SKATOLOGY

NEWSLETTER OF THE ASA SECTION ON SCIENCE, KNOWLEDGE, & TECHNOLOGY

NOVEMBER 2016 FALL EDITION

INSIDE THIS ISSUE:

Knowledge and Expertise after the Election

By Dan Morrison (Vanderbilt University) and Scott Frickel (Brown University)

By now, the news has settled in: Donald J. Trump is the President-elect of the United States. This makes Joe Waggle's contribution (p. 12) regarding science policy under Republican, Democrat, Libertarian, and Green administrations both an important statement on what might have been while also raising urgent questions about what is yet to come from a newly seated Trump administration.

As Waggle recognizes, we do not know much about what science policy under a Trump administration will look like but we already have a few clues. One notable clue is that Trump's pick to oversee the EPA transition is an outspoken, industry-funded climate change denier. Should Myron Ebell take the top job at EPA, this choice has potentially devastating consequences for the international Paris Agreement and for domestic environmental regulation and protection.

More broadly, we think the new administration is likely to develop approaches to science policy and funding decisions that usher in an era of retrenchment in the sciences and higher education. The incoming administration is likely to finance its policy agenda priorities by reducing or eliminating several federally funded research programs, with the possible exception of research aimed at protecting national security or increasing economic competitiveness. Those who rely on federally funded research institutions such as the NSF, NIH, NEH, and others, are experiencing a profound level of anxiety. Those with "soft-money" jobs are concerned that their grants will be either cut, or that funding for their granting agency will be slashed to such an extent that future work is in peril. If he chooses retrenchment, a President Trump will find precedent in recent decisions by the Republican-controlled Congress to cut funding for political science.

In the face of these many uncertainties, we know this for sure: sociological analyses of science, knowledge and technology will become more important than ever. Members of our section have devoted long hours and considerable energy to studying science's relationship to the larger society. We know more than most about how expertise is legitimated, about the links between legitimation and power, and about brute and subtle forms of knowledge politics. We need to use our knowledge and research skills wisely and productively. And we need to be vigilant. As Robert Evans (2008:228) has recently observed, the problem of "decision-making in the absence of information …. is particularly acute for the political sphere where a disinterested or uninformed public can undermine the legitimacy of democratic institutions based on mass participation."

There is much to do. As a start, we offer this newsletter, *SKATology*, our section blog (asaskat.com/blog), our facebook group and Twitter presence (@ASA_SKAT) as platforms for members to share their thoughts and reflections. We welcome your submissions to a SKAT sponsored "Resource Hub" for information regarding science policy under the coming administration. We also welcome short submissions that track the local impacts of policy change. As researchers and educators we all need access to resources that can be widely shared with members of the public, policy makers, and journalists who wish to understand the sociology of expertise, the social structure of ignorance, and the impacts of science policy on society.

Reference: Evans, Robert. 2008. "The Sociology of Expertise: The Distribution of Social Fluency." *Sociology Compass* 2: 281-298.

Chair's Column

Scott Frickel, Brown University

Welcome to the fall issue of *SKATology. I'm finalizing this column on the eve of the general election, so – and really, who could resist? – I'll get to politics in a minute.*

First, though, some updates on where we've been and where we stand today.

At the ASA meeting in Seattle this year we learned something about the unsung virtues of putting play before work. Section activities started with a party. I was worried that this unconventional schedule would dampen attendance at our reception but I needn't have. More than eighty SKAT members and friends-of-members ventured into the city's ultra-hip Belltown neighborhood, found their way inside an inauspicious-looking bar, wound past the doors of a burlesque theater, down a flight of narrow stairs and into the old basement speakeasy that served as our reception venue for the evening. It was dark, crowded, loud, and muggy. Just like a speakeasy should be. Judging by drink ticket consumption, we had fun. And then the next day we went to work: four section panels, one section-related thematic session, ten roundtables, and a business meeting, all well attended and energized with smart papers and engaged discussion between panelists and audiences.

Back home, we translated that intellectual energy into a successful fall membership drive. Thanks to some careful and creative planning by our membership committee and to the many SKATers who pitched in with some 11th-hour recruiting, we ended the year with 612 members – a handful fewer than last year, but easily above the magic 600 mark. Our reward is four rather than three section sessions at next year's ASA meetings in Montreal when our reception will come, more conventionally, *after the work is done.*

In planning the section sessions for this year, I have relied heavily on suggestions from members and Council, trying to stay close to the meeting theme, "Culture, Inequalities, and Social Inclusion across the Globe." Section panels for 2017 will focus on big data and inclusion, race and postcolonial science, inequality in scientific careers, and technological solutions to environmental problems – the latter developed with Environment & Technology section chair Tammy Lewis (CUNY-Brooklyn College). Our hope is that this joint session will attract emerging research from both sections that critically examine scientific and technological projects aimed at "fixing" environmental problems. There is a long history in STS of technology critique, one that has often advanced "alternative" technologies as a way toward more socially just and environmentally sustainable futures. We also hope this panel spark discussion among members of our two sections about the potential for social scientists to make positive contributions to the very real and pressing environmental challenges our society is facing – contributions that move beyond critique and into the realm of social action. You can find descriptions of all four SKAT sessions for ASA 2017 on page 10. Check them out and start planning; the deadline for online paper submissions is January 11, 2017, 3pm EST.

And now, to politics….

