

SEEKING THE UNHEARD VOICES OF SCIENCE:  
HOW SCIENCE JOURNALISTS CONSIDER DIVERSITY WHEN FINDING  
SOURCES

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A Project  
presented to  
the Faculty of the Graduate School  
at the University of Missouri-Columbia

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Master of Arts

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by  
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## CHAPTER ONE: INTRODUCTION

During my time at the University of Missouri, Flint, Michigan's crisis over high levels of lead in its drinking water continued to boil. To many, the crisis was a form of environmental injustice, victimizing an entire majority-black city. During my grad school years, journalists uncovered stories of female physics students being harassed in labs by older, respected scientists – who were then protected by the universities they worked for. Health stories exposed new problems in women's health, or in the health of poor people of color, that had long been overlooked. Time and time again, race and gender cropped up in these heavily science-based stories.

These stories featured heavily in my educational experience at the Missouri School of Journalism, which centered to a significant degree around science, health and environmental journalism, as well as around social issues. Over the course of my time in the program, I wrote blogs and stories under the umbrella of science and immersed myself in discussions among my professors and peers as well as those of practicing professionals in conferences and listserv discussions. Through that experience, as well as the experience of writing for a magazine attached to a scientific laboratory, I became more and more familiar with issues of ethics, justice, validity and trust relevant to the practice of science journalism. I participated in conversations about the ways science can intersect with issues of society and politics. In discussing water quality, women's health issues, minority health issues, sexual harassment in laboratories, vaccines, and so on, race and gender featured heavily.

But my experience in journalism education also emphasized how essential it is to represent a diverse range of voices in all journalism, which includes science journalism. In covering certain professions that skew heavily white and male, such as politics, technology and science, this obligation can provide a challenge to journalists. I became curious as to whether it was common for science journalists to think frequently about this obligation for stories that can seem separated, at least at first glance, from the issues of race and gender. And I became curious how those who did think about it factored it into their daily practices.

My professional goal is to become a print journalist who writes frequently about the sociopolitical issues related to science. I believe this project has helped me with these career goals in both the connections I've made to a network other science journalists and in the greater understanding of the range of ways science journalism can be practiced. But more importantly, it has stressed to me the importance of not falling into the easiest routine when it comes to the practice of pitching, sourcing and reporting stories, and to always critically think about the voices I include in my stories. It has helped to ensure I will not forget the lessons I learned about diversity in my journalism education.

## CHAPTER TWO: ACTIVITY LOG

### **The week of 1/3 to 1/6:**

I experienced a bit of a learning curve at *Slate* for my first week. Apart from learning about their content management system, etc., I struggled to adjust to their writing style. The writing style is quite different than what I'm used to in terms of the emphasis on wit and their tendency to take a strong stance on issues. I will be primarily writing blog posts during my internships and not articles (although they said I might also be able to write articles), and so I didn't do any interviews. I wrote about a Pew report that indicated increasing support for *Roe v. Wade* and the death of Tilikum, the SeaWorld orca that killed a trainer in 2010. The *Roe v. Wade* blog was fairly straight-forward, although it was edited to be slightly sharper in tone than I wrote it, but the final version of the Tilikum blog post surprised me: the editor added a kicker at the end sharply condemning SeaWorld. I am not yet comfortable with such an argumentative style, but I will try to do better in the coming weeks to meet *Slate's* editorial standards.

I also attended the weekly magazine-wide editorial meeting on Friday. *Slate* has two offices, one in New York and one in DC, and they and any contributors not in the area skype for brainstorming sessions on Friday. On this one, they discussed ideas for a daily feature that would be "funny and dark and smart" and that would focus on some aspect of the Trump administration. This meeting gave me a good idea of the kind of casual dynamic of the office and the type of creativity that goes into the content.

My goal going forward is to pitch more stories. The pitching situation is interesting, as each blog has its own editors with different styles and processes. I would

like to mostly target the science, tech and women's blogs, as I feel I can most competently contribute to those. I will also write for Slatest, which is their breaking news blog. I open the mail as one of my intern tasks, and with that I see all the books that are sent in for review. Another goal during my internship is to write one book review.

**The week of 1/9 to 1/13:**

This week felt fairly hectic because of the confirmation hearings and press conference. I was often asked to transcribe, and I got more used to the processes involving photos and videos. I spent a good chunk of my week working on a tech blog post about an artificial intelligence versus pros poker tournament, but just as I was about to wrap up, I was asked to help out with posts related to the press conference on Wednesday, and so I wasn't able to finish the story while it was still timely. I'm hoping I'll be able to tap into the research I did for that for related posts down the road.

As I adjust more to the *Slate* culture and writing style, I'm coming to enjoy my work there more and more. I don't yet feel that I've captured the right *Slate* tone in my own writing, but I feel that I'm getting closer. Headlines are proving similarly difficult for me, but I think I'm making headway there as well.

Another enjoyable aspect of this week was that I didn't just blog. I also was able to do some actual reporting, albeit for a somewhat silly topic. I talked to a former White House press secretary, a former press aide for Hillary Clinton, and a couple current congressional communications staffers to ask them about what goes on before a press conference, and why they always seem to start late. I enjoyed being able to do some actual reporting.

I still haven't begun doing work on my master's project. I intend to start soon.

**The week of 1/16 to 1/20:**

This week was my third week at *Slate*. I wrote a blog post about protester's rights regarding their cellphones, to be published right before inauguration, which I believe I did an acceptable job with. I also wrote about the marijuana protest on inauguration day, and I wrote a blog post that sought to understand how long it would take to fill a mug with tears – a request from an editor who became curious about all the 'liberal tears' mugs he was seeing. When I wasn't working on those stories, I was working to keep track of all the House democrats who were boycotting the inauguration, publishing Business Insider stories, transcribing interviews, and in other ways assisting with fact checking for other blog posts. Because of inauguration, so many writers needed help that I was always busy.

I'm still struggling to adjust to *Slate*'s style and tone. Edits of my writing usually end up with more assertive kickers and ledes. I think I will continue to be somewhat cautious when it comes to tone, but I will try to match their needs better. On a related note, I'm having a hard time writing the right headlines. I haven't yet written a final headline, so I need to write sharper and allow myself to be more creative.

I made no progress on my research project except to reach out to a former master's student to ask her advice for finding science journalists for my project.

**The week of 1/23 to 1/27:**

My week this week mostly assisting with others rushing around trying to cover the rapid changes in Trump's first weeks. I also spent a considerable amount of time transcribing interviews for some of the writers. For my own writing, I attempted to figure

out what standard practice was for an administration looking at agency website's content during transition, and I talked to British crowd scientists about their experience weighing in on the conversation surrounding the inauguration crowd photos. My disappointment this week was not finding more sources to speak about the agency website topic.

Thinking about sources for stories of national politics rather than local issues is presenting a challenge (which I welcome as an experience to grow as a journalist). One small success was finally having a headline I wrote being published without alteration.

By far the most rewarding day of the week was Thursday, in which I spent the entire day at an editor's house in a retreat-type meeting in which five people who regularly write about the justice system formed *Slate's* new criminal justice team. I took notes throughout the conversation and felt I was getting great insight into the ways the editors and writers were thinking about the future of criminal justice reporting in a new Trump administration. It was a highly educational experience.

The trip to the Newseum was highly enjoyable. It reminded me of the importance of brushing up one's knowledge of U.S. political history and its news coverage, particularly as it is useful for knowing when comparing historical moments to modern politics is fair or necessary.

For my research this week, I sent off emails and messages to try to find respondents. I haven't had any success yet in finding anyone, but I did get a good anecdotal story from a non-specialized journalist about their experience accidentally leaving out female scientists in a story and being scolded by the male scientists afterward.

**The week of 1/30 to 2/3:**

This week was slightly quieter for me than previous weeks. I didn't have to do any transcribing, and I spent a good amount of time researching a longer-term story. I did work on a blog post about the EPA for a full day that they decided to shelve until a slightly slower news day. I explored some story ideas that editors asked me to check out, but none of them panned out. This was somewhat frustrating, but I don't believe it was a result of a lack of effort on my part. I also worked on a cybersecurity-related blog post. I've come to realize during this week that the breadth of Slate's coverage makes it harder for me to come up with good story ideas. I'm used to having to think of local angles or in other ways think more narrowly, and it's proven surprisingly difficult to decide what direction to go in when I can write about just about anything topical.

One of the most enjoyable parts of my week was when I introduced myself to members of the Panoply podcasting team. The people I met seemed excited by my interest, and I was shown around the Panoply recording studios, two of which are based in the Slate DC office. I was given several lessons on audio editing and allowed to listen in on a taping of Amicus, a Slate podcast about the Supreme Court. I enjoyed this experience and believe I may have the opportunity to assist slightly more with the Slate podcasts going forward. I enjoyed my time at KBIA, and so I was excited about the prospect of continuing to learn more about audio.

I enjoyed the visit with Brian Hart at Sen. Blunt's office. I found the insight into what happens after journalists ask for an answer or quote to be very valuable, and I was surprised to learn that Hart considers a sizable part of his job to be explaining how journalism works to the senator he works for.

For my research this week, I reached out to more people. I have one confirmed interview, but I hope to start speeding up the planning of these interviews.

**The week of 2/6 to 2/10:**

I had a very enjoyable week this week. One of the highlights was when I had an opportunity to get out of the office and report on a scheduled Betsy DeVos appearance at a D.C. middle school. Despite getting there over an hour before her scheduled arrival and repeatedly running around the different entrances, I missed her arrival (the other reporters did as well, and we were all confused how she got into the school). I wish I had done a better job of figuring out what was going on, but I still was able to write about it. My editor initially tried to edit my post to be more aggressive than I was comfortable with, but I did argue for some softening of the language. I still would like to become better at headline writing and lede writing, as I still seem to struggle with striking the right Slate tone for those.

This week, I also wrote about a tornado that hit New Orleans and a pornography site offering sexual education videos in Utah after legislators in the state struck down a comprehensive sex ed bill.

I also very much enjoyed writing Slate's weekly newsletter, "This Week in Trump." For that, I had to keep track of all the Trump-related news of the week, of which there was plenty. I also started keeping tabs of the news to prepare for writing it the next week. I received praise for my job on the newsletter.

In addition to my writing, I worked on a project at Slate to create a Chrome plugin that would show a Congressman's contact information if you hover over his or her

name. For that, I primarily entered different versions of their names and contact information into a spreadsheet. I also got lunch with the politics editor, and he told me about his plans/desires for the future of Slate's politics reporting. I also asked him for advice for being a successful intern.

For my research this week, I interviewed someone and transcribed that interview. I scheduled another one. There was no seminar on Friday this week, but I did use that time for work.

### **The week of 2/13 to 2/17:**

This week was strange because on Monday, the Slate editorial team experienced sudden and unexpected layoffs. It made for a very dispirited and sometimes angry newsroom, as Slate is having a successful year and the staff had been promised recently there would be no layoffs. One of those laid off was Tommy Craggs, the politics editor whom I have been working with frequently throughout my internship. The absence of the politics editor threw the political reporting into some chaos, and everyone at the D.C. office seemed particularly upset about his inclusion in the layoffs (As reported in a CJR article, Craggs was leading the attempt to unionize at Slate, but both he and the editor-in-chief denied the unionization led him to being targeted, although he said it was "part of a constellation of things" that she didn't like about him in an article in the *Columbia Journalism Review*).

