National Aeronautics and Space Administration

Slow Down, I'm Not a Scientist:

A Field Guide to Science Writing

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Technical Writing Internship | GODDARD SPACE FLIGHT CENTER | SUMMER 2014

Science Writing Matters

How do you tell your story? You're at the cutting edge of research, but communicating what you do to people outside of your discipline can be daunting. Good writers can be your conduit to the public – to support, to funding, and to scientific understanding in the communities you serve.

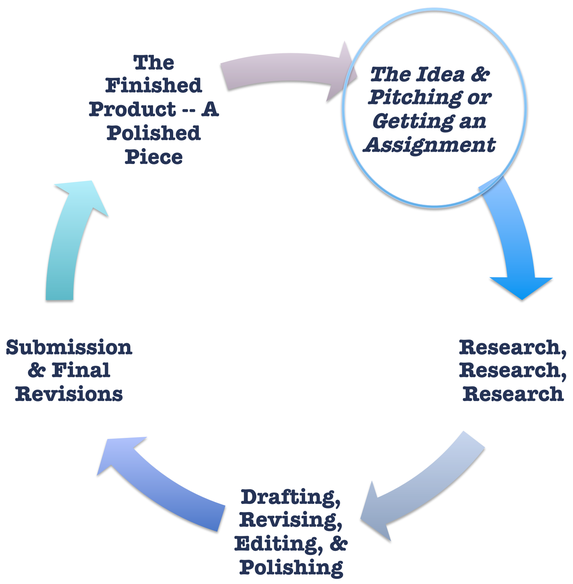
Effectively translating complex scientific information and presenting it to the public requires patience, curiosity, and a willingness to dive into foreign territory, often without a net.

WWW.EARTHZINE.ORG is an online publication created to help build bridges between what is happening in the Earth observing community and the public-at-large. An Earthzine internship offered me the opportunity to hone my writing skills in a truly extraordinary environment; this will serve me well as I begin the transition from academia to a career as a science writer. At the end of a summer at Goddard spent interviewing scientists and NASA administrators about groundbreaking technology and research, I'll be armed with a portfolio of published articles that demonstrate my potential to future editors and employers. That is truly invaluable!

This poster serves as a somewhat abbreviated illustration of what goes into writing a well-crafted and accurate article.

It's a Process

A great deal of work goes into writing even the shortest piece. It's a process, similar in some ways to scientific methodology.



Step 1: The Idea

Whether you pitched the idea or it was assigned, it is important to stay open to new angles as the story unfolds and you learn more about the subject.

Keeping a journal of story ideas is a good idea. Jot down questions about things you see and observe; they often turn into ideas worth pitching to an editor for publication.

Step 2: Research, Research, Research

- ✓ Learn as much as you can before interviewing sources & writing. For example:
  - Research & interview notes for one article = 6000+ words
  - Actual Article = 900+ words
- ✓ Date & document (for fact checking and future reference):
  - Notes, contacts, & all source material

Step 2a: Interviews

Be prepared & don't waste your source's time or they won't be your source in the future.

- ✓ *In-person interviews are the best.* Pay attention to surroundings, mannerisms, and what's going on around you during the interview. Later on, these details can help set a scene or establish tone when you start writing.
- ✓ Phone interviews are difficult, be well-prepped and find a quiet place to talk.
- ✓ ***Questions I always ask:***
  - What excites you about *x,y,z*?
  - What's next?
  - What haven't I asked you?
  - Who else should I talk to?

Step 3: Drafting, Revising, Editing, & Polishing

The biggest mistake less-experienced writers make is thinking the first draft should be perfect; if that's what you expect, you'll quickly lose faith and give up. Writing takes time, experimentation, and, frequently, painstaking effort. Here are a few good questions to ask as you move from one draft to the next:

- ✓ Do my transitions work?
- ✓ Is my main point clear?
- ✓ If someone was totally unfamiliar with this subject, would this still make sense?
- ✓ Will experts want to read this too?

Don't worry too much about grammar, punctuation, and format in the first few drafts.

Once you have a solid and proofread draft, start polishing. Is there a more eloquent way to express an idea? Are you being overly technical or complex? This is also a great time for a second pair of eyes - better to catch those errors before your editor finds them!