If nothing else, this presidential campaign season has drawn a fine point on the fragility of liberal democratic institutions, whose productive function rests minimally on public trust in government and on a social commitment to reasoned debate. Trust and reason are also, of course, hallmark values undergirding the institutions of academic science. While academic research and education can certainly flourish in the absence of democracy, it is less clear that a strong and representative democracy could flourish for long in the absence of a stable and autonomous academy which, along with other civil society institutions such as a free and open press, provide intellectual space for critical dialogue and disputation among an informed electorate.

In the US, democratic governance and academic science are intertwined historically. During the late-19th and early 20th centuries bureaucratic expansion of the state and growth and formalization of higher education were mutually reinforcing programs, both pieces of a project to advance American progressivism. And since

the 1980s, both structures have been under sustained ideological attack from the political right. So, it is worth asking how the US election may impact US academic research and education. Joseph Waggle's recent SKAT blog post [https://asaskat.com/blog/] offers an interesting forecast of possible science policy scenarios under Republican, Democrat, Green, and Libertarian administrations. For broader context we can look outside the US to see how the relationship between democratic and academic institutions can quickly whither in the face of serious challenge.

The current situation in Turkey is a prime example. Following the failed military coup on July 15, direct attacks on universities and their faculty has become a signature feature of the Erdogan government's slide toward authoritarianism. Harassment, dismissal and arrest of academic faculty and students began well before the coup attempt and centrally involved social scientists.[1] But according to the website Turkeypurge.com, since the coup, the government has closed down 15 universities and fired more than 6,000 university administrators and faculty working at 107 universities; many have been arrested.[2] Just last week, an omnibus bill signed by President Erdogan overturned regulations granting faculty the right to select their university rectors; now Erdogan controls rector selection directly.[3] The purge is much broader than the academy, involving many thousands more state bureaucrats and more than 130 journalists, and the situation continues to worsen.[4] I am not suggesting that US academics are likely to face a similar situation anytime soon but, as philosopher Jason Stanley argued in a recent *New York Times* op-ed column, it may be naïve to dismiss the Trump campaign's rhetoric challenging basic norms of democratic governance as "just words" because it expresses a deeply authoritarian value system,[5] one that has gained traction on the ground and is strikingly at odds with values enshrined in our system of liberal education.

The "Fees Must Fall" campaign in South Africa provides a different vantage point on the relationship between democracy and the academy. This student-led movement prevented fee hikes in 2015, but since September, when the Zuma government announced a plan to raise university fees 8%, student protests have reignited, at times turning violent. As reported in a recent article in *Nature*, the protests have impacted twenty-six universities: on some campuses classes have been suspended, others have locked-down and militarized and increasingly faculty research has slowed.[6] Similar student movements have organized to challenge rising education costs in Chile and Paraguay. The specific circumstances vary in each country, but all center on equal access to higher education as a cornerstone of democratic citizenship. In the US, tuition and fee increases at colleges and universities have been commonplace since the 2008 recession, especially at public universities. The New York Times reports statistics from the Center on Budget and Policy Priorities showing that compared to 2008, government funding totals for 2- and 4-year public universities have decreased by about $10 billion while in-state students are now paying on average 31% more for their education.[7] Yet, as education sociologist Sara Goldrick-Rab observes, "the real student debt crisis is the erosion of the perceived value of higher education and trust in government to make college affordable."[8] If they persist, the structural conditions created by underfunded schools and over-indebted students may erode the already strained link between public access to education and public responsibility for democratic participation. Fighting to extend both, South Africa's Fees Must Fall movement holds difficult lessons that US academics would do well to consider.

I don't know that sociologists of science, technology and knowledge hold a special obligation to nurture institutions for critical inquiry and the expansion of democratic values. But we do seem particularly well positioned to understand what is happening and why and then to push back where we can, when we can, against the forces that would weaken those institutions and values. Maybe we owe it to our Turkish and South African colleagues whose educations, careers, and lives are on the line, to try.

Acknowledgement: My thanks to Yasmin Bavbek and Robbie Manley who provided research assistance for this column and to Daniel Morrison for high-risk editorial advice.

[1] Cihan Ziya Tugal (2016) "International Perspectives: A Coup Against Scientific Autonomy" *ASA Footnotes* 44(4); http://www.asanet.org/news-events/footnotes/may-jun-2016/features/international-perspectives-coup-against-scientific-autonomy

[2] http://turkeypurge.com/academics-behind-bars

[3] "President Given Power to Directly Appoint Rectors to Universities in Turkey." *Hurriyet Daily News* (Oct. 30, 2016); http://www.hurriyetdailynews.com/president-given-power-to-directly-appoint-rectors-to-universities-in-turkey-.aspx?PageID=238&NID=105519&NewsCatID=338

[4] Ceylan Yeginsu (2016) "Turkey Detains Prominent Opposition Journalists." New York Times (Oct. 31); http://www.nytimes.com/2016/11/01/world/europe/turkey-arrests-cumhuriyet-journalists.html?_r=0

[5] Jason Stanley (2016) "Beyond Lying: Donald Trump's Authoritarian Reality" *New York Times* online (Nov. 4) http://www.nytimes.com/2016/11/05/opinion/beyond-lying-donald-trumps-authoritarian-reality.html

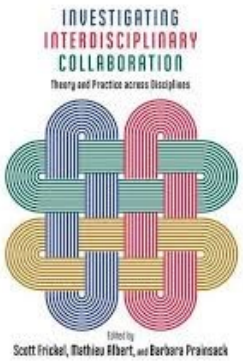
[6] Sarah Wild (2016) "Violence Escalates at South African Universities" *Nature* 538(7626, October 24); http://www.nature.com/news/violence-escalates-at-south-african-universities-1.20869?cookies=accepted

[7] Sarah Brown (2016) "Follow the Finances" *New York Times, Education Life*, Nov. 6, p. 15.