Apart from that, this week I worked on editing a podcast, did research help for a "This Week in Trump" newsletter, worked on a project to create a chrome add-on that would show contact information for your representatives if you hover of their names on a webpage, and wrote a few posts:

As for my research, I was meant to interview a *Slate* reporter, but because of the layoffs and resulting chaos, she chose to reschedule. Instead this means I will likely interview three people next week. I also started transcribing a previous interview.

The visit to Politico was very interesting, particularly in considering future career paths. I'm in the process of looking for jobs in journalism, so that proved to be a perfect lesson of what to consider when creating a career in journalism.

#### **The week of 2/20 to 2/24:**

This was a short week for me, as I had Monday off for President's Day. This week was relatively calm in the office, as it felt news came at a slightly slower pace than in the previous weeks. I worked on a couple stories and newsletters, but what I enjoyed the most was the opportunity to work on editing one of *Slate*'s podcasts. This has been an opportunity to grow my skills in audio editing, which I enjoy. I find choosing music for audio to be particularly challenging, so I was also happy to have to force myself to make those decisions.

For my research this week, I conducted two of my field interviews. One of them was particularly interesting, as he was a very prominent science journalist who keeps full records of his sourcing of stories to be cognizant of race and gender.

The discussion with an editor of *Politifact* proved captivating. I particularly enjoyed the discussion of the Facebook fake news partnership and the ways in which *Politifact*'s fact checking differs from that of other organizations.

#### **The week of 2/27 to 3/3:**

This week, I spent a lot of time working on newsletters for *Slate*. I sometimes help with political weekly newsletters, but now I also every day write the roundup of

*Slate*'s best stories from the day. The actual writing of the newsletter is very easy, but the task has become time-consuming because I spend a lot of time throughout the day reading content on *Slate*'s site to determine what would work best in the newsletter, considering I want not just the best stories but also ones that represent a variety of topics and writers and tone. This has been fun and has allowed me to read a lot of good writing, but I know I need to get faster at it, as *Slate* publishes a lot of content throughout the day.

This week I also finally was able to meet with *Slate*'s science editor, who was in DC for a few days (however, since the firing of the politics editor, she has had to shift more towards editing politics). We had what I considered a very useful conversation about pitching and science journalism. I'm still working on improving my pitches for science stories, as most of mine so far have been more tech-focused.

As for my research, I had rescheduled the interview that I hadn't been able to get last week to this week, but again, it didn't work out for my source. On a more productive note, I did transcribe previous interviews.

The conversation about crisis and disaster reporting during our seminar was captivating. I hadn't really understood before that disaster reporting would be more about logistical hurdles than the writing itself – I had always just thought about the emotional challenges, but the logistical seem in many ways more difficult. It was an inspiring seminar and an excellent reminder of the value of traditional reporting during crises.

### **The week of 3/6:**

This week, I focused on working on two longer-term stories, one about hypoxia and environmental regulations, the other about legal restrictions on do-it-yourself biology. The only pieces I actually published this week were newsletters, which I wrote

every day. I enjoyed being able to work on longer-term stories and do more real reporting this week. I also had more success than normal with pitching this week, although I only ended up working on two of my ideas.

I do regret not dividing my time more to work on shorter-term stories as well, as I realized I should have been doing both so I could produce more for the site. I believe the expectation is for me to write three posts a week. I'm still working on being faster at writing the newsletters so I have more time to spend writing other things.

The Hurley Symposium was an excellent event. The first panel was interesting as an extension of the discussion from our earlier fact checking seminar. The second panel was a fascinating glimpse into the White House side of the communications, and I appreciated the candor of the two panelists. The final panel was interesting for being the same conversations I have with my friends and coworkers, but among some of the most prominent voices in journalism.

For my research, I did another interview and did some transcribing.

### **The week of 3/13 to 3/17:**

This week, I continued to focus on the two longer stories I've been working on, and I continued to work on a project for a Chrome extension that shows contact information for members of Congress. I also wrote two posts about the winter storm that hit this week. I very much enjoyed writing the first, which was, I believe, the first of my stories to be placed on the site as *Slate's* cover story. For that story, I was able to talk to a number of climate scientists, and so I very much enjoyed the reporting element of it.

I continued to find writing the newsletter at a fast enough pace to be a challenge, as it still takes me a fair amount of time to skim *Slate*'s content for the day. I'm working on improving my speed there.

For my research, I did another one of my interviews this week. I was not able to attend the seminar on Friday because I had the stomach flu. This also prevented me from doing the work I had planned on doing for my project this weekend.

**The week of 3/20 to 3/24:**

This week, I returned to writing *Slate*'s Trump politics newsletter, which made me regret not paying attention to the news during the weekend when I was sick. As I was still doing the daily story roundup newsletters, the newsletters took up a lot of my time. I also continued working on a tech story and finished up entering data for the chrome extension I was working on. And I got a social media tutorial from a member of *Slate*'s social team.

I feel that I've become better at adapting to *Slate*'s voice, and I've recently gotten a lot of very positive feedback from editors and supervisors telling me my internship has been a successful one, so I'm feeling good about my performance. I would still like to be more efficient in some places so that I could dedicate more time to longer pieces.

For research, I had another interview and worked on transcribing. I was sick again this weekend and so again didn't get as much done as I would have liked on my project.

I thoroughly enjoyed the Supreme Court visit. The tour, of course, was incredibly exciting, and I enjoyed the discussion of cameras and audio equipment in the court (particularly the anecdote about RDTNA's victory before the Bush v Gore case). The very straightforward nature of the PIO office was also interesting.

**The week of 3/27 to 3/31:**

This week, I focused a more on tech stories. I wrote about the broadband privacy law passed this week and I wrote a silly post in which I interviewed someone who made a robot to print out and burn Trump's tweets. It did not seem like an important story by any means, but from it I learned a new reporting tip: if you're looking for someone behind an anonymous Twitter account, research the first few people the account followed, and one of them is likely to either be that person or know that person (the first person I emailed turned out to be him). I also continued to work on a story about synthetic biology.

This week, I also got a tutorial from one of the three social media people, had lunch with a podcast person to learn how *Slate* podcasting works, and got press credentials for the Capitol.

For research this week, I did my final interview and started working on my first draft, with hopes of finishing it the next week.

**The week of 4/3 to 4/7:**

This week was focused more on my own educational experience than on producing content for *Slate*. The highlight of the week was certainly Tuesday, when I went with our Hill reporter to the Capitol. There, we attempted to talk to people about the revived idea of a health care bill and the upcoming “nuclear option” over the Gorsuch nomination. I found that it was nearly impossible to be useful when we were on the House side trying to report on health care simply because I can visually recognize so few representatives. On the Senate side in the afternoon, I was much more capable of recognizing senators, but Jim, our reporter, had a hard time determining what *Slate* still

needed to write about the Gorsuch nomination. Even though I wasn't that helpful, I really enjoyed the opportunity to learn what the experience was like.

Also this week, I learned from our homepage editor how *Slate* decides the layout of the stories on its page and tries to predict the success of various headlines. I also got a lesson in headline writing. At lunch with the senior business and tech editor, I learned more about the internal discussions over the future of *Slate* and how it is adjusting its coverage at a time when politics has eclipsed all other news. And over coffee with a tech editor, I received a lot of tips for finding good story ideas in tech. I also wrote about the National Park service this week and wrote several newsletters.

For my research this week, I wrote the first draft of my master's project.

I enjoyed learning about the Sunday shows this week. I had never really watched them before – I haven't had a television in years, and so I don't have a habit of watching news – but now that I understand the significance of their role in the whole ecosystem, I feel much more inclined to try to watch them. Watching the taping of Meet the Press was a fantastic experience, and I felt it did a lot to help me understand in general how television news shows are produced. It was also impressive to see Chuck Todd's interviewing and moderating skills in action on live TV.

I also really enjoyed the visit to Covington and Burling, as I find media law in general to be very fascinating, but I particularly valued the discussion of fair use and their addressing the impossibility of Trump's desire to "loosen the libel laws."

#### **The week of 4/10 to 4/14:**

This week, I accepted an expansion of my internship that will involve working *Slate's* social media on nights and weekends. That meant that a considerable amount of

time this week went into training, learning how to run the site's Facebook and Twitter feeds. It was challenging, but also fairly fun once I started getting a hang of it. I also conducted research for other writers, wrote about the United Airlines fiasco and the Google Home device. This week was also the last week I had to write newsletters. I hopefully will now have more time to report on my own stories. The Chrome extension I had been working on was also rolled out.

For my research this week, I edited the first draft of my project and sent the second to my chair.

As a public radio fan, I really enjoyed the visit to NPR. It was an excellent glimpse into the machinery that goes into smoothly running the programming. But as someone whose project is about diversity, I most enjoyed the discussion of diversity and its challenges in the current political climate. I had so many questions and only a fraction of them could be answered in the time we had, but I was happy we heard him discuss both the ways we can diversify our own worlds in whichever beat/area we work in, and his bold claim that it is almost always better to give information and points of view than withhold them, as long as that information is properly contextualized.

## CHAPTER THREE: EVALUATION

From my professional experiences at *Slate*, I learned how an online-only magazine functions in a time when the news is ceaseless. My time at *Slate* started not long before Trump's inauguration, and I was here for a time in which the magazine had to grapple with its role as a left-leaning publication that had previously dealt much more heavily with culture but had converted to be primarily political in its focus. As a result, during my time there, I was able to sit in on conversations about the allocation of resources to covering Congress, the prioritization of coverage of the justice system and the different ways to cover extremist ideologies. I believe I grew in my understanding of how an online news magazine is organized and how it functions – including the design and social media elements, of which I became familiar – and I grew to appreciate the niche a left-leaning but astute news magazine can fill. *Slate* might not be the traditional form of journalism I am accustomed to, but I now think it fulfills a certain need in the media ecosystem. I still believe in the importance of more traditional journalism, but I have widened my views to include an appreciation for the kind of journalism that acknowledges its biases but still practices a responsible and incisive form of the craft.

Similarly, I have loosened up somewhat in my comfort with *Slate's* tone. The magazine has a very distinctive writing style, known for its often acerbic language and frequently counterintuitive conclusions. For much of my internship, I was fettered in adjusting to the style by the lessons of my education and of my past reporting experiences. And while I do still prefer traditional journalistic style, I did eventually become more relaxed and developed what Professor Cochran described as “a more

insouciant style.” Overall, this led to greater confidence and speed in my writing by the end of my internship, and my editors seemed to be happier with my work. With greater familiarity with *Slate*’s style also came more confidence pitching stories appropriate for the magazine. That was very difficult at the beginning, and I think it pushed me to think more creatively about stories.

It’s difficult to evaluate my personal growth when it comes to other skills, but I can be confident I learned more about politics during my semester than I thought possible. At first, during the beginning of my time at *Slate*, I struggled to keep up, even though I had thought I spent a lot of time keeping up with politics up to that point. By the end of my internship, I felt much more confident that I had an understanding of what was going on and could assist our political writers much more quickly. Partially this was through a fear of ever falling behind, but it was also in submerging myself in a work and social environment (involving the other participants in the Washington Program) in which people discussed political and journalistic issues at all times.