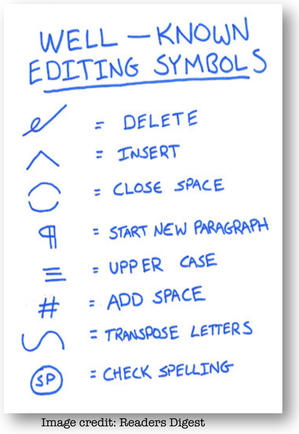


Image credit: Readers Digest

Steps 4 & 5: Submission, Final Revisions, & the Finished Product

Pass the piece off to your editor and move through the revision and fact-checking process. Be patient, this takes time too. Be receptive to feedback; a good editor can make your work really shine.

Finally, celebrate - you did it! Now get back to work on your next idea...

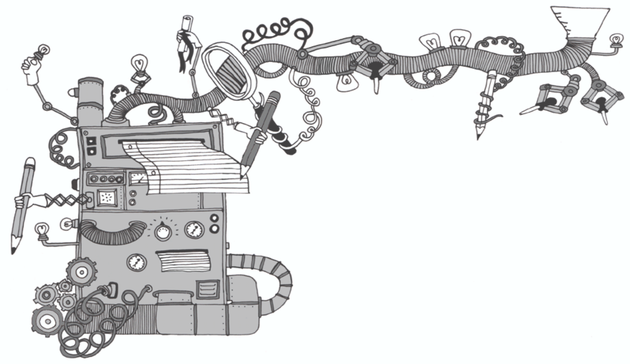


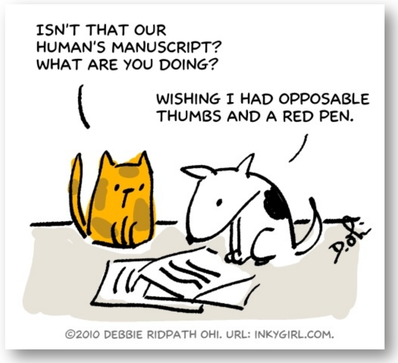
Image credit: http://www.thinkingwriting.qmul.ac.uk/

Challenges & Lessons Learned *

- ✓ Deciphering jargon & complex technical language
- ✓ Sources are busy with little time to spare (so, be persistent & professional).
- ✓ Juggling *very* different story ideas at the same time takes effort. So far, I've been researching and working on the following subjects simultaneously:
  - The Apollo 8 mission
  - Fish spawning
  - CubeSats
  - Big Data as a pro-social tool
  - ISS-RapidScat & CATS
  - The FAA & interoperability

Diverse story topics involve a ton of mental gear shifting and time management – find healthy ways to rest your brain when you can.

(*a very abbreviated list!)



Many thanks **to Paul Collins, Henry Holcomb, Philip Larkin, Andrea Martin, Mike Pasciuto, Paul Racette, David Woodman, and The Oregon Space Grant Consortium**

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To the Moon and Back: A Father and Daughter Find Hope Writing About Space Exploration