[8] : https://medium.com/@saragoldrickrab/paying-the-price-evidence-of-betrayal-f4c03b7600e5#.fn6bm8k04

ANNOUNCEMENTS

NEW BOOKS

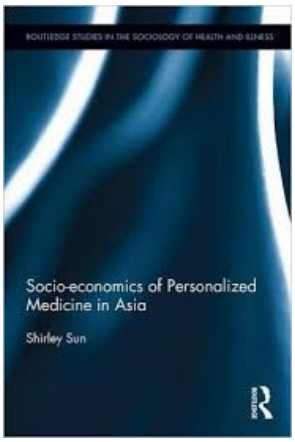


Scott Frickel, Mathiew Albert, and Barbara Prainsack. 2016. *Investigating Interdisciplinary Collaboration: Theory and Practice across Disciplines*. Rutgers University Press. URL: http://tinyurl.com/h8mrpyn

This book explores common beliefs about the process of interdisciplinary research and identifies benefits and shortcomings of the approach. *Interdisciplinarity* has become a buzzword in academia, as research universities funnel their financial resources toward collaborations between faculty in different disciplines. In theory, interdisciplinary collaboration breaks down artificial divisions between different departments, allowing more innovative and sophisticated research to flourish. But does it actually work this way in practice? *Investigating Interdisciplinary Collaboration* puts the common beliefs about such research to the test, using empirical data gathered by scholars from the United States, Canada, and Great Britain. The book's contributors critically interrogate the assumptions underlying the fervor for interdisciplinarity. Their attentive scholarship reveals how, for all its potential benefits, interdisciplinary collaboration is neither immune to academia's status hierarchies, nor a simple antidote to the alleged shortcomings of disciplinary study.

David Hess, 2016. *Undone Science: Social Movements, Mobilized Publics, and Industrial Transitions.* MIT Press. URL: http://tinyurl.com/hltaxa4

As the fields of social movement studies (SMS) and science and technology studies (STS) have diversified in topical focus, they have moved closer to each other. SMS has turned toward the study of nonstate targets and institutionalized repertoires of action, just as STS has turned to expertise and publics. In *Undone Science,* David Hess argues that a theoretical integration of core concepts in the two fields is now possible, and he presents just such a synthesis. Hess focuses on industrial transition movements—mobilized counterpublics of activists, advocates, entrepreneurs, and other agents of change—and examines several areas of common ground between the two fields relevant to these movements. His account reveals the problem of "undone science"—areas of research potentially valuable to the goals of industrial transition movements that have been systematically ignored.



Shirley Sun. 2017. *Socio-Economics of Personalized Medicine in Asia* in the *Routledge Studies in the Sociology of Health and Illness*
URL: www.routledge.com/9781138933835

This book contributes to a growing body of literature on the molecularization of identities by tracing and analyzing "personalized medicine" as it unfolds in Asia. It shows that there are inextricable transnational linkages between developing and developed countries, and examines the various social forces shaping the "co-production" of genomic science, medicine and social order in transnational settings. Theoretically guided and empirically grounded, the book provides important insights into the formation and usage of racial and ethnic human taxonomies in population-based genomic science and medicine.

ANNOUNCEMENTS

NEW ARTICLES AND BOOK CHAPTERS

Allen, Barbara, Yolaine Ferrier and Alison Cohen. 2016. "Through a Maze of Studies: Health Questions and 'Undone Science" in a French Industrial Region." *Environmental Sociology,* DOI: 10.1080/23251042.2016.1220850

Allen, Barbara, Alison Cohen, Yolaine Ferrier, Johanna Lees, and Travis Richards. 2016. "Redesigning a Participatory Health Study for a French Industrial Context." *New Solutions: A Journal of Environmental and Occupational Health Policy* 26(3): 458-474.

Blute, Marion. 2016. "Density-Dependent Selection Revisited: Mechanisms Linking Explanantia and Explananda." *Biological Theory* 11(2): 1-9.

Blute, Marion. 2015. "Modes of Variation and Their Implications for an Extended Evolutionary Synthesis" In Jonathan H. Turner, Richard Machalek & Alexandra Maryanski (Eds.) *Handbook on Evolution and Society: Toward an Evolutionary Social Science.* Paradigm Publishers: 59-75.

Hermanowicz, Joseph C. 2016. "Faculty Perceptions of Their Graduate Education." *Higher Education* 72 (3):291-305.

Hermanowicz, Joseph C. 2016. "The Proliferation of Publishing: Economic Rationality and Ritualized Productivity in a Neoliberal Era." *American Sociologist* 47(2):174-191.

Hermanowicz, Joseph C. 2016. "Honor in the Academic Profession: How Professors Want to be Remembered by Colleagues." *Journal of Higher Education* 87(3):363-389.

Hermanowicz, Joseph C. 2016. "Universities, Academic Careers, and the Valorization of 'Shiny Things.'" In Elizabeth Popp Berman and Catherine Paradise (eds.), *Research in the Sociology of Organizations* 43:303-328.