The seminars for the Washington Program, particularly, helped me adjust to the political world of D.C. journalism. While some of the seminars addressed personal career growth more (Politico, for example) and not all were purely political (USA Today and crisis reporting), most helped me to understand the lay of the land and how successful journalists are talking about the challenges of the new political landscape. The Hurley Symposium, for example, provided plenty of food for thought from panelists about fact-checking and the treatment of the press at the hand of the Trump administration. Each seminar helped me expand my understanding of D.C. journalism and journalism in general.

But I was not exclusively covering politics, so I should also mention the other topics that I learned considerably more about: namely, popular culture and technology. I didn't write about popular culture, but *Slate's* culture writing is quite popular, and I learned a lot from witnessing the culture writers' discussions. I also learned a lot about the tech world, which I did write about with some regularity, and about the ethical issues that often go with tech coverage. But one of the most interesting approaches *Slate* had, I thought, was to its science coverage. *Slate's* science editor, who unfortunately works in New York and not DC, told me that *Slate* tries not to write about scientific studies unless it is to debunk them, because it tries to avoid the "gee whiz" approach so often seen in science coverage. Instead, *Slate* is highly critical both of science and those who misinterpret science for their own purposes. I found something exciting about this style of coverage.

Overall, I did feel I grew a lot from my experience in this program and in my internship, and I am thankful I was able to be in DC during the first months of the Trump administration, when political changes seemed unprecedented and journalists struggled to decide the best way to cover such a tumultuous, antagonistic and atypical presidential administration. These conversations were some of the most interesting ones I've heard among journalists, and the past few months have reaffirmed to me the dedication of individual journalists to be professional in holding power to account.

### **Supervisor evaluation**

Molly Olmstead has been nothing short of fantastic during her internship at *Slate*.

Molly's duties as D.C. editorial intern included daily tasks such as selecting and publishing articles for reprinting from partner publications and fielding requests from writers and editors for help with research and transcription. The rest of the time was hers to write for the magazine. Interns sometimes struggle with striking a balance between

required duties and writing, but Molly had no trouble juggling and prioritizing her assignments.

Molly has been a prolific writer who tackles all her assignments with aplomb. She's racked up [dozens upon dozens of bylines](#) across numerous subject areas, some of which landed on our most-read list. She adapted quickly to Slate's unique voice—not an easy feat for many interns.

Editors who worked with her regularly described her copy as clean and easy to edit and said she handled changes gracefully.

Molly's also pushed to expand her internship beyond normal duties and expectations. She spent a day on Capitol Hill shadowing congressional reporter Jim Newell. Our social media team approached her about running feeds solo on a few nights and weekends after she expressed interest in their work. (As far as I know, no other editorial intern has been given the keys to Slate's Facebook and Twitter accounts.) She also took on Slate's daily newsletter, the Angle, while its regular writer—a staff writer with years of journalistic experience—was on maternity leave. To my mind, the fact that Molly was tapped for that duty speaks volumes about how much editors trusted her.

In addition, Molly has been a joy to work with. She's cheerful and bubbly even when stressed and under pressure, and she's eager to learn. We were unbelievably lucky to have Molly this semester, and I would be thrilled to sing her praises to any future employer (or her master's committee!). I can't wait to see what amazing things she does next.

Megan Wiegand  
D.C. Editorial Intern Coordinator  
Slate Magazine  
April 21, 2017

Slatest YOUR NEWS COMPANION

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# The Best Thing That Happened in Washington on Friday Morning Was Free Marijuana

By Molly Olmstead

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Win McNamee/Getty Images

One of the biggest lines in Washington on Friday wasn't on the National Mall, where a less-than-overwhelming crowd watched the inauguration of President Donald Trump, but a mile and a half or so to the northwest, in Dupont Circle, where thousands queued up to score some free weed.

Pro-marijuana group DCMJ handed out thousands of free joints as a message for Trump's pick for attorney general, Jeff Sessions, and the new Trump administration. The group urged everyone who received a joint to light up four minutes and 20 seconds into Trump's inaugural address.

Some waited hours in lines stretching down Massachusetts Avenue NW toward Dupont Circle. At the head of the line a crowd of festive demonstrators and smokers formed, while people, many in costume, handed out water and sold burritos. DCMJ members played music and shouted out pro-marijuana messages to the crowd, proclaiming that marijuana wasn't dangerous and that people who smoke it aren't criminals.

"The main message is we want it on a federal level; we want it to remain legalized here in D.C.," DCMJ member Felicia Simpson said. "Once they see how big of a turnout this was, how many people in D.C. appreciate it, need it, and how peaceful it was, it's really like a no-brainer that it's not a problem."

According to Simpson, the group had originally intended to hand out 4,200 joints, but ended up deciding to hand out more—about 10 pounds of marijuana. They started handing the joints out at 8 a.m., and around 10:45 a.m., the group started walking toward the National Mall.

In D.C. it is legal to smoke marijuana indoors and give it to other people, but it is not legal to sell it, and it is not legal on federal land. Simpson said DCMJ did not expect any trouble, but they did warn people that if they brought pot to the National Mall, they risked arrest. **Their website** also promised that if anyone was arrested because of the pot they handed out, they "have set aside some money to help activists with legal costs."

Brandon Decker, a protester from Annapolis, Maryland, said he showed up in support of marijuana legalization everywhere, but he said he thought it was important to try to protect legalization in D.C. “D.C. would be a great place to get momentum,” Decker said. “It would be a good anchor point for the East Coast.”

The pot demonstration was a mellow one, a contrast to **protests elsewhere downtown** marked more by chaos and arrests.

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Molly Olmstead is a *Slate* editorial intern.



## This Week in Trump: Foreign Policy Fiascos and Court Challenges

Spurned allies, uncooperative judges, and conflicts of interest.

By Molly Olmstead

    
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President Donald Trump speaks as he meets with county sheriffs at the White House on Tuesday in Washington.

Andrew Harrer/Getty Images

Welcome to *This Week in Trump*, Slate's weekly look at Donald Trump's presidency. Every week, we'll catch you up on the events of the past seven days, point you to further reading, and keep an eye on the [@realDonaldTrump](#) Twitter feed.

### Foreign policy messes

This week the president escalated tensions with U.S. allies and adversaries alike. Trump made the first of three notable phone calls revealed this week on Jan. 27, when he **warned Mexican President Enrique Peña Nieto** that “you have a bunch of bad hombres down there” and that if Mexico’s military wasn’t willing to control them, he “just might send [the U.S. military] down to take care of it.” The excerpt the



down to take care of it.” The excerpt the Associated Press obtained didn’t include any context for the conversation, but the call followed **continued tension** between Trump and Peña Nieto over the border wall.

The next day, Trump’s **conversation with Australian Prime Minister Malcolm Turnbull** ended abruptly after Trump berated Turnbull over a **refugee agreement** between the two countries, bragged about his Electoral College win, and told the prime minister that the conversation had been “the worst call by far” of four he’d had with world leaders that day. In a subsequent **tweet**, Trump declared he would “study this dumb deal,” in which the U.S. promised to take in 1,250 refugees from an **Australian detention center** known for human rights violations.

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Then, on a Jan. 28 call with French President François Hollande, Trump repeatedly ranted “about the U.S. getting shaken down by other countries,” **according to Politico**.

In another foreign policy surprise, the Trump administration **shifted its approach** to Israel. Trump had **rejected the idea** that settlement expansion could be a threat to peace—but on Thursday, the White House released a **statement discouraging new settlement construction**, an apparent reversion to Obama administration policy. The White House said the statement **did not indicate an official position** on Israeli expansion.

Finally, after Iran's recent ballistic missile test prompted a **new round of sanctions** from the Treasury Department, Trump **addressed the situation** on Twitter. The tweets, which **reflected the belligerent attitude** of National Security Adviser Michael Flynn, said Iran had been "formally **PUT ON NOTICE**." In response, Supreme Leader Ayatollah Ali Khamenei **thanked the president** for revealing America's "true face."

### Court challenge

Trump's chaotically implemented executive order on immigration was **abruptly halted** by a Seattle judge Friday night. The ruling, which did not address the constitutionality of the ban, came in response to a **suit** brought by the states of Washington and Minnesota. **Nearly 100 tech companies** filed an amicus brief opposing the travel ban, and 10 former high-ranking diplomatic and national security officials **signed an affidavit** that said the order "cannot be justified on national security or foreign policy grounds."

In response to the ruling by U.S. District Court Judge James Robart, Customs and Border Protection began reinstating revoked visas, and the **Department of Homeland Security announced** it had suspended its implementation of the ban. Trump responded with a **Twitter tirade** criticizing "**this so-called judge**" and subsequently warning, "**if something happens blame him and court system.**" Early the next morning, Trump tweeted that "**any negative polls are fake news**" and that "people want border security

**news**" and that "people want border security and extreme vetting."

The Justice Department appealed Robart's ruling, and a federal appeals court **heard arguments** Tuesday night.

The administration defended the executive order by pointing to specific terror attacks. Kellyanne Conway cited the "Bowling Green massacre," **which never happened**. Trump accused journalists of intentionally ignoring terrorist attacks, and the White House released a **list of 78 attacks** it said had not been covered sufficiently. The list included the 2015 **Paris attacks** and **San Bernardino shooting** and last year's **Orlando nightclub shooting**.

### Continuing conflicts

In his first press conference after the election, Trump brought up his lawyer to describe how "he is completely isolating himself from his business interests." But **documents** obtained by *ProPublica* reveal the president's continuing ties to his business holdings.

The verdict of a trust and estates lawyer who examined the papers for **the New York Times**: "I don't see how this in the slightest bit avoids a conflict of interest. First it is revocable at any time, and it is his son and his chief financial officer who are running it."

*ProPublica* also found that Ivanka Trump, who also promised to resign from Trump businesses, remains **heavily involved**.

**Also this week:**

### Also this week:

- After a **rough confirmation battle**, **Betsy DeVos** was **confirmed as education secretary** in a 51–50 vote, with Vice President Mike Pence breaking the tie.
- Trump **moved to eliminate Obama-era financial regulations** imposed in the wake of the financial crisis.
- Speaking at the National Prayer Breakfast, Trump **mocked Arnold Schwarzenegger** for his ratings on *Celebrity Apprentice* and **pledged to “destroy” the Johnson amendment**, which bars churches from endorsing political candidates.
- Trump **threatened to withhold federal funding** from U.C.–Berkeley after violent protests on the campus prevented alt-right figurehead Milo Yiannopoulos from speaking.
- When Fox host Bill O’Reilly called Putin “a killer,” **Trump responded**, “There are a lot of killers. We’ve got a lot of killers. What, you think our country’s so innocent?”
- At a **Black History Month event**, Trump talked about the “terrible” inner cities, bragged about how much of the black vote he got, praised Fox News, and called **Frederick Douglass** “someone who has done a terrific job that is being recognized by more and more people.”

