

Interviewee: Tony Mills

MATTHEW CHERVENAK: Tony, thanks for joining us.

TONY MILLS: Thank you for having me.

CHERVENAK: Why don't we start off with your background, where you came from, how you got to where you are today, and what you're doing.

MILLS: I was trained as a philosopher. I did my doctorate at the University of Notre Dame with a focus in philosophy of science. And I was on track to pursue a career as an academic with that area of focus. While I was in grad school, though, I came back around to a long-standing interest—maybe a somewhat dormant interest—in public policy and politics.

I grew up in Washington in a political household and always thought I would study political science, political philosophy. I also studied music, so that's a whole other story. And my interests became increasingly theoretical while I was in school, and I wound up doing graduate work in philosophy with a historical focus on philosophy of science.

And that interest reemerged through the course of my work. And what I found was that my background and interest in the history and philosophy of science was very valuable as a lens on a lot of issues that were of public concern in policy and politics, culture. And so I started doing research and writing more for a popular or policy-oriented audience while I was in grad school. I did a few stints at some think tanks and wound up moving back to DC full-time to work for the *New Atlantis*, which is a quarterly journal that focuses on the role of science and technology in society. I still write for the *New Atlantis* fairly regularly.

And since then, I've spent my career in Washington between think tanks and publications with a policy orientation and have researched and written about, especially the place of science in society, in democracy, its relationship to governance, to religion, a lot of different factors. And I eventually found my way to the R Street Institute, which is a public policy think tank in DC, a relatively new and small think tank, where I had the opportunity to launch and direct a science policy program.

And the focus of that program was twofold, interested especially in, well, broadly, the relationship between science and government. And the way I describe it as the two-dimensional, two-directional relationship there—so, science's role in governing institutions and the government's role in science. What kinds of policies should we have to stimulate scientific research and innovation?

One of the primary focuses within the issue of science's role in government was, specifically, the role of scientific expertise in Congress and the related issues to that. So, Congress's role vis-à-vis the executive branch, where obviously a lot of scientific and technological expertise is housed.

And so I launched that program and was doing that until I moved over to the American Enterprise Institute at the beginning of this year. So that's where I hang my hat now. I'm a resident scholar there. I'm also a senior fellow at the Pepperdine University School of Public Policy, and my work focuses on a lot of what I was just describing, so looking at the two-directional relationship between science and government. I could maybe stop there.

CHERVENAK: Well, it's interesting you come at this from a philosophy of science background. Maybe you're the only person in Washington with that experience. I don't know if you've come across others with such a similar training?

MILLS: I think it is pretty rare. What you do find in Washington are people with political philosophy backgrounds, obviously, and political science backgrounds. And I've always been very interested in those things, and a lot of my work straddles—on the scholarly side—straddles the line between philosophy of science and political philosophy.

But I think you're right. There tends to not be a lot of philosophers of science working in policy in Washington. And I think it's related to a broader culture, the two cultures idea. I think there's, you know, philosophers of science are not the same thing as technologists working in Silicon Valley, but I do think that there is a cultural disconnect between Washington and people who work in and around science and technology. And the experts you do find tend to be coming out of, maybe, a practicing field in science or in engineering, have become interested in policy through working on the Hill, or something like that.

My work tends to focus—drawing on my background—tends to focus on second order questions. What is the role of science in the government? Not simply, How do we improve this area of decision-making about this technical policy issue. But, What do we mean by scientific expertise, and where does it fit? What are the tensions between scientific expertise and democracy?

Some of these are fairly heady philosophical questions, but they're also very practical. I mean, I think the current pandemic is a good example of how close to home some of these questions can feel.

CHERVENAK: Well, I'm curious because part of my dabbling in philosophy of science really focused more on Karl Popper, and ever since then, I've had a very deep skepticism of calling anything true. And I wonder if that's what I pulled out of philosophy of science—along with Kuhn and some of the others—this skepticism of what is true and what is science's ultimate aim and can you get closer to what you think might be a true thing. If that's what I brought away from philosophy of science, what did you bring away that is then being applied in your current work?