Lamprou, Anna and David J. Hess. 2016. "Finding Political Opportunities: Civil Society, Industrial Power, and the Governance of Nanotechnology in the European Union." *Engaging Science, Technology, and Society* 2: 35-54.

Perrucci, Robert, Mangala Subramaniam, and Carolyn C. Perrucci. 2016. "Who Publishes in Leading Sociology Journals, 1965-2010?" Pages 77-86 in Earl Wright II and Thomas C. Calhoun (eds.), *What To Expect and How To Respond: Distress and Success in Academia*. Rowman and Littlefield.

SKAT Member's Article Receives an Emerald Literati Network Award for Excellence 2016

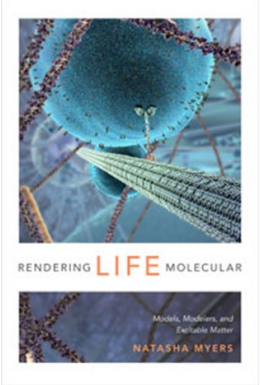
Congratulations to Guang Ying Mo and her coauthors who were recently awarded one of the Emerald Literati Networks Award for Excellence, 2016!

Guang Ying Mo, Zack Hayat, Barry Wellman. 2015. "How Far can Scholarly Networks Go? Examining the Relationships between Distance, Disciplines, Motivations, and Clusters." *Communication and Information Technologies Annual*:107-133.

SKAT 2016 AWARD WINNERS

We are very pleased to announce the winners of the Science, Knowledge and Technology Section awards for 2016:

Robert K. Merton Award



Natasha Myers, *Rendering Life Molecular: Models, Modelers, and Excitable Matter* (Duke University Press Books, 2015)

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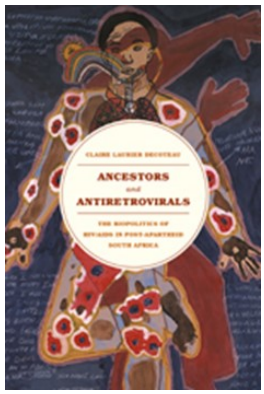
In *Rendering Life Molecular,* Natasha Myers studies the little people who ask the big question: Where does life come from? Myers follows protein crystallographers as they struggle to propose molecular-level answers to this boundless question. With a sharp eye, attentive ear, patient spirit, and enthusiastic commitment, Myers aims to understand how protein modelers themselves go about understanding life. Like the modelers, Myers that one's body is often the best tool.

Through five years of field work in molecular biology labs, Myers takes a new angel on a classic approach in science studies: the laboratory ethnography. Building on prior training in the life sciences and in dance, Myers shows that protein modelers' contradictory words in interviews and around the lab are not signs of muddied thinking. They are instead evidence of protein modelers' struggles to express their sense that the mechanistic models on which they were trained poorly represent the process through which proteins turn into life. In contrast to the mechanistic models, Myers' scientists sense a process more animate, more "lively." *Rendering Life Molecular* explores protein modelers' efforts to express the ineffable—that form of embodied knowledge that defies both existing modes of representation and the conventional forms that expression takes.

Myers' stunning insight is that scientists use their own motion and emotion within the material world of the laboratory—their "affective kinesis"—to express what stable, inanimate computer models had been unable to show. Thus the modelers themselves are tangled up with the machines and models they make. *Rendering Life Molecular* is an exceptionally creative book based on refined ethnographic evidence that both makes high theory accessible and demonstrates why it is essential. The book is dense with smart analysis and exhilarating insights, a worthy winner of the 2016 Robert K. Merton Award.



Decoteau, Claire. *Ancestors and Antiretrovirals: The Biopolitics of HIV/AIDS in Post-Apartheid South Africa. Chicago: University of Chicago Press, 2013.*

Honorable Mention for the Robert K. Merton Prize was awarded to Claire Decoteau for *Ancestors and Antiretrovirals. Ancestors and Antiretrovirals s*hows how, exactly, extreme inequality—which squatters dying of HIV/AIDS are paradigmatic—is simply the human cost of doing business as a post colonial state. The book articulates a paradox, which Decoteau calls the "postcolonial paradox." After independence, new governments must, in the interest of economic success, join global capitalist markets that, in the age of neoliberalism, create extreme socioeconomic inequalities. At the same time, the mandate of new states after independence is to mitigate socioeconomic inequalities—the very inequalities that global capitalism has wrought. This creates a contradiction overall, and also means that different areas of government work at cross purposes—or at least simultaneously pursue contradictory political projects. This incisive book explains how inequalities come into being historically and are sustained in practice, not out of malice or incompetence, but as everyday mechanisms of the postcolonial paradox.

SKAT 2016 AWARD WINNERS

Star-Nelkin Paper Award

Jacob G. Foster, Andrey Rzhetsky, and James A. Evans, for "Tradition and Innovation in Scientists' Research Strategies." *American Sociological Review* 80(5): 875-908 (2015)

It was our pleasure to read the 22 articles submitted for the award. The articles are testimony to the range, depth, and significance of research flourishing in studies of science, knowledge, and technology. The 2016 Star-Nelkin Award goes to Jacob Foster, Andrey Rzhetsky, and James Evans for their article on "Tradition and Innovation in Scientists' Research Strategies" (appearing in American Sociological Review, 2015). This article is remarkable in its fundamental question pursued; the approaches taken; and the consequences of the findings for science and scientists.