### This Week in @realDonaldTrump

- Trump **attacked** Judge James Robart personally after the George W. Bush appointee stayed the president’s immigration ban.
- He **attacked** Nordstrom after the retailer announced it was dropping Ivanka Trump’s clothing line. (The company’s shares ended the day **up 5 percent**.)
- And he launched a bold new policy initiative aimed at ending the wait for “**EASY D.**”

### Last take

Melissa McCarthy’s *Saturday Night Live* performance as Press Secretary Sean Spicer earned raves from critics and a **mixed review** from Spicer himself. But Trump himself wasn’t laughing. *Politico* **reported** that the president was “rattled” by the skit—especially by the fact that Spicer was portrayed by a woman.

Sensing blood, Twitter users called on *SNL* to cast Trump nemesis Rosie O’Donnell as Trump adviser Steve Bannon—and O’Donnell **indicated her willingness** to do her patriotic duty.

—

Molly Olmstead is a *Slate* editorial intern.



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MARCH 13 2017 6:53 PM

# How Normal Is a March Snowstorm?

Winter Storm Stella is coming. Can we blame climate change?

By Molly Olmstead

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A New York City Department of Sanitation garbage truck is fitted with a snow plow in the West Side depot on Monday.

Timothy A. Clary/AFP/Getty Images

Many on the East Coast are hunkering down for Winter Storm Stella. The National Weather Service has issued a blizzard warning for much of the Northeast, covering almost 20 million people, and is predicting a foot or more of snow in swaths of the region.

It does not look good:

Schools in New York, Philadelphia, and Boston are already closed. New York Gov. Andrew Cuomo has declared a **state of emergency**. Flights scheduled for Tuesday have been grounded. There will likely be power outages. Public transportation will be a nightmare in places where it isn't entirely shut down.

People are annoyed, considering 2017's initial promise of an early spring. Daffodils have been blooming, and early cherry blossoms in D.C. have the National Cherry Blossom festival scheduled for Wednesday.



Katarina @Katarina\_121215 Follow

Check your wine supply! Stella is coming soon #Stella #StellaBlizzard #blizzard2017 #DC

4:24 PM - 13 Mar 2017

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So, what's happening? Isn't this kind of extreme, potentially record-breaking snowstorm weird, particularly when considering that its right at the beginning of what was looking like a gloriously warm (but ominously early) spring? Is it something we should worry about? Could this be an indication of climate change?

It's entirely possible, but it's extremely difficult to ascribe causation to weather events, particularly weather events that can occur anyway. Better to say that certain situations exacerbated by climate change make certain weather events more likely.

Is that the case with storms like Stella? Does climate change make such storms more likely? Joe Casola, deputy director of the Climate Impacts Group at the University of Washington, said there's a chance climate change influenced Stella by pushing around the jet streams that steer the storm's path, an important factor in determining how much snow the storm picks up.

But this hasn't been studied extensively—Casola called it “an exciting new area of research.” Scientists know that global warming makes precipitation heavier, as it means more evaporation. But that phenomenon is more relevant to rain than snow, and Casola says it shouldn't result in more than a 20- to 30-percent increase, which wouldn't explain the difference between a dusting of snow and a foot of it. This effect can be seen more clearly when the Great Lakes don't freeze over and storms drop more snow in the surrounding regions. But Winter Storm Stella, a nor'easter, is not a product of this lake effect.

“It's hard to make a climate change case from nor'easter storms,” Casola says.

In *Grist*, Eric Holthaus takes a different view, writing that “For the first 100 years that meteorologists kept weather records at Central Park, from 1869 through 1996, they recorded just two snowstorms that dumped 20 inches or more. But since 1996, counting this week's storm, there have been six.”

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Those numbers, on their own, look alarming. But it's extremely hard to discern causation from a trend line that includes just eight data points, Casola said. And he added that extremely rare events can't really be used to look at trends: Numbers that small *could* point to a trend, but they could also just be a product of chance. If you want to look at extreme weather events to see climate change in action, Casola says, you should look at heat waves and heavy rainfall. For those events, there's plenty of data out there, and researchers have a firm grasp of the mechanics at play that worsen with a warming planet. Because, yes, climate change is happening, and yes, it will affect the weather we have all over the globe. But stating that individual weather events are definitely the result of climate change is dicey business.

So to return to the question: Is this storm a product of climate change? Probably not. But maybe! We really can't know for sure. It's **better to resist conflating** the dramatic and very real effects of climate change we know about with extreme events we can't be sure about. Doing so could even be provide **dangerous ammunition** for climate change deniers.

Either way, if you're in Stella's path, the best course of action on Tuesday is to stay inside.

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Molly Olmstead is a *Slate* editorial intern.



FEB. 27 2017 6:45 PM

# Don't Let the Snooze Button Make Your Morning Harder

By Molly Olmstead

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Fool.

amaxim/Thinkstock

The history of the alarm clock begins when the Industrial Revolution shackled workers to the factory's workday schedule. Since then, alarms remained fairly constant as a device—until they jumped to our phones. A 2014 [survey](#) of 2,000 Brits commissioned by a taxi-hailing app found the alarm to be the fifth most common use for cellphones, just below internet use and just above phone calls. Say what you will about smartphone alarms; they have led to a lot of [inventiveness over how best to emerge from slumber](#). But one element of the traditional alarm clock has remained in place: the snooze button.

It's not clear exactly what led to the [invention of the snooze function](#) in the 1950s, but it's easy to see why it would have been appealing: snoozing feels *good*. Part of it is the luxurious experience of waking up and realizing you can sleep a little longer. But it's also about temperature. Rafael Pelayo, a sleep specialist at the Stanford University Sleep Medicine Center, [told the \*Huffington Post\*](#) that in the couple hours before you should naturally wake up, your body starts raising your core temperature. If you aren't getting enough sleep, your alarm will likely rouse you from sleep too early in the process, making your bed seem irresistibly cozy.

Given that the snooze button is a firm part of our morning culture, it's easy to see why we carried it into the smartphone era. But was it a wise decision? Should you push that button?

Probably not. First, there's the obvious: [Fragmented sleep is not ideal](#), so you'll lose out on restful sleep with all that snoozing. But the snooze function also will inevitably make getting into a healthy routine harder. Dan Ariely, a professor of psychology and behavioral economics at Duke [wrote in the \*Wall Street Journal\*](#) that snoozing can ruin the connection between stimulus (your alarm going off) and response (you getting up) that you need for behavioral conditioning. If you were to start rising at your first alarm, Ariely says, it would eventually become an automatic response, sans struggle.

And that struggle can have lasting effects on your day, through something called sleep inertia-grogginess that can leave you weak and struggling to perform even basic tasks. Studies have found sleep inertia **can take two to four hours to shake**, even when you feel fully alert.

Robert Rosenberg, the medical director of the Sleep Disorders Center of Prescott Valley and Flagstaff, Arizona, **told Business Insider** that if you doze after your first alarm, your body gears up for another full cycle of sleep. When the second alarm jerks you awake during the beginning of your next sleep cycle, that incomplete cycle can leave you with worse sleep inertia.

**Top Comment**

Samsung Galaxy Note 7 owners: "Yes. The snooze button. Totally the most dangerous part." [More...](#)

**21 Comments**

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It's not all bad news for snoozers, though. Jeanne Duffy, a neuroscientist and sleep researcher at Harvard Medical School, **told Popular Science** that there are some instances in which your first alarm

wakes you in the deepest phase of sleep, leaving you disoriented. In that case, ten more minutes of snoozing could allow you to wake up more gently from a lighter phase in your sleep cycle.

But here's the catch: You can't really tell what phase of sleep you were on. So sleep science experts recommend that you stick with the safer option and resist the snooze button. Learning to get up at your first alarm will soften the misery of waking up early, but it won't make for a totally painless morning. For that, you just need more sleep.

**Read more from Awake, a blog about mornings.**

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Molly Olmstead is a *Slate* editorial intern.

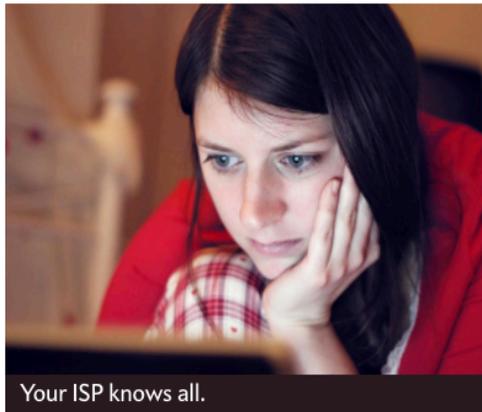
   
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MARCH 28 2017 6:36 PM

## Congress Votes to Allow Broadband Providers to Sell Your Data Without Your Permission

By Molly Olmstead

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Your ISP knows all.

joegolby/Thinkstock

In a defeat for digital privacy advocates, the House of Representatives voted Tuesday to allow internet service providers to sell information about consumers' browsing history without their knowledge or consent.

**The bill** repeals FCC the broadband privacy rules passed during the final months of the Obama administration. In addition to protecting customer data, the rules, which never had a chance to go into effect, also required the providers to notify customers when they experienced a data breach. The Senate voted to revoke the rules last week.

The issue generally fell along party lines in Congress, with Democrats voting to keep the rules and Republicans voting to repeal them. The Republican argument? Google, Facebook and other large web companies aren't subject to similar restrictions. Targeting just the ISPs, the reasoning goes, is unfair and puts them at a disadvantage in a market that includes apps and websites that can also collect your personal information. There should be a single, simple set of privacy rules to protect internet users, the Republicans say. The proponents of the FCC regulations countered that, while internet users can easily switch browsers, they often have little choice when it comes to broadband services and have to agree to their terms in order to stay connected. And ISPs know an enormous amount about their customers. In a **Future Tense piece in February**, Rep. Frank Pallone Jr., D-N.J., and FTC Commissioner Terrell McSweeney wrote, "Broadband providers potentially have access to every bit of data that flows from a consumer. That type of access demands a set of rules that matches the long held expectations of Americans—that we should have the freedom to control access to the most sensitive information about our daily lives."

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Since it doesn't look like Congress will pass broad consumer protections anytime soon, ISPs can now track their customers' data and sell it to advertisers eager to more precisely personalize their ads. That means knowledge of a customer's location at a given time, as well as their browsing history, app usage history, and data about their health and finances, for example. Given that the **majority of Americans** feel their privacy is already vulnerable online, this seems like a problem.

And it's not just privacy at stake. Some proponents of the FCC regulation argued that allowing ISPs to keep track of and sell consumers' data exposes their information to more security threats. The Electronic Frontier Foundation **notes** that if internet providers want to sell customers' data, they'll have to collect it first, which makes for an appealing target for hackers. "Internet providers haven't exactly been bastions of security when it comes to keeping information about their customers safe," the EFF's site says.

The Federal Trade Commission has the ability to protect consumers against unfair business practices, and it has brought cases against companies that act against consumers' privacy interests. But that's less preventative and more reactive. Furthermore, the FTC can't apply its own privacy guidelines because the current rules on net neutrality placed the internet providers firmly **in the FCC's jurisdiction**. For those hoping the FCC will fight back, there's a problem: The bill that passed not only struck down the FCC rules, but it also prevented the FCC from proposing similar regulations in the future.