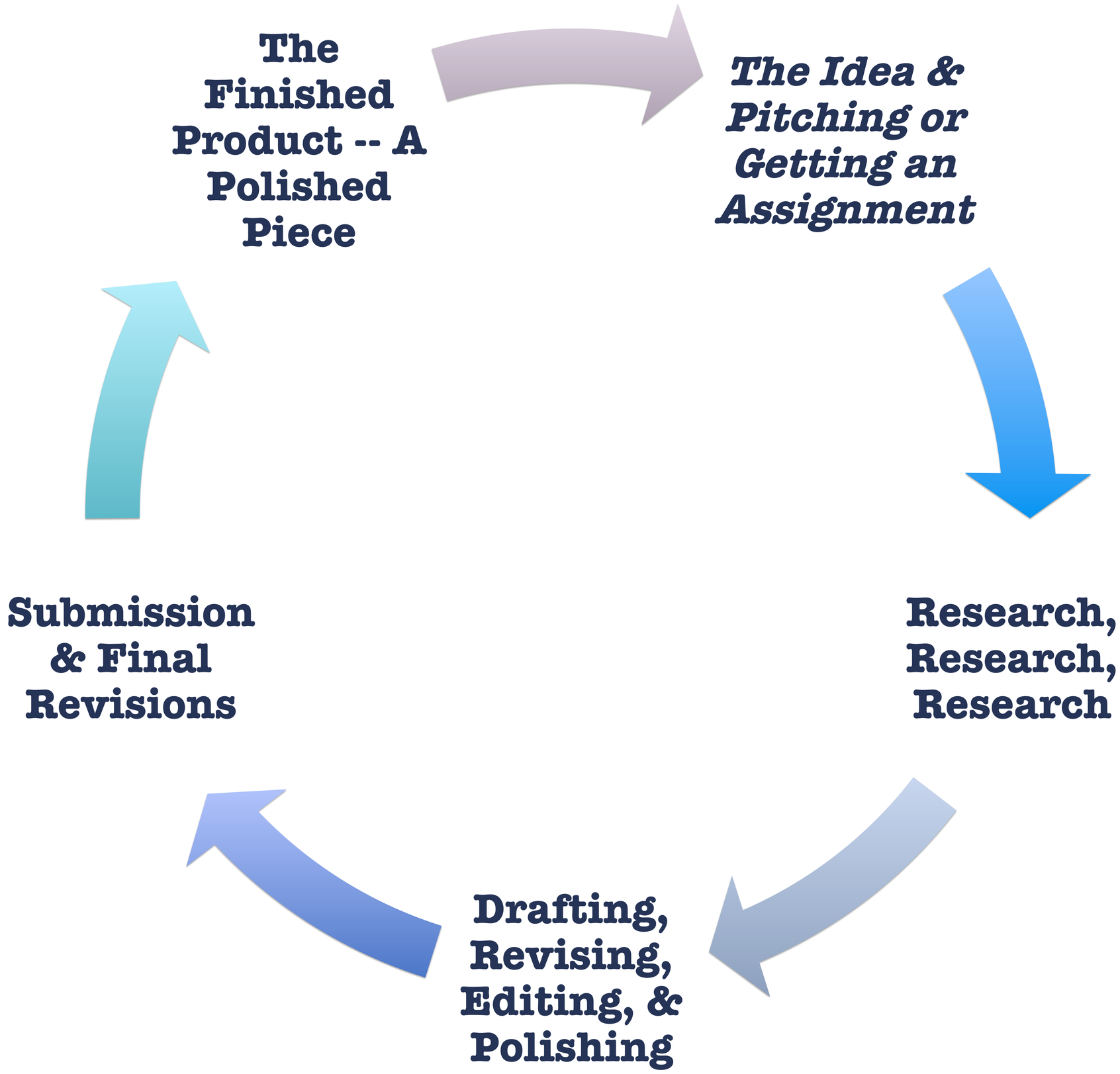
Published on Monday, 21 July 2014 11:27 Jenny Woodman 0 Comments Print or Email

A few weeks before I left Oregon for Goddard Space Flight Center (GSFC) here in Maryland, I was on the phone with my dad. We were chatting about all the exciting and challenging work I was preparing to begin.

He paused for a moment; then he told me that NASA had been a game-changer in his career. I froze. Oddly, I hadn't made the connection until that moment. I didn't think about my father's experiences when I applied for a summer internship as a science writer at Earthzine.

To be honest, I was more focused on the fact that I'm actually kind of old – I wondered if it would be ridiculous for me to even consider submitting an application. As a 41-year-old undergrad preparing to graduate and start a Master of Fine Arts in nonfiction writing, a summer internship at NASA seemed absurd for some reason. But sometimes one of the benefits of being ridiculously busy is that there isn't always time to overthink things and second-guess decisions, so I went for it. There wasn't time to think about life coming full circle or the odd reality that this institution could potentially impact two generations of my family in unforeseeable ways.

The Writing Process



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A Hitchhiker's Guide to CubeSats

Published on Friday, 08 August 2014 17:23 Jenny Woodman 0 Comments Print or Email

How do you teach high school students about life, the universe, and everything? Well, you could have them build and launch a nanosatellite, or CubeSat, into space.

While it sounds ambitious, that's exactly what Adam Kemp set out to do in 2006, then in his first year of teaching at the prestigious Thomas Jefferson High School for Science and Technology in Alexandria, Virginia.The project took seven years, and in November of 2013, Kemp and his students watched as their satellite, TJ3Sat, launched from NASA's Wallops Flight Facility.