At-focus is a long-standing question: how are scientists' choice of problems shaped by an essential tension between "tradition" and "innovation"? Thomas Kuhn framed the tension as "convergent" and "divergent." Pierre Bourdieu depicted the choice as a competition between "succession" and "subversion." Foster, Rzhetsky, and Evans blend these frameworks–and address strategies of tradition and innovation in publishing within biomedicine.In doing this, they analyze patterns of tradition and innovation using 6.5 million published biomedical abstracts. They show networks that map the knowledge; and distributions of publishing strategies that introduce novel chemical and chemical relationships ("innovation") compared to those that delve deeper into known ones ("tradition").

Key in their findings is that an innovative publication is more likely to achieve high impact than a traditional, conservative one. However, the additional reward does not compensate for the risk of failing to publish. Tradition is then a "reliable strategy to accumulate recognition"–and innovation is "risky gamble." Scientists' choices of research problems are shaped by this tension: conservative choices are common, and riskier ones, rare. Incentives drive the outcome, and explain, in part, why unexpected findings changing scientific thinking are so infrequent. If stimulating innovation is a goal of science policy, this would mean reducing the career pressures for conservative behavior, particularly through practices of funding of research proposals.

We are proud to present the Star-Nelkin Award to Jacob Foster, Andrey Rhetsky, and James Evans for an article that, itself, exemplifies innovation in its research focus, approaches taken, and implications for understandings of science, scientists, and scientific knowledge.

-Mary Frank Fox**,** Chair, 2016 Star-Nelkin Award

Hacker-Mullins Student Paper Award

David Peterson, "All That is Solid: Bench-Building at the Frontiers of Two Experimental Sciences." *American Sociological Review* 80(6): 1201-25 (2015).

In this well written and engaging article, David interrogates perceptions that the natural sciences are more scientific than the social sciences. He does this by conducting a comparative ethnography of two fields: molecular biology and psychology to understand key differences between the fields. Rather than epitomizing the stability and consensus thought to characterize the natural sciences, molecular biologists are continually transfiguring their working conditions through feedback on iterations of lab work, technique development, and the integration of new technologies – what he calls "bench-building." They also openly and happily struggle with the technicality and novelty – the ambiguity – they see in published research from other labs. In contrast, developmental and social psychologists exemplify stability and consensus and 'epistemic continuity:' they have for a half century used the same methods, theories, and practices and gain little from pursuing new methodological developments.

-Erin Leahey, Chair, 2016 Hacker-Mullins Student Paper Award

GEORGIA TECH GENDER EQUITY CHAMPION REFLECTS ON ROLE AS PIONEER OF GENDER IN SCIENCE STUDIES

Interview with Mary Frank Fox, Professor, Georgia Institute of Technology

Director of Communications at Georgia Tech, Rebecca Keane, interviewed Dr. Mary Frank Fox. Dr. Fox describes the trajectory of the study of gender in science studies as it has related to her career. The interview has been lightly edited.

Mary Frank Fox, an ADVANCE Professor in Georgia Tech's Ivan Allen College School of Public Policy, has long been interested in how women and men participate and perform in scientific fields, as well as organizational practices and policies that support equity. A pioneer in the study of gender in science, Fox's publications have appeared in more than 60 different scholarly and scientific journals, books, and collections. At Georgia Tech, the ADVANCE Program, an initiative supported by Institute Diversity, seeks to increase the representation, full participation, and advancement of women and minorities in academic science, technology, engineering, and mathematics (STEM) careers. In addition, Fox serves as co-director of Georgia Tech's Center for the Study of Women, Science, and Technology. Fox received the Gender Equity Champion Award at the 2016 Diversity Symposium Awards Luncheon, and prior to the event she discussed the path of her research and the evolution of gender in studies of science.

Keane: Take us back to your time as a student, what was your catalyst for your interest in the studies of gender in science? How did you become a founder in this?

Fox: The roots go back to high school — when I did my first study, I was prompted by this question: How does the status of students within the school relate to the status of their families in the community? Using city directories available that contained occupations in households, and doing a ranking of neighborhoods in this small town, I obtained family-household statuses. With help of a teacher, I surveyed the class on the reported social standings of the students at school. I found that the status of students in school and that of their families corresponded more closely for girls than for boys. The boys, it appeared, had an independent avenue for "social mobility" through athletics, which was not available to girls at the time. This opened for me a world of inquiry — one that later, in my research, came to be known as "gender stratification," social systems of inequality that vary with gender.

I arrived at the University of Michigan as an undergraduate student with a declared sociology major, which was unusual for students in the field. No courses in gender studies were offered at the time. I pursued a "calling" in the study of inequality in occupations, organizations, and societies. I continued in graduate study at the University of Michigan, and — intellectual fireworks! — found a vivid site for study: the case of science, specifically women and men in scientific fields. At the time, no courses or curriculum in the sociology of science existed at Michigan. I went out on a limb — with a focus on science as a strategic, revealing site for the study of gender. In doing this, I was one of the founders of gender and science as a topic. I fostered this as a subject of study, and, in turn, a research area that eventually became part of the national agenda.

Keane: Since that period, how has the field evolved? What were some of the most significant moments in the timeline of gender in science studies?