The federal government's warming to the telecommunication companies **doesn't come as a surprise** to those following Trump's distaste for free speech on the internet and the buddy-buddy relationship between large telecom companies and the GOP. There's always the hope the **states will take up the cause of protecting internet users**, but this bill is a clear indication this Congress does not value consumer protection for the digital era.

*Future Tense* is a partnership of *Slate*, *New America*, and *Arizona State University*.

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Molly Olmstead is a *Slate* editorial intern.

    
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## CHAPTER FIVE: ANALYSIS

When S.C. was working as an editor for a science-focused magazine, her editorial team was called into a meeting to choose scientists to interview for Q&As in the magazine. They started out with a stack of a couple dozen names people had already submitted, and during the meeting people threw in names of scientists they thought would be interesting. At some point, she realized: every single suggested name had been a man's. "And so I was really aghast," she said. "We do Q&As often. This can't be. We have to have women in this group."

She said she understands how it happened. It was easy to not consider diversity when you're just thinking of an individual, of a single data point. But when she proposed specific women to the group, she felt there was some resistance. "There was an assumption that if there's a male scientist doing good work and proving to be influential, that that person would make a good Q&A subject," she said. But for the women, she said, "it seemed like everyone was setting a higher bar."

The magazine did add some women to their Q&As at the time, but S.C. – whose initials are used, along with those of everyone else in this analysis, to allow them the anonymity to speak freely about their experiences and views about gender and race -- said the trend didn't really pick up, and she later left the magazine.

S.C., now a freelance science writer and editor, is not alone in her frustration with science journalists' routine blindness when it comes to diversity. In interviews with seven science journalists, most of whom have extensive experience writing and editing for

magazines, it became clear that these journalists saw a failure of science journalism to include non-male, non-white voices in its stories.

These journalists disagreed on the scale of the problem, but they all agreed time constraints and reliance on flawed institutional structures made fixing the problem difficult. They also acknowledged the particular difficulties of dealing with race, in part because of the discomfort associated with the topic and in part because of its relative complexity. And they mostly agreed science came with its own problems with gender and race, even if they aren't extreme.

But more importantly, the journalists saw diversity as a matter of responsibility to their audiences, the public and their sources, and they agreed that all science journalists should try harder in their daily reporting to reach past the easiest and most obvious sources—who were often white men because of the many systems that serve to elevate white men in science.

### **The problem in science journalism**

Often, when these journalists talked about the problems they saw science journalism as having, they mentioned two issues of representation. For some, the most obvious problem was the whiteness of the field itself. But, when asked if there were problems in science journalism, most also mentioned representation in the stories themselves. Oftentimes, when they spoke about these two issues of representation, the journalists wove them together in their answers. When P.S., a female, Indian-American journalist who writes for a conservation magazine, was asked about the problems of representation in science journalism, she said that female scientists were not receiving the

“weight or recognition as they deserve,” and that science journalism hadn’t yet dealt with the lack of racial diversity among the journalists themselves.

While the journalists agreed that science journalism has its problems with the diversity of its sources, they differed on its severity. Three did not hesitate, certain there is a problem with representation. Two said they believed there was a problem, but one qualified her statement by saying she didn’t think “any of us are doing a good job.” Another agreed it was a problem but said it was no different than representation problems seen in all of journalism.

Some of the journalists saw their personal struggles finding diverse sources as evidence of a more widespread problem. B.B. is a white, female science writer who freelances and also works as a contributing editor for a popular science magazine. “I don’t have hard evidence showing it’s an issue, but I know in my own writing, it’s something I struggle with,” she said.

One journalist who was interviewed decided to quantitatively assess his own sourcing to determine how much of a problem he really had. Inspired by a colleague at his publication, for the past year E.Y., an Asian, male staff writer at a national magazine who writes often about biology, has been keeping track of the gender of all of his sources. He first combed his stories from January 2016 to February 2017 and tabulated a percentage for his female sources: roughly 25 percent. “I had kind of an inkling it wouldn’t be very good, but I also didn’t expect it to be that bad,” he said. “Twenty-five percent was a bit of a shock.” He believes it’s likely that, like him, journalists may think they are representing more diverse voices than they actually are. “It’s very easy to convince yourself that you’re doing fine when you’re not.”

## **The costs and hurdles of gender and racial parity**

To make matters more complicated, E.Y. has found that he has to contact more women than men to get an equal number. He has calculated that he has to ask about 1.3 men to get one quote, while he has to ask 1.6 women to get a quote. He attributes this difference to women being busier fielding media requests in fields where they are more underrepresented (“they probably get a lot of requests for stuff like this”), to women having to deal more with childcare, and to men being more likely to seek out media attention. “It’s not quite self-confidence, but that willingness to say, ‘yes, I am an expert in this and I should be talking about the media about this,’” he said. “I think men are just more likely to do that, and I’m not saying that in a complimentary way.”

E.Y. estimates he spends an extra 15 to 20 minutes on each story balancing the gender of his sources, which, by his estimates, adds up to an extra hour of work per week. For E.Y., this is “a small price to pay for standing up for this value.”

But other journalists interviewed were quick to point out that for journalists working on tight deadlines, that extra time and effort might not be feasible. And for freelancers, time is money. Journalists emphasized this hurdle above all others. “When you’re doing a lot of web stories and you’re on tight deadlines, you don’t have -- I hate to use the word luxury ... but ... when you’re trying to churn out stories, it’s very hard,” M.H., an editor and writer for a national conservation magazine, said. (However, many of the journalists often wrote or edited feature stories and considered themselves as having the privilege of time and creativity for those stories, which meant there was less of an excuse for homogeneity among the sources.)

Because of the time limitations, most journalists rely heavily on the public information officers of universities and labs to direct them to the best sources, they said. Or they often contact the lead author on the scientific paper of interest or the principal investigator of the study or trial. The problem with relying on these sources, however, is that public information officers can be subject to the same biases as any other person, and the top billing on a scientific paper doesn't always go to the person who put in the most effort but instead can go to the most prestigious author (the conventions for ordering authors can vary by field, lab, publication and country, so sometimes there are simple methods, such as alphabetical ordering). A study in the peer-reviewed journal *The BMJ* called "Trends and Comparison of Female First Authorship in High Impact Medical Journals" looked at 10 years of "high impact" medical journals and found there to be a gender gap between male and female researchers when it comes to who nabs the lead author spot – something that plays into their professional reputation and success. And an article published November 17, 2015, in the journal *Nature* found that underrepresented minorities received grants from the National Institutes of Health at a lower rate than their white peers – meaning they are less often the principal investigator, or grant holder, of the research. Neither of these studies came to a conclusion about the causes of these disparities, but both conjectured a range of biases against and burdens on women and people of color that could have led to a generally less privileged place in academia.

A.M., who writes often about health issues, was one of the journalists who said she thought a range of factors led to white men rising to the top of their fields more frequently, meaning they often gained greater name recognition:

“Part of that is because those are the people who are at the top of the profession because they are the ones getting promoted, and they are the ones who are the department chairs and the tenured professors. So it's a whole institutional setup that just makes it easier for them to get attention.”

A.M. argued that relying on these official sources often means journalists are ignoring the women and scientist of color who may have worked just as closely or even more closely with the studies but were given less recognition:

“Often you hear from women scientists, especially junior scientists, that they are afraid to speak up because they feel they have more to lose. So they are not as good about putting themselves out there, promoting their work, promoting themselves as possible sources.”

M.H., who was a scientist through her 20s before she became a journalist, and who is white and gender non-conforming, added that often, men publish more than women. “And that might not be because the women in research aren’t as interesting, but because they [the men] have all the advantages that allow them to publish more,” she said. “So they're the ones you go to because they have the hundred papers on this topic. So there's certainly intrinsic problems in science that might perpetuate the problem.”

For many science journalists short on time, these highly published, highly recommended and very often white, male scientists can therefore seem like the safest and most authoritative bet for sources, the journalists said.

### **Hesitancy about race**

The spreadsheet of E.Y.’s stories in 2016 broke sources down by gender, but not by race. Since he started keeping track of his sources, though, he has made a note of race.

But he admits race can be trickier. “It’s harder there, because it’s more difficult to know what the target should be,” he said. “It’s easy with gender, because it’s 50 percent, obviously, and it’s 50 percent everywhere. So what is the figure when you’re looking at race?”

E.Y. is aware that there are distinctions, too, among different races. “So that term, underrepresented minorities, sometimes excludes Asians, especially in STEM fields,” he said. “I’m also trying to make sure that when I approach non-white people as sources, it’s not like 100 percent of those people are Asians. . . . I’m not recording to that level of granularity, but I am trying to intuitively get a cross-section.”

But he said he thinks the distinctions shouldn’t distract from the goal. “Put it this way, if I look at the coverage that exists, I think it skews very heavily toward white men, and that’s what I want to skew away from.” (He said he has set a personal goal to aim high for non-white sources: 30 percent. And if he hits that mark, he plans to bump the goal higher, he said.)

The greater challenges of race might be reflected in the ways the journalists spoke so much more readily and frequently of gender in their answers. P.S., an Indian-American journalist, for example, spoke at length about gender first. When asked about race, she hesitated more. “Yeah, I think it’s the same kind of -- I don’t know,” she said. “That’s something I think I need to learn a lot more about. Exactly where those problems are originating from.”

She did say that she knew from personal experience that race could be complicated for a number of factors. “Indian Americans, for example -- I don’t know if it’s a cultural thing, but we’re very encouraged to pursue medical sciences and

engineering,” she said. “So we are going into the sciences, but it’s not a diverse mix of sciences.”

The inclination of these journalists to speak more readily of gender might be a result, partially, of their demographics. While almost all of them were female, four out of seven were white (although the non-white journalists also tended to focus on gender first as well).

A white woman, S.C., said she thinks people -- both scientists and journalists -- find it easier to talk about gender because racism – which has motivated lynchings, beatings and many other forms of aggression in its enforcement -- has a more violent history than sexism, which can seem relatively benign, and because talking about race in the current social climate can seem more fraught than talking about gender. “Even to ask that question, to ask, ‘Are there any women in your field doing that work?’ feels more comfortable,” she says. “White people have more fear of race issues.”

Even in what Keith Woods, the vice president for diversity in news and operations for NPR, calls the “ordinariness of life” and not the heavier problems of race, many of these journalists intimated discomfort. B.B., another white female journalist, admitted to feeling the same unease with just asking about it. “For some reason, it’s easier to ask [about women in the field] that than to ask, ‘Are there any people who aren’t white in your field?’ she said. “I’m not sure why that is, why it feels a little different.’

### **The reasons for the difficulty of race**

While the journalists were on the whole more hesitant to discuss race when unprompted, when asked specifically about the issues of race, they volunteered several possible reasons race could be a more troublesome topic.

A.M., who is a non-white immigrant, for example, said she thought it was slightly easier to find female (and often white) scientists for stories than people of color because they're more likely to be well-connected, she said. "I think again it goes to institutional support and networking," she said. "I think if you are a scientist from a minority group, then you have fewer in-group recommendations."