MILLS: One of the things that has always struck me is, again, another disconnect between—I don't want to say the prevailing view, I mean, in philosophy there's no prevailing view,

everybody disagrees about everything—but certainly the approach to science, scientific knowledge, what we can understand about how scientific knowledge develops and grows the nature of scientific claims. You mentioned Popper and Kuhn. There is a very deep and rich body of scholarship on these questions, and it's surprising how little of the lessons and truisms from that body of scholarship translate into the policy realm.

And you mentioned a couple there, and I would say, for me, one of the primary lessons is not so much the unreliability of scientific knowledge or something like that, but the fragility of scientific knowledge; the challenge and the difficulty of obtaining robust scientific knowledge, and the role that human judgment plays in that type of inquiry; the role of uncertainty and scientific knowledge, and what that means for the role of judgment and how science develops over time.

I think, in the popular media inside the Beltway, there is a folk view about science, as you mentioned, readily arriving at truth, capital T, once and for all. And then, often, it follows that it can therefore be translated unambiguously into policy prescriptions.

Again, going back to our current pandemic, I think the rhetoric around that is a really good example. If we understand the science here, then we know that these policies follow. But, of course, politics—and I would argue science—is way more complicated than that. And the devil is always in the details.

And there are lots of disagreements about how to translate knowledge into action. There are value disagreements. There are competing interests and claims that have to be weighed and deliberated about. So I think what I try to do in my work, at least on the expertise side, is to give an account of scientific expertise that does justice to science, that builds up scientific expertise as a great, laudable thing, but that also understands its limitations and its appropriate role in a democratic society, in a political system that has a lot of other important components.

CHERVENAK: So I know that you've tried to apply this concept of scientific expertise, or expertise more broadly, to Congress and trying to understand how Congress can access expertise, or has expertise, and how that might change over time. Can you talk about your work in that area? And what questions have you been asking? And, what answers have you found?

MILLS: Sure. When I was at R Street, I became—I've always been interested in Congress's role within our federal system and specifically its relationship to the executive branch, and as we were talking about briefly earlier, the executive branch tends to be where scientific expertise is housed. You think about all the executive agencies whose purview is science or technological issues—the EPA, the FDA, the CDC—I could go on and on. And I've always been interested in that relationship.

And when I was at R Street, I was doing a lot of work on Congress, on the issue of congressional capacity, so that Congress has access to the kinds of expertise or other resources it needs to discharge its constitutional duties. For example, to make laws, pass laws, to reclaim its

legislative power, to conduct oversight over executive branch agencies. So, we were engaged in a lot of—there's a lively debate going on in Washington about how to improve, broadly, how to strengthen Congress, obviously you're very well aware of that—but specifically about how to do this in the realm of science and technology.

There was for a long time, from 1972 until 1995, an Office of Technology Assessment in Congress that operated from '74 until '95. And it was shuttered in the mid-90s by congressional Republicans as part of an effort to shrink government. And the idea was—this was part of the Newt Gingrich revolution, the contract with America—part of the idea was, if we're going to shrink the federal government, where better to start than right at home in Congress?

Plus, the Office of Technology Assessment, the OTA, was a very small entity relative to the overall federal budget and had been accused of political bias by Republicans before. It was an easy target, and so it was shuttered. It was defunded. The legislation that created it remains on the books—the Technology Assessment Act—so it exists by statute, but not in reality.

And since then, there has been a movement—a counter-cultural movement, if you want, in DC—to bring the OTA back. Some of OTA's functions were moved over to the Government Accountability Office in the early 2000s on a small scale. And there's growing momentum to either reestablish the OTA or to reimagine it or to expand other congressional agencies to take on the duties that OTA once had. And we were very involved in these debates when I was at R Street, my colleagues and I.

And my interest in this is really that I think it's an important issue, right. It gets to the broader issue of improving Congress as an institution—the separation of powers type dynamics we were talking about—but it's also a microcosm of the broader issue of science and democracy.