Fox: Two key developments occurred. First is the shift toward a focus upon the way that social contexts (institutions, organizations, societies, cultures) shape experiences and outcomes of women and men. This means that individuals are seen in relation to, not apart from, these settings, and that solutions for equity lie within decisions that are made within organizations.

Second, and related, is a growing awareness that the "pipeline" is a limited and frequently flawed model of progress and attainment of women and men, especially in scientific fields. The pipeline depicts straight lines between education stages and between education and occupational outcomes. The emphasis is on keeping women in the pipeline and correcting deficits (such as one's personal preferences and decisions) that result in potential "leakage." The pathways perspective, in contrast, emphasizes progression that is neither direct nor simple, and goes beyond the individual interests, intentions, and choices of women and men to persist. This involves complex considerations of institutional influences, including marriage, family, and households; relations of power that shape competence and success in ways that favor or disfavor some groups; and organizational arrangements that create advantages and disadvantages in interactions, evaluation, and rewards.

Keane: What kind of progress is being made currently in gender equity?

Fox: Times are both terrific and complex! Progress occurs in gender equity in educational attainments, especially. Challenges exist in continuing to translate education into significant influence and broader participation in institutions and organizations. Meeting the challenge means devoting attention to issues beyond a "pipeline" model.

Keane: On that note, what are the biggest current issues that are facing the field?

Fox: A challenge lies in taking perspectives on equity and actually implementing them in solutions. For example, in a study undertaken on programs for undergraduate women in science and engineering (Fox, Sonnert, and Nikiforiva, 2009, 2011), we found that directors of these programs did tend to see the issues and problems as structural and institutional, including issues pertaining to classroom climate. However, the typical activities that programs undertake fail to align with their definitions of the problem. Circumstances appear to compel programs to do what they think is "feasible," expedient, and without challenge to the status-quo, and many programmatic efforts fail to meet the mark.

Keane: What is the next big issue that needs to be tackled? Where do you see the future of gender studies heading?

Fox: The future includes inquiries into industries such as media, finance, and technology — areas in which it has been difficult to obtain access and data, and areas in which much remains to be understood about women and men in occupations and organizations.

Keane: What classes do you teach that might appeal to students interested in the field?

Fox: In my class in the study of "Organizations and Policy," students come to understand that life occurs within organizations: we are born in organizations; obtain food, education, transportation, financial services, health care, and religious community through organizations; and, largely, we are employed in organizations. In order to be effective, we need to understand organizations, the processes that occur within them (how and why they occur), and the external forces that shape and modify organizations. Students come out of the course comprehending these issues.

My graduate class on "Scientific Careers and Workplaces" is a seminar, drawing students from across campus. We focus on supply and demand in the science and engineering workforce; training and experiences of undergraduate, graduate, and post-doctoral students; key features (organizational priorities, structures, cultures) of academic, government, and industrial work settings; and changes, transformations, and futures in workforces and workplaces.

Keane: What's different or important about the way students today perceive issues of gender equality compared to when you started in the field?

Fox: Students today see more readily the way that range of participation enhances innovation; that bias reduces human potential; and that conditions of greater equity benefit all. Georgia Tech students do this!

Keane: How do you define the way that you work? What motivates you?

Fox: C. Wright Mills, a famous sociologist, said it is a choice of how to live, rather than how to work — and that rings true. The pursuit for me is one of endlessly interesting questions, discoveries, understandings, and implications for policies and practices that improve equity. Pursuing these is a wondrous opportunity!

SKAT-SPONSORED SESSIONS AT ASA 2017

Here's a preview of the panel titles and descriptions we've organized for the Montreal meeting:

1. Encoding Inclusion, Decoding Inequality

Open Session
Organizer: Alondra Nelson (Columbia University)

This session highlights sociological approaches to algorithmic culture and big data. How do new technologies exacerbate or ameliorate forms of social exclusion? Can big data and machine learning eliminate racial bias and discrimination or will they intensify disparities? Paper topics might include hashtag activism, genomics and personalized medicine, the internet of things, facial recognition software, predictive policing, sousveillance and surveillance.

2. Race and Ethnicity in Global and Postcolonial Science

Open Session
Organizer: Anthony Hatch (Wesleyan College)

Race and ethnicity are global social structures that have unique configurations within national contexts and broad implications for science within and across national borders. This open session calls for papers that examine how race and ethnicity impact the postcolonial contexts and/or global flows of scientific institutions and cultures, scientific practices and expertise, and scientists and research subjects.

3. Scientific Careers: Key Dimensions of Social Inequality

Open Session
Co-organizers: Mary Frank Fox (Georgia Institute of Technology), Kjersten Bunker Whittington (Reed College)

Social inequality is a central feature of scientific careers. In this session, we identify and explain key dimensions of inequality: includingg those of gender, race, sexual identities, national origins, and institutional locations. In doing this, we propose ways and means that equity can be improved through practices and policies within organizations, as well as in national science policies, that shape the ways that scientific careers occur.

4. Technology, Politics, and Socio-Environmental Solutions

Open Session, co-sponsored by E&T and SKAT
Co-Organizers: Scott Frickel (Brown University) and Tammy Lewis (Brooklyn College-CUNY)

This joint panel highlights how knowledge politics in science and technology condition societal efforts to address major environmental and ecological challenges. Broadly, we seek papers that critically engage scientific, social scientific, and technological efforts to understand and address (or "fix") major socio-environmental challenges, from climate change to global toxics to widespread environmental inequalities and injustice. What role can environmental sociologists and sociologists of science and technology play in enhancing the social robustness of environmental solutions?