Several mentioned a simpler logistical hurdle: it can be harder to tell race from an author's name on a paper. E.Y. said he finds it hard to tell from a Google search, and C.G., a white female print and radio journalist who often writes about the science of food, said she once turned down a writer-byline-counting project because she said it would be too difficult to determine the writers' race:

"There are certain names that are obviously Asian. There are certain names that seem obviously Latina, but not necessarily. And then in terms of African American, that's a little harder sometimes to know. Sometimes you know because you look at their bio or you look at their picture, but you're not necessarily looking at photos of people you're interviewing."

And others pointed out that in certain fields, there are simply more white women than there are people of color. P.S., who specializes in writing about birds, says she found this to be a constant obstacle. However, she admitted that "there's definitely a few black ornithologists and other non-white ornithologists that are well-known. So I can imagine going back to them over and over again."

### **The problems of science**

But while the journalists agreed sexism and racism in science were a problem, several were hesitant to say this problem was worse than those of any other field. One

said it was the same as “any male-dominated field,” and one (M.H., who was once a scientist and witnessed sexism in the lab first-hand) thought that science journalism had more of a problem with diversity than science itself (careers in science can often pay better than science journalism, she posited, and therefore appeal more to people from less wealthy backgrounds).

And there are some areas of science that have greater gender and racial parity. Records of doctoral degrees earned have found that women are heavily underrepresented in the physical sciences, such as chemistry and physics, but in the life sciences, such as biology and health sciences, they are earning more PhDs than men, for example. But still, the journalists resisted splitting the issues by fields -- except when they acknowledged that in some fields, it could simply be too difficult to find enough non-male, non-white sources.

Even in the fields that tend to have greater parity on the whole, there can be subfields that buck the larger trend. E.Y., who usually writes about biology, said he’s found that when writing about highly specialized areas, such as abiogenesis, or the study of the origin of life, there are often very few female scientists to be found. C.G. also said she’d encountered this problem with computational biology, the field that uses data and mathematic models and simulations to study biological systems and phenomena.

C.G. said she struggled finding women for a story about computational biology (more people go into it from the computational side than the biology side, she said). But C.G. also said she’d always been able to find women to “bring into the story,” and E.Y. was still unwilling to say one area of science was more challenging than another. “It’s

hard to say, and I think I don't really want to specifically call out any particular field," he said.

B.B. also mentioned that astrophysics has had stories about problems with gender and diversity, but she says she does not know if that's because that particular field is actually more hostile to those demographics than other fields or just because people have chosen to single it out as having a problem. "It might just be a matter of that's what's getting a light shined on it right now," she said. "Because you know, you get one astrophysics story, and then more people in that field feel more comfortable coming forward."

Medicine, however, did stand out from the other fields as a matter of greater concern because of what the journalists saw as the grander implications of its problems. A.M., who frequently writes about medicine, mentioned that a lack of focus on gender in the field for a long time blinded researchers to the fact that women experience different heart attack symptoms than men. She also said that people often don't think about race in clinical trials, often leading to all white participants. "And so we know very much less about the health of Hispanics and Latinos, African Americans and Asian populations," she said.

And even though the journalists were unwilling to label one field as having worse problems than another, they were willing to point to issues specific to science in general. One journalist said she thought sexual harassment could be a problem in sciences that involve field work where researchers work outside the lab and often with more relaxed codes of conduct. For instance, a 2014 survey published in *PLOS ONE* of 666 scientists called "Survey of Academic Field Experiences" did find that 64 percent of respondents --

mostly younger women -- had personally experienced sexual harassment. Two journalists said they thought scientists relied on the perceived culture of objectivity in science as a way to deflect criticism about diversity. B.B., who said she thinks science is “no better or worse than any other field that is dealing with sexism and racism,” mentioned the discussions about the upcoming March for Science as a place where people try to claim science is above “petty arguments over race and sex.”

“I think sometimes scientists sort of use their objectivity -- or perceived objectivity -- as a crutch to argue that these issues don’t apply to them, when they really do,” she said.

### **Why it matters**

When it comes to the reasons most of the journalists cared about having a greater representation of women and people of color in their stories, they tended to say that it was a goal to not perpetuate racism and sexism. They talked of fairness for non-white, non-male scientists, whom the journalists thought deserved to be visible as demographics.

They also tended to say the non-white, non-male readers deserved to see themselves reflected in the stories. “You know, people don't really connect with you until they see themselves in your work,” M.H. said.

“I think part of a journalist’s role is to not only reflect the true diversity of points of view in science ... but to amplify their voices,” S.C. said. “And to shine a light on the absence of diversity.”

Regardless of how the journalists saw their own roles in relationship to science, they all seemed to think about diversity the same way. The journalists who identified

with the watchdog role and the journalists who identified more with the educational and entertaining roles of journalism tended to have the same motivations for championing diversity in their stories.

B.B., who identified with the watchdog role, said that part of her motivation was “just knowing that there are people who are underrepresented in science that probably ... have interest and desire to have these interesting, good jobs,” and to send the message that “science doesn’t just belong to white men.”

“I think trying to highlight their work is nice ... because those things matter to research,” she said. “It’s not my job necessarily to write a story for the benefit of the scientist, but I also think that it’s important to consider those things in the coverage, for having complete stories.”

B.B. wasn’t alone in suggesting journalists have some degree of responsibility to sources who were not white men. Journalists typically argue their work is meant to benefit their audience and the public, and these journalists tended to make the same argument. But they didn’t completely reject the idea that they had a duty to their sources – as long as those sources were not the white men who held institutional power. A couple even invoked the journalistic slogan to “afflict the comfortable and comfort the afflicted.” For these journalists, in these discussions, duty seemed to be less about to whom they owed their loyalty and more about challenging versus upholding institutional status quo.

While the other journalists didn’t quite as explicitly mention the benefit of the minority scientists, they did tend to say it was unfair to them to not cover them. And several of the journalists also thought that diversity improved the quality of their journalism and benefit their publications.

It wasn't all about fairness. P.S. argued that having more diverse stories could draw in more readers. Several others argued that diverse sources simply made the reporting more entertaining by adding variety and complexity.

“All editors are looking for a good story,” M.H. said. “And if the person involved is unusual in some way, then the editors are going to jump all over it.”

### **The solutions**

A few of the journalists argued that scientists themselves had a responsibility to encourage non-white, non-male scientists to enter the field and become more visible. But pretty much all of these journalists felt that both reporters and editors were responsible for ensuring more women and people of color are included in science stories. When they were asked how journalists should fulfill that responsibility, a few ideas cropped up repeatedly.

The most obvious solution to most was remembering to not rely completely on the first names on papers or on PIOs and to put effort into finding new sources.

“When you do PubMed searches, don't just look for the big university Harvard deans, because those tend to be the white male candidates,” A.M. said. “If there are multiple people on a paper, don't just call the name that has already gotten the most attention. Maybe call the post doc. Maybe call the woman whose name is second most important.”

S.C. recommended looking to historically black colleges and other institutions more likely to have a greater concentration of diverse experts.

Similarly, E.Y. argued that journalists should avoid profiling “celebrity scientists,” and A.Y. and C.G. encouraged journalists to avoid using scientists who have been in several other stories about the same topic.

“You fall into a rut,” C.G. said. “You know, I don't have a particular beat where I go back to the same people. But people who do, maybe they get into that rut with the people they usually speak with. And that's hard to break out of.”

E.Y. and C.G. both recommended using quotes from sources not involved in the particular study being described to add diversity if the main sources of the story are white men. And P.S. said that when it's possible to tie a story to people or a community outside science, then that's also a good opportunity to add diversity to a story.

When E.Y. starts to struggle to find sources who aren't white men, he said, he would start emailing people he knew in the field he was writing about to ask if they knew of any talented women or people of color in the field. P.S. said she will usually ask women for talented sources in their field. “A lot of women, I would say, engage in the shine theory [the concept promoted by feminist journalist Ann Friedman in 2013 that women should strive to help each other shine rather than see each other as competitors], where they brag about other women who are great at their job,” she said.

M.H. did emphasize that there were always going to be limitations to these tactics as long as the “whole ecosystem” of science is unaware of its problems.

“Because at some point, you can just be like, I interviewed 50 people and these are the three white guys that everybody [knows] -- I don't know where else to look,” she said. “It's all word of mouth, essentially. I mean, word of mouth, word of RSS feed, word

of email, but it's essentially humans talking to humans, and you're always going to have problems with that.”

Another solution some of the journalists suggested was following scientists and science journalists who care about these issues on Twitter. Similarly, M.H. said she learned to think more about race in science from a friendship with a scientist who cared about the issue.

E.Y. said he was hoping his public efforts to improve would rub off on other journalists. “I want to talk about it so that other people may think about it for themselves and may find it easier to do so because they've seen a colleague do it or because we've talked about tips or tricks for doing it,” he said. “I think leading by example is the way we're going to fix this in the long run.”

As proof of E.Y.'s point, B.B. said she thought seeing efforts like E.Y.'s have had an effect on her. “I think that seeing other writers publicly accounting in their own writing for at least the gender stuff has really made me think about it,” she said.

### **Diversity in science journalism**

For a longer-term solution, however, some of the journalists thought the field of science journalism itself had to become more diverse. “Go out and look for those writers that are from underrepresented communities, that are already writing out there,” M.H. said.

In fact, when the journalists were asked what the problems of science journalism are, many said science journalism has a distinct problem with racial diversity, even though most were unwilling to say it was worse than other fields of journalism when it comes to source diversity.

“I don't think a lot of diverse candidates think about going into science journalism,” P.S. says. “They might rather do politics or justice or sports. I don't know. I don't want to pigeonhole, but ... I definitely see less of them engaging and wanting to talk about science journalism than in other fields.”

While B.B. said she thought all areas of journalism were too white and that science journalism wasn't a standout offender, M.H. herself admitted she had contributed to this when she hired interns at her publication. “For the most part I was hiring white women,” she says. “And I was like, wow, I was thinking about gender parity, but I realized I have this blind spot for people of color.”

C.G. added that the issue also extended to women, though less dramatically. “Even though there are more women than men in science journalism, men get more of these awards, they get more of the high-impact features in high-impact magazines, etc., etc.,” she says. “It's still dominated at the most public level by men.” The Science Byline Counting Project, published in 2016 in *The Open Notebook*, an online resource and community for science journalists, corroborates her claim. In almost all publications they examined, men published more in-depth features than women. In some publications, the disparities were extreme: In the eight months they examined, 81 percent of features at *Scientific American* and 73 percent of features at *Wired* were written by men.

Ultimately, the journalists all emphasized that the first and most important step toward improving representation is realizing there is a problem of representation, and that journalists have a responsibility to do something about it.

After E.Y. started keeping track of his sources, his percentage of female sources jumped from 25 percent of all sources to just over 50. He said he's happy with the

number, and he mentioned that he has received a lot of support for his efforts. “The stupid thing is that I think people shouldn’t be given extra credit, like, recognition for doing this,” he said. “It’s just sort of taking this to where we ought to be already.

“I think the responsibility for fixing it comes from all of us,” he said. “It needs to start from the ground up. It needs to start with individual journalists making an effort and saying, okay, I need to put in a little bit more time, and I’m going to fix this within my own reporting.”