"The thing that I try to bring home is that this was a student project, and I made sure that it wasn't done by engineers, or me, or anyone else. We're calling this the first high school, student-built satellite and it really was – it was a hands on, student project every step of the way. That's what made it special.

TJ3Sat was not alone; 27 other CubeSats from NASA and universities across the country shared space as secondary payloads on the ORS-3 mission. But what exactly are CubeSats?

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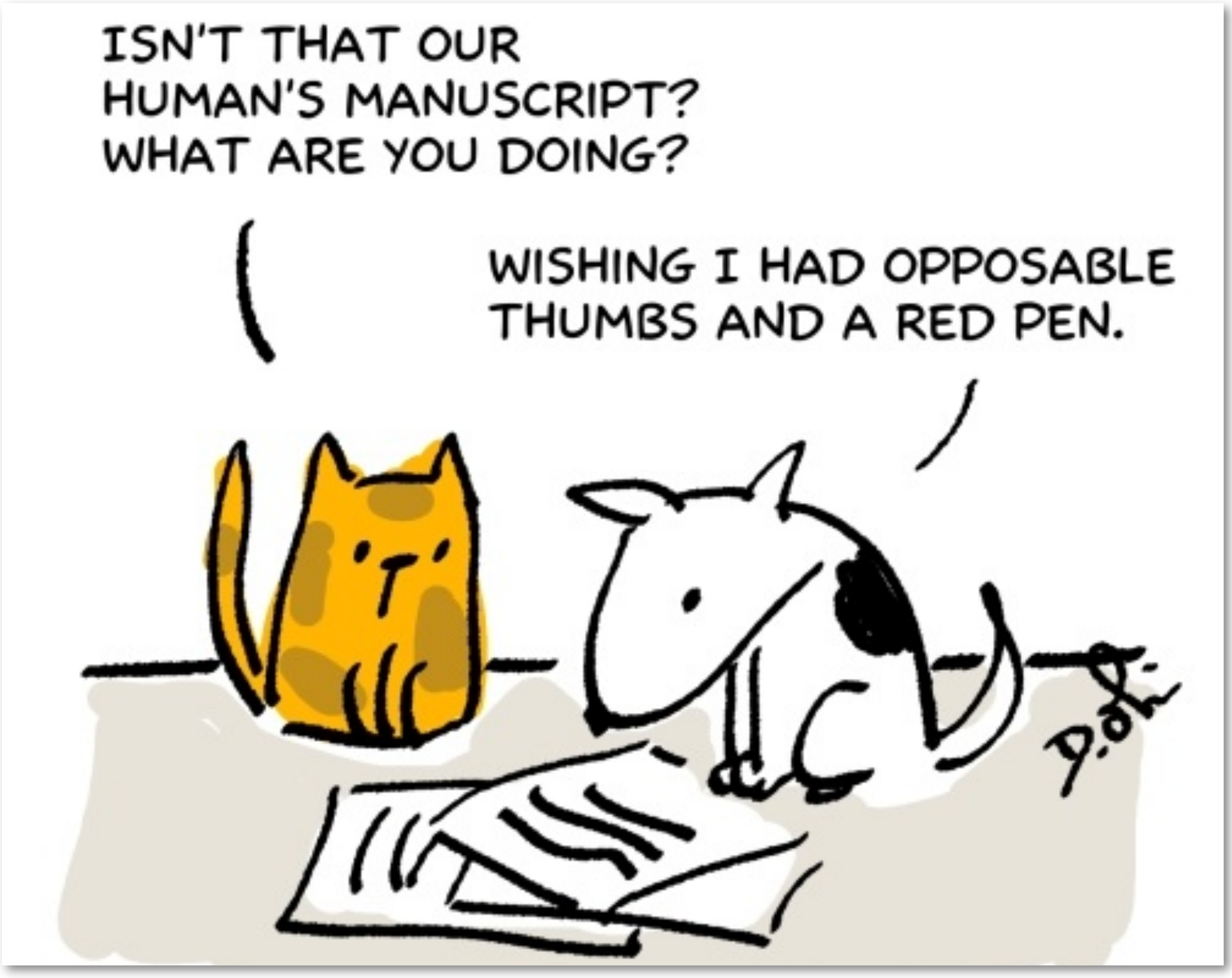
Steps 4:
Submission, Final Revisions, & the Finished Product



To the Moon & Back

Questions?

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