PRESIDENTIAL OUTLOOK ON SCIENCE AND TECHNOLOGY ISSUES

By Joseph McCartney Waggle, University of Maryland at College Park, SKAT Communications Committee

"Fate has ordained that the men who went to the moon to explore in peace will stay on the moon to rest in peace."

So began the worst-case scenario speech sitting in President Richard Nixon's coat pocket as the Apollo 11 mission prepared to leave the moon in July 1969. The world watched Neil Armstrong leave footprints in the moondust, heard his breathless "one small step for a man" proclamation. Now, after almost 24 hours of moonwalking, the world watched again, fascinated, morbidly, to see if Armstrong and his crewmate Buzz Aldrin would step foot back on Earth or remain marooned in the sky.

Nixon and his speechwriters knew that the worst could happen, and that the nation would look to their leader for guidance through the tragedy. Perhaps in that moment, no one more than Nixon wanted the Eagle lander to reach the Columbia rocket and begin the arcing journey back to Earth. Such is the nature of politics: hope for the best, prepare for the worst.

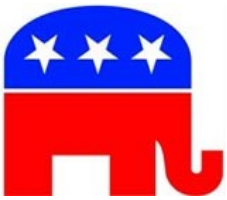
Now, on the eve of what could either be the best or worst presidential election in modern history, the SKAT Communications Committee wants our readers to be prepared for the worst, and to give you all good reason to hope for the best. No matter where you totter on the political spectrum, there may be reason below to give you hope for a positive outcome.

"Others will follow," said Nixon's speech that never was. "And surely find their way home." Let's hope so, friends.

In Their Own Words

Democratic Party: Hillary Clinton/ Tim Kaine

Hillary Clinton is the only candidate for president from a major party to publicly announce that she believes in science. In 2016, this shouldn't be a distinction, but unfortunately, it is. She also has the distinction of being the only candidate to be officially endorsed by a union of 70 Nobel Prize winners, specifically for her dedication to scientific advancement. She has publicly recognized that scientific and technological advancements are also advancements in "the health, safety, security, and quality of life" for all Americans.



Republican Party: Donald Trump/ Mike Pence

After the spread—and then deletion—of his infamous tweet calling climate change a hoax created by the Chinese to sabotage American industry, Donald Trump has kept questions of science at greater than arm's length. On the other hand, he has run his campaign largely on the theme of increasing American competitiveness in the global market by advancing and trading on our technological capabilities.

Trump therefore supports innovation, linking it to greater economic prosperity and national security for America. But he has already warned that any research agenda in the Trump Administration would begin and end with a stakeholder meeting—including stakeholders in private industry. Research that doesn't seek to "Make America Great Again"—that is, research that doesn't increase manufacturing capacity, reduce reliance on foreign oil, or bolster military might—is deemed a "waste of limited resources" and therefore are unlikely to take priority.

Libertarian Party: Gary Johnson/ William Weld

After his gaffes about Aleppo and Mount Everest, it's hard to predict what's coming out of Gary Johnson's mouth when he's asked a question. It's unclear if he even knows before he says it. But regarding scientific research, the Libertarian candidate has said:

We have made clear our commitment to reducing federal spending significantly. To do so, we plan to subject every program to close and fresh scrutiny. Our basic priorities will bend towards funding for basic science and limiting funding for applied science to that which has clear public benefit, but isn't feasible in the private sector. The Johnson-Weld administration defines basic science as research that works towards understanding of fundamental issues at the core of scientific disciplines. We believe that in the case where applied science can produce a profit, the best thing that government can do is get out of the way, while providing safety regulations that cannot be covered by the investigating organizations' Institutional Review Boards, Ethical Review Boards, or Research Ethics Boards. We believe that science is best regulated by scientists, not regulators.

Green Party: Jill Stein/ Ajamu Baraka

Green Party candidate Jill Stein has the distinction of being the only candidate who has not only gone on record saying that she believes in science-based governance, but is also the only candidate who identifies as a scientist herself. As a successful medical doctor, her scientist bona fides are sound. And running mate Ajamu Baraka has a long history of activism and humanitarian work, during which he engages regularly with social science.

Stein has had a habit, throughout her campaign, of remaining non-committal to taking a position on certain issues. She tends to support the majority consensus, but also pays lip service to contrary positions, even those at the fringes. She supports vaccines and the vaccination schedule for children, but thinks that anti-vaccination activists have "real questions." She now accepts that there might not be a connection between cell phone use and cancer, but she still isn't convinced that wireless internet in schools isn't dangerous for children.

For President Stein, there are very few closed questions. She has already pledged that, as president, she would support research in all areas of scientific inquiry, up to and including the creation of whole new bureaus and bodies of scientific research. Her student debt forgiveness plan, on the other hand, would likely increase education rates in the United States significantly, if successful. This could be great news, but is more likely to greatly increase competition for only moderately increased research funding and federal research jobs.

Congress Counts

Ultimately, the long-term health and safety of science, technology, and research in the United States will come not from executive fiat, but from Congressional action. With discretion over budget allocations and oversight guidelines, Congress can easily hamstring any federally funded office.

No one in the sciences can forget the three grinding weeks in 2013 when Congress, unable to agree on the language in the Affordable Care Act, failed to pass a budget, effectively shutting down all non-essential governmental operations at the federal level and in the District of Columbia. Science, despite our best efforts, is still mostly non-essential; during that harrowing period, all major operations ceased at NASA, NOAA, and a host of other federally-led research centers.