## APPENDIX

### HOW SCIENCE JOURNALISTS CONSIDER DIVERSITY WHEN CHOOSING SOURCES

#### Project Proposal

##### **Introduction**

My experience at the University of Missouri has centered to a significant degree around science, health and environmental journalism, as well as around social issues. The Science, Health and Environmental Journalism course offered by the university gave me experience writing blogs and stories under the umbrella of science. For that class, I also attended two conferences, one a general science conference in Washington, DC, and the other a nuclear energy workshop at MU. In the class, I learned how to accurately read scientific studies and how to determine the validity of certain studies and ideas in science. We also discussed the way science issues intersect with social and political issues, which is the purpose of my research. I also did an independent study in which I reported on the controversy surrounding low-level radiation's effect on human health. In this independent study, I put the skills of distinguishing studies' validity to the test and learned about the ways sociopolitical contexts can shape a scientific debate.

I also interned as a science writer at the Fermi National Accelerator Laboratory, a Department of Energy lab specializing in high-energy particle physics. During the internship, I gained experience specializing in a particular area of science, of which I had previously known little, and learning to decipher complicated and difficult topics. These experiences will prepare me for the professional skills component of this project, which

will relate in some way to covering science or science policy. Additionally, my experiences reporting on issues related to science in journalism school and my experiences in my internship related to the social issues that surround or intersect with science. My experiences with science journalism at MU dealt partially with sociopolitical debates surrounding politicized science issues, such as climate change and genetic modification. My experience with Fermilab also gave me insight into social issues within science itself. Fermilab is the lab with the greatest gender and racial disparity within the Department of Energy, and those issues became part of a daily conversation among the communication staff, who often criticized the institutional issues that made it hard for science to change. These experiences have helped solidify my interest in science stories when they intersect with other sociopolitical issues. My career goal is to become a print and/or digital journalist who frequently writes stories about science and sociopolitical issues related to science.

My other classes at the university will help me with the professional skills component in other ways. My computer assisted reporting class will help me to be a better reporter who incorporates data into stories. My advanced writing class has helped me with story structure and crafting a compelling narrative element to go with stories.

This project will help me with my career goals in that it will give me a greater understanding of how science journalism functions as a routine, and how science journalists perceive their role in relation to furthering the goals of science. Additionally, it will help me to stay connected to the social component of science journalism, which is one of my primary interests. My professional skills component will help me on my career

path in that it will strengthen my reporting background and connect me to a larger network of journalists who report on science.

### **Professional Skills**

I will be interning with the MU Washington Program in D.C. I will work as an editorial intern for *Slate*, an online news magazine. I will work for 29 hours a week for a total of 435 hours over 15 weeks. My internship starts at January 3 and runs until my defense (and past it). It is supervised by Megan Wiegand, a copyeditor at *Slate*.

The specialty area of the project is science journalism, and my previous experience writing science stories and taking classes on science journalism will qualify my work on this project.

### **Professional Analysis**

My professional project will be about science journalists' process of choosing sources and opinions for their stories, and whether they take source diversity into consideration. Specifically, it will aim to answer the following question: How do science journalists approach the task of including non-white and female voices among their sources?

The topic is relevant to the field because most professional journalism organizations encourage reporters to use women and people of color as sources, yet following that recommendation often proves challenging because of the disproportionate numbers of white men in certain fields of science. This subject is worth exploring to understand science journalists' relationship to issues of diversity in science and an

understanding of the role of science journalists in dealing with issues of race and gender. The topic relates to my professional skills component because I will be writing with a scientific focus at my internship. Being connected to journalists who cover science will help me to find sources for my story, and experience interacting with journalists who cover science and familiarity with related institutional norms and policies may help me to understand the responses from the semi-structured interviews.

## **Theory**

The theory that I propose using for this professional analysis is gatekeeping theory. Although gatekeeping theory generally refers to the way in which people and institutions in journalism control the flow of information, the journalists' choice of voices to be heard in a story is in itself a way of choosing the filters through which the information is conveyed, making it emblematic of gatekeeping theory. According to Shoemaker and Vos (2009), gatekeeping is the "process of culling and crafting countless bits of information into the limited number of messages that reach people each day, and it is the center of the media's role in modern public life" (p. 1). While my project will not deal as directly with the "countless bits of information," it will deal with the source selection through which journalists obtain that information.

According to Serban (2015), "either the news selection is determined by subjective factors, or objective criteria force the journalists to select or reject certain news stories" (p. 1). A subjective factor might include a journalist's personal beliefs about his or her own professional obligations, and an objective criterion might include a company-wide policy. This question of subjective factors or objective criteria is relevant to what I

want to cover in my interviews, as I aim to understand if journalists take a more rigid or fluid approach to choosing expert sources. It is likely journalists either have fluid, subjective approaches to including female and minority voices, or they have objective policies. This same question touches on the evolution of thinking about the theory from considering gatekeeping an individual concept, which would likely lead to more fluid approaches to choosing diverse voices, to thinking of it as more of an institutional concept, which would likely lead to more rigid approaches.

Gatekeeping theory originated from the research of German-American social psychologist Kurt Lewin, who studied social dynamics (Serban, 2015). The first application of the theory by Lewin was to the idea of social change, which could include processes such as changing food habits. The gates, in this context, are entry points to channels through which food products are transmitted to audiences; different forces on either side of the gate can influence the transmission (Shoemaker et al., 2009). The “gatekeepers” in this context were considered people involved in the process of the purchasing, transporting and preparing food (Shoemaker et al., 2001).

The theory found its way to media studies through David Manning White, who, after Lewin suggested the concept could apply to the flow of news, began studying the process of selecting the news through the lens of gatekeeping theory – at first with the actions of a single editor (White, 1950). Warren Breed in the 1950s wrote of the newspaper publisher as the gatekeeper, pointing to the role of more indirect actors on the selection process (Breed, 1955). The views of these scholars find the power of the individual gatekeeper to be acceptable as long as the gatekeepers are “faithful cultural representatives,” according to Shoemaker et al. (2009, p. 77). The research of White and

Breed would place agency in the hands of the individual science journalists. Similarly, the study proposed here will seek to find if these journalists do perceive themselves as having control over the choice of sources.

A couple decades after Breed, Herbert Gans (1979) placed gatekeeping at the organizational level, opening the theory up to discussions of “group norms and ... practical considerations” and making it relate more to the overall process of creating the news and not simply the actions of individuals (cited in Shoemaker et al., 2009, p. 77). Gans wrote of “‘considerations’ to aid in the decision making process, which must be applicable without too much deliberation” (Shoemaker et al., 2009, p. 77). This organizational-level discussion of gatekeeping revolves around “efficiency and power” (p. 77). The study proposed here will also seek to find if journalists perceive organizational-level policies and norms factor into shaping their attitudes and decisions regarding sources. If so, it will seek to understand what those policies and norms are based on, and how they fit in the rest of the process of creating the news.

According to Shoemaker et al. (2009), more recent discussion of gatekeeping has focused more on the organizational context, rather than just thinking of the individual, while also incorporating the questions that come with new media and the changing media landscape. The “channels” of Lewin’s research are “communication linkages,” including that between the source and journalist and that between a journalist and editor, etc. (Shoemaker et al., 2001, p. 235). Those channels can be broken down further for study and examination of the gates – “decision points” – that occur within them (p. 235). Shoemaker and Vos (2009) addressed the different levels at which these gates occur by breaking the levels of analysis into five parts: individual, communication routines,

organizational, social institution and social system. This research will focus on decision points that relate to the choice of sources, identify where those points are within the larger reporting process, and place them at one or more of Shoemaker and Vos' levels of analysis.

Therefore, this research will address personal and institutional attitudes, as well as the individual and communication routines or practices. I will be interviewing individual journalists, but the questions should probe organizational issues. At the individual level in the study, Rosen et al. (2016) base their study off of Shoemaker and Vos' five levels of analysis (2009). In using gatekeeping theory to evaluate how three groups of science journalists select their news, they write of "decision strategies, values, role conceptions and personal interests" (p. 332). These factors should all be taken into account, with a focus on role conceptions and personal values.

The importance of this theory lies in the gatekeepers' influence and agency. The process of gatekeeping, while essential to distinguishing news from a flood of information, is believed by some to inevitably lead to "media distortion" (Shoemaker et al., 2001, p. 76). Therefore, the gatekeeping role has power. The other aspect is agency: the gatekeeper, whether a person or a routine or practice, is not automatic. Gans argues that the fact that newspapers look to one another to assess their choices confirms the subjective nature of the gatekeeping role (Gans, 1979, cited in Shoemaker et al., 2001). My research will assume science journalists and/or their editors have the agency to make decisions to some degree regarding their gatekeeping roles, and it will assume that their decisions can lead to some degree of distortion, through the voices either being included or left out.

## **Literature Review**

Scientific fields have often been the focus of discussions about gender, race and representation. Non-Hispanic whites and Asians have been shown to be overrepresented in the occupational fields categorized as STEM (science, technology, engineering and mathematics). A U.S. Census Bureau study of STEM fields found that while black and Hispanic professionals make up 11 and 15 percent of the overall workforce, respectively, they were only found to comprise six and seven percent of the STEM workforce, respectively (Landivar, 2013). Similarly, the study found men to be employed in STEM fields at twice the rate of women.

However, the STEM fields cannot be said to be uniform when it comes to issues of representation. Not all areas of sciences have the same issues of gender disparities. Women are much more heavily underrepresented in the physical sciences (astronomy, atmospheric science and meteorology, chemistry, computer and information sciences, geological and earth sciences, mathematics, ocean/marine sciences, and physics) where they made up fewer than 30 percent of all doctoral degrees earned in 2014, and in engineering, where they earned 23 percent of the doctoral degrees earned that year (National Science Foundation, 2014). In the life sciences (agricultural sciences and natural resources, biology, health sciences), however, women earned roughly 56 percent of all doctoral degrees in 2014. The racial disparity, however, is similarly wide in both life and physical sciences.

In the news media, source representation reflects the underrepresentation of women and people of color in STEM fields. According to the Global Media Monitoring

Project (2015), a gender equality research and advocacy initiative, women make up 35 percent of sources in newspaper, television, and radio stories primarily about science and health. This is a slightly higher percentage of women than the total percentage of female scientists and engineers -- roughly 28 percent -- employed, according to a National Science Foundation report (2014). Additionally, the Global Media Monitoring Project (2015) reports that women are actually better represented as sources in science and health than in other prominent news topics (for example, in politics and government they make up only 16 percent of sources). As Chimba and Kitzinger (2010) write in their study of gendered representations of scientists in British news media, “the issue of what might be an ‘appropriate’ number of profiles, and, indeed, how one might increase the number of such articles, is therefore a complex one” (p. 612).

Data could not be found on the racial breakdown of news sources, but many past studies have shown news coverage to be dominated by white, male voices. In a quantitative content analysis of network news programs in 2005, Owens (2008) found that elite sources—the bulk of sources across all of journalism—were overwhelmingly white, and topics such as politics and science featured almost no non-white sources. Given that science journalism relies heavily on elite sources such as scientific experts (Kruvand, 2009), it is likely non-white sources are also used with a similar degree of infrequency in science journalism. Therefore, the voices heard within science journalism are likely to be primarily white men.

