new coronavirus. A website called bioRxiv, which hosts studies that have yet to go through peer review, contains over 4,000 papers.

In earlier times, few people aside from scientists would have laid eyes on these papers. Months or years after they were written, they'd wind up in printed journals tucked away on a library shelf. But now the world can surf the rising tide of research on the new coronavirus. **The vast majority of papers about it can be read for free online.**

Usually, only scientists read science papers, but access is changing

** This is interesting! What are the implications of this change in audience?

But just because scientific papers are easier to get hold of doesn't mean that they are easy to make sense of. Reading them can be a challenge for the layperson, even one with some science education. It's not just the jargon that scientists use to compress a lot of results into a small space. Just like sonnets, sagas and short stories, scientific papers are a genre with its own unwritten rules, rules that have developed over generations.

The first scientific papers read more like letters among friends, recounting hobbies and oddities. The first issue of the *Philosophical Transactions of the Royal Society*, published on May 30, 1667, included brief dispatches with titles such as "An account of the improvement of optick glasses," and "An account of a very odd monstrous calf."

When natural philosophers sent their letters to 17th-century journals, the editors decided whether they were worth publishing or not. But after 200 years of scientific advances, Victorian scientists could no longer be experts on everything. Journal editors sent papers to outside specialists who understood the details of a particular branch of research better than most scientists.

By the mid-1900s, this practice evolved into a practice known as peer review. A journal would publish a paper only after a panel of outside experts decided it was acceptable. Sometimes the reviewers rejected the paper outright; other times they required the fixing of weak points — either by revising the paper or doing additional research.

Along the way, scientific papers also developed a distinctive narrative arc. A paper published in *Philosophical Transactions* today is no longer a gossipy letter, but a four-part story. Papers typically open with some history, giving a justification for the new research they contain. The authors then lay out the methods they used to carry out that research — how they eavesdropped on lions, how they measured chemicals in Martian dust. Then the papers present results, followed by a discussion of what those results mean. Scientists will typically point out the shortcomings in their own research and offer ideas for new studies to see if their interpretations hold water.

As a science writer, I've been reading scientific papers for 30 years. I'd guess that I've read tens of thousands of them, in search of new advances to write about, or to do background research for stories. While I'm not a scientist myself, I've gotten pretty comfortable navigating around them.

One lesson I've learned is that it can take work to piece together the story underlying a paper. If I call scientists and simply ask them to tell me about what they've done, they can offer me a riveting narrative of intellectual