Therefore, despite their stated positions, the president most effective at protecting and expanding scientific research and technological development in the United States will be the one who is most capable of working with the Congress.

The outlook, then, is bleak.

Polling for the 2016 Congressional elections predicts a Senate that is split evenly between Democrats and Republicans, and a House with a strong Republican Majority. If Senator John McCain's recent promise to block anyone Clinton nominates to fill the late Antonin Scalia's seat on the Supreme Court is an indication, the Republican Majority will use their influence in Congress to rebuild their tarnished reputation. The party once known for moral turpitude and common sense has suffered greatly from the circus-themed campaign of their presidential nominee, and many in Congress are ready to push beyond it. The next president, then, must be able to deal with an entrenched Republican majority reeling from a brutal and often embarrassing presidential election cycle. Under these conditions, the Republican majority cannot afford to be perceived as uncooperative, but they can also not afford to appear too centrist. As the party of minority, Democrats will have a seat at the table, but will not be setting any agendas. Republicans will continue to chair science committees to the detriment of science (in the vein of Representative Lamar Smith), convene exploratory hearings to question the validity of government science (such as the hearings led by then-presidential candidate Senator Ted Cruz last December) and serve on tight-fisted budget and appropriations committees (like Senator James Inhofe does so often now).

"Ultimately, the long-term health and safety of science, technology, and research in the United States will come not from executive fiat, but from Congressional action."

A President Clinton would likely be faced with an uphill battle in pushing her own goals through Congress. As a former senator, and as someone with thirty-plus years of experience in politics, she no doubt has many friends on the Hill, is owed many favors, and knows where many of the bodies are buried. But it's unlikely that she knows where more than sixty bodies are buried which the lowest number of favors she would need to win a necessary majority in both houses of Congress. And if she did have that many nickels to spend, it's unlikely she would spend them all on something like scientific research funding and technological development. She's more likely to push issues that garner greater media attention and align more closely with her campaign promises, like opening borders up to refugees or increasing gender equality. Increasing the scope and funding of scientific research might be an important step forward for the country, but it won't get her reelected in 2020.

President Trump would meet with equal resistance, but for very different reasons. During the last eighteen months of his campaign, he has worked hard to fashion himself as the Washington Outsider, the non-politician who knows exactly how broken and corrupt the system is because he has a long history of abusing it for his own benefit. That framing might work well with the "deplorables" who support him, but it has won him no friends in Congress. And, with few exceptions, he has chosen to fill his campaign leadership with fringe politicos and outsiders, none of whom can help wrangle a hostile Congress. His running mate, Governor Mike Pence, on the other hand, is a veteran insider, but with his eyes set firmly on his own 2020 presidential bid, Pence probably won't be calling in any favors for his boss.

It is less clear what President Johnson would be able to accomplish with Congress. As a staunch libertarian, Johnson's primary motivation is to shrink government. He has gone on record saying that he would slash—or altogether eliminate—federal offices like Housing and Urban Development and the Environmental Protection Agency. On the one hand, the spirit of this small-government effort lines up perfectly with the core values of the Republican party. On the other hand, a dramatic restructuring the likes of which Johnson has suggested is unfeasible for anyone to support, especially as it would mean the loss of thousands of federal jobs in a Congress led by the party of job creators. The only way a libertarian president could sidestep this obstacle would be to promote private-sector replacement jobs,

including, perhaps, jobs in scientific research and development. Congressional constituencies that would support such a plan are rare.

President Stein, on the other hand, could affect some real, positive change in this regard. The price of this change, however, could be much steeper than for the other candidates. Her dedication to science, while laudable, tends to be single-minded, and her plans in this regard are much more fleshed out than her plans for other pressing political issues. It is conceivable that, in the process of pushing an agenda for expanded research funding or technology sharing, a unified Congress could negotiate her into a corner on other, more salient points. She could, for example, expand the scope and regulatory power of federal science, but in return be forced to advocate for stricter immigration laws. The sticking point of her campaign— "quantitative easing" and student debt forgiveness—is also much more likely to take precedent for her in such an arrangement.

International Cooperation

It must be mentioned, however briefly, that none of these candidates will preside in a bubble. The United States has long been a world leader in scientific research and technological innovation, even only if measured by R&D spending. As the COP21 meeting in Paris last year shows, American commitment to solve global problems like climate change can pave the way for other countries to follow suit. And technology sharing, rope in the national-development-versus-ecological-protection tug-of-war that persists between more and less developed nations, is becoming more and more acceptable as wealthier nations pledge their share of commitments to reducing greenhouse gas emissions. Global health and safety technologies are also spreading, thanks in great part to American commitments to humanitarian aid. The next president, then, must be capable of building on this momentum by working on a global platform that takes seriously the obligations of wealthier nations and the needs of less wealthy nations. And the next president must also be able to balance these questions of health, science, and technology with other matters facing the international community, such as refugee displacement, immigration, and continued anti-occupation conflicts.

Conclusion

Your idea of best-case, worst-case candidates will depend largely on your political opinions and your hopes for the future of US science. For many of us, it might be preferable to be stranded on the moon come November 9th. But no matter who you are, and no matter who you support in this election, it is more important than ever that you vote. We'll see you at the voting booth.