Who the sources of news are can matter, according to Gans (1979), who argues that sources pass on their values through their information. Therefore, Gans argues,

sources can influence the journalists' understanding of the social order, which in turn influences the public understanding of the field or subject matter.

Some of the research into how source-journalist relationships can influence coverage emphasizes the power of elites as sources: Gans (1979) writes of sources leading journalists. Bennett (2007) writes of “indexing,” in which more disagreement among elites leads to more media coverage, and vice versa. That relationship between sources and journalists is described as one that perpetuates rather than diffuses the power of elites. Hall (1978) argues that because journalistic practices meant to ensure impartiality rely on perspectives and expertise from elites, the traditional method of finding and using sources benefits those elites, who have greater access to the news media and who are allowed a greater degree of control over the public discussion – a “systematically structured over-accessing to the media of those in powerful and privileged institutional positions” (p. 58). Similarly, Gandy (1982) writes of “information subsidies” of elites in which access to news media augmented their influence. Other media scholarship focused more broadly on the relationship between news journalism and elite institutions has shown journalism to be dependent on institutions for their news, and much of that scholarship has shown that the press can be cautious and protective of those institutions, acting as the metaphorical conservative guard dog (Donohue et al., 1995). This research points to some ways in which traditional practices maintain a status quo of elite, expert voices.

In science journalism, the expert voices most commonly quoted are scientists (often the authors of studies published in scientific journals and found to be newsworthy) or those involved with science policy and business – primarily, government officials and

industry representatives (Kruvund, 2009). According to a global survey of science journalists by Bauer et al. (2013), the main sources for news are personal contacts, conferences and press releases, other media outlets, blogs by scientists, specific science journals and newswire services. The surveyed journalists looked first and foremost for a source to be reliable, which meant an emphasis on elite sources. Kruvund (2009) found that in a quantitative analysis of 15 years of science news coverage of bioethical issues, the non-scientist expert sources who made themselves most available to the press became relied-upon sources, and therefore had a disproportionately strong sway on the conversation. Considering the role of elite sources in science journalism and the research that points to elite sources maintaining the status quo, it can be argued science journalism's use of sources does not challenge the status quo of science. If the sources are also primarily white men, as the research indicates, the question can be raised as to whether science journalists are missing out on voices from women and people of color that could present a different perspective on scientific establishments.

### **The role of science journalism**

Whether science journalist believes they should challenge the status quo may depend on the journalists' views of their roles. That view can be based on how they perceive their relationship with science, and it can how a journalist finds and uses sources. Research into the role perceptions of science journalists have found competing views of the science journalist's place in relation to the topic he or she covers, with some degree of variation as to how critical of science the journalist is.

Science journalism in the U.S. has emphasized different roles over time. The 1940s journalists considered science to be a "salvation of society" (Lewenstein, 1992,

cited in Fahy and Nisbet, 2011, p. 71), 1950s journalists covered details of discoveries rather than societal implications (Rensberger, 2009), 1960s journalists took to critically questioning the motivations of science, 1980s journalists swung back to promote science, and 1990s science journalists saw a return to the more critical role (Nelkin, 1995).

Recent surveys of science journalists find the major role of science journalists to be “neutral provider[s] of evidence-based, factual, and high-quality information,” but these science journalists have varying opinions about how much journalism should be distinguished from other forms of science communication (Rosen et al., 2016, p. 341). Meanwhile, science journalists have different opinions as to what prominence the roles of “information provider,” “critic,” and “entertainer” each have in their reporting (p. 332). These different views can propel a science journalist to be either more or less critical of scientific institutions.

Secko et al. (2013) break down the different roles of science journalism into categories on a scale from a traditional top-down information dissemination model to a more public-debate-minded one that focuses more on “processes behind the science and the inclusion of a multitude of stakeholder viewpoints” (p. 69). The different approaches on that spectrum lead journalists to be either more or less willing to scrutinize views of science, and those who fall into the more traditional top-down model are sometimes criticized for being too supportive of science and not having a more critical eye (Nelkin, 1995). The journalists who see their role through this top-down lens likely will not prioritize the topic of representation, unless it is being championed by the scientific institutions themselves.

More recent analysis of science journalism probes the ways in which a new, complex media ecosystem affects the roles of the journalists and the work they are able to do. Certain pressures, such as deadlines and a lack of prioritization for science stories have only worsened with recent media-wide trends that involve cuts to budgets and staffs (Allan, 2011, Secko et al., 2013). Fahy and Nisbet, in interviews with science journalists for national publications, found that not only did the new media landscape mean journalists have to work under tighter deadlines and use more tools, they also had to take on additional roles: They became increasingly “curators” of science news, and they more often connected scientists with the public for discussion, commented more on the science they covered, and filled more of an educational role. However, Fahy and Nisbet (2001) emphasized the traditional journalistic roles, including that of the watchdog and the reporter who translates scientific information, remained the most commonly claimed among the journalists interviewed. These different role perceptions of science journalists likely affect how journalists perceive the role of sources and whether the journalists believe they should address institutional issues such as representation.

### **Science journalism and sources**

In science journalism, the close relationship between journalist and source -- sometimes described as a dependent one because of the gap of expertise between reporter and source -- is sometimes blamed for the slowness to critique values and power relationships of scientific institutions that is common within science journalism (Dunwoody, 2008). Friedman et al. (1999) argue “the scientific culture often succeeds spectacularly at determining the meaning of the science covered” (p. 60). Scientific institutions display control in a variety of ways, such as in the medical and scientific

journals' embargo system (Allan, 2011). Under the embargo system, journalists write stories from advanced copies of journal articles and delay publishing stories until the embargo's release date, usually a few days later (Kiernan, 1997). The system reveals the power the scholarly journals hold over science journalists' routines.

The use of sources can also change depending on the particular publication for which a journalist works, but previous scholarship indicates science journalism sometimes relies on sources not only for information but also for adding credibility or human elements to stories. Shachar (2000) argues that in popularizing science, journalists focus on personalities and social events, "establish[ing] an image of scientists as the pronouncement of authorities" (p. 348). Previous scholarship has also indicated that the focus on individuals can be exacerbated in the process of translating science for general audiences, as publications often eliminate collaborators from a story in an effort to condense the story into a narrative about individual scientists (Charney, 2003). The use of scientists as the pronouncement of authorities raises the question of whether heavy use of white male sources in science journalism portrays white men as the source of credibility in science. This study will investigate whether this question is one science journalists consider when thinking about sources.

Additionally, recent changes in media may effect the relationship between sources and science journalists. Recent scholarship has posited the internet has changed the way sources, journalists and the public interact, as blogs and social media chip away at the traditional path from scientist to public through journalists (Allan, 2011). The same trends that have caused science journalists to produce more stories under tighter deadlines mean journalists do not have as much time to find new sources (Secko et al., 2013).

These pressures may make it more difficult to consider issues of source diversity if it is not prioritized by a media organization. These trends raise questions about the ways science journalists think about sources and other parts of their routines, and they raise questions about how that way of thinking may be changing with the evolving media landscape (Allan, 2011).

## **Methods**

This study will rely on open-ended, semistructured interviews. The respondents will be found through the memberships of the National Association of Science Writers, as well as the Society of Environmental Journalists, and they will include journalists whose reporting deals primarily of issues under the umbrella of science, including the results of advancements in science, technology and medicine, as well as applications of science, and topics related to the process of science and other advancements (Rosen et al., 2016). I will conduct seven to ten of these interviews, a number small enough to allow for the interviews to be in-depth but large enough to allow for some comparison and range of thinking. The respondents should work primarily for regional or national print and/or digital publications. Additionally, they should represent some degree of geographical variety, and at least one or two of the journalists should not be based on the East Coast.

In semistructured interviews, as defined by Rosenbery and Vicker (2009), the researcher begins with a list of questions or a detailed agenda but does so with a flexibility that allows for exploring tangents and following up on unexpected answers. Researchers doing unstructured interviews, on the other hand, keep in mind a certain focus or agenda as they interviews the respondents but do so an very informal way, with

little controlling of respondents' answers. And structured interviews, to the other extreme, follow a pre-written list of questions and do not allow for deviation from the prepared structure.

Semistructured interviews were chosen because the flexibility affords the opportunity for follow-up questions, which will be necessary in order to clarify the reasoning behind certain views and to understand interviewee's opinions and perspectives. According to Brennen (2013), qualitative interviewing "is heavily influenced by a constructivist theoretical orientation which considers reality to be socially constructed" in which "respondents are seen as important meaning-makers" (p. 28). Patton writes that the purpose of the interview is "to allow us to enter into the other person's perspective" (p. 278). Therefore, the purpose of the method is not to draw a representative and complete picture of the journalists' views but to shed light on individual thought processes so as to understand how and why they created their views (Patton, 1980).

Rosen et al. (2016) use semi-structured, in-depth interviews in their study of three countries' science news gatekeeping processes. The choice of semi-structured interviews was made in order to explore the different processes, at different levels, that can affect the gatekeeping process. Rosen et al. argue that qualitative interviews are appropriate for attempting to understand "the individual social conditions" (p. 338). Fahy and Nisbet (2011) also used in-depth interviews in their study of online science journalism, and they chose the method in order to gain an understanding of the science journalists' reactions to and interpretations of changes in profession, roles, routines and expectations. In order to understand the respondents' thinking, Fahy and Nisbet asked open-ended questions.

Some questions to ask respondents will include:

- How do you define your role as a science journalist? What do you think your purpose is?
- How do you find sources? What is your usual process of finding them?
- Do you consider gender and/or race to be something relevant to your reporting? If so:
  - How? In what role?
  - If not, why?
- Do you think about gender and/or race when looking for sources? If so, why? How?
  - If not, why?
- Can you think of a time when you worked particularly hard to find sources who were not white men?
- Do you think your race and/or gender influences your writing and reporting?
  - If so, why? If not, why?
  - Can you think of a time when it particularly influenced it?
- Do you think your race and/or gender influences your use of sources?
  - How or how not?
  - Can you think of a time when it did?
- Does your publication/company have a policy about sources? If so:
  - Does that policy relate to race and/or gender?
  - What do you think about that policy?

- How much can/do you follow it?
- Do you consider there to be a problem to do with race and gender in science?
  - If so, in what way?
  - If so, can you think of a particular issue that makes you think this?
  - If so, do you consider the different fields of science to have the same problems?
    - If there is an issue with race, how do you understand it? Do you consider people of different races to have different experiences or hurdles?
    - If there is an issue with gender, how do you understand it?
- Do you consider there to be a problem with race and gender in science stories?
  - If so, what is the problem? Where does the problem show? Who does it harm?
  - If so, who is responsible for fixing the problem?
  - If so, what are the barriers?
  - Do you have any ideas for addressing the problem or concern?

The project could be published in *SEJournal*, the journal for the Society of Environmental Journalists, or in *ScienceWriters*, the publication for the Society of Environmental Journalists.

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## Addendum

My project did not stray too far from its proposal, but as I did not have concrete guidelines about which journalists I should interview, any narrowing should be noted. As my track at the University of Missouri was in magazine journalism and I was interning for an online magazine, I decided that the best fit for my project was to primarily interview journalists with experience editing and writing for magazines, as well as newspaper features.