What's notable about Congress is that it's our most democratic branch of government. It's the Constitution's first branch, but it's also responsive to a plurality of constituents and viewpoints and interests. And so if what we want to do is find a way to integrate scientific expertise into our lawmaking, and to do that in a way that's responsive to democratic pressures, it seems to me there's no better place to do that than Congress.

I see it as both important for Congress's own sake as an institution but also for this broader issue of resolving the tension between expertise and democracy.

CHERVENAK: So what did OTA actually do? Or, What was it intended to do and what did it actually do?

MILLS: It's a great question. So the origin of it—really, I mentioned 1972, but it really goes back to World War II. World War II was an inflection point in the relationship between science and government. During the war, there was an enormous infusion of federal money into the research enterprise. This was really the beginning of the military-industrial complex, as Eisenhower would later call it.

It was when the government realized it needed to invest in and, to some degree, direct scientific and technological research in order to win the war. To build nuclear weapons, radar systems, computing devices, a whole range of high-tech, at the time, inventions. It created an infrastructure to do that, which contracted with the private sector, gave grants to the universities.

Just to take one example, there was a radar laboratory, the Rad Lab as it was called, at MIT during World War II, which is what developed and wound up deploying radar, which according to some historians was actually more important to the outcome of the war than the nuclear bomb.

So there is this ramp up of federal interest in science and technology. After the war, the question was, What happens now? And there was a growing consensus that this was a very successful partnership—the government and science partnership—and that to spur economic growth after the war, the federal government should continue to invest in science and technology.

Vannevar Bush, who was FDR's science advisor and the man in charge of that wartime research apparatus, made this case famously in a report from 1945 called *Science, The Endless Frontier*, where he called for the creation of what became NSF, the National Science Foundation. But it did a lot of other things and just made the now familiar case that the government needs to be investing in and funding scientific research in order to stimulate technological innovation.

That set the framework for the post-war period. And what wound up happening was the government became very involved in science and technology, but Congress wasn't really a part of this other than to cut checks. And Congress woke up in the late-50s and realized that it was very much on the sidelines when it came to science and technology—that it was appropriating money for large projects, complex projects, controversial projects.

As we move into the '60s, some of these became increasingly controversial, like the nuclear age and so on. And Congress realized it didn't really have the capacity to understand what it was even doing, what it was writing, what it was funding.

And so there was an effort to, well, a fairly long deliberative process to think about what Congress could do—this was part of a broader effort by Congress to reassert itself vis-à-vis the executive. And by the early '70s this had really gained momentum, and there were a lot of legislative reform efforts, including in 1972 the creation of the Office of Technology Assessment.

The idea here was really, I would say, three-fold. One was Congress felt as though it needed to evaluate these complex science and technology issues. Should we fund an intercontinental ballistic missile program? What should we be doing in the complicated realm of nuclear energy

and weapons development? There were environmental concerns. A whole host of technical issues.

And Congress felt as though to get the information it needed to deliberate about these questions, it was completely dependent on the executive branch. And the executive branch was often precisely what it was evaluating and [what Congress] is designed to be conducting oversight over. And so there's a institutional problem there. And so Congress felt like it needed independent expertise, and the idea was that OTA could supply independent expertise to make Congress less dependent on the executive.

I'd say another goal was a response to popular concerns about the development of science and technology, frankly. This is the beginning of the modern environmental movement. There were mounting worries about the effects of technology—this is the era when the Environmental Protection Agency was created—so there's a popular concern about, What's the government doing about science and technology? Is the military dominating technology too much? And Congress was sensitive to those to some degree.

And I would say the third was really wanting to reassert itself, which I mentioned before. So Congress really trying to conduct oversight of what the agencies were doing. Using this independent expertise to conduct oversight. And so that was the rationale behind the creation of the Office of Technology Assessment. It was created in '72 and by '74 was up and running.

The idea was to have an agency that was responsive to both the House and the Senate, to both parties, and what it would do is conduct research on emerging technology areas. It would have an outside board of experts that would help it in this endeavor, and they would focus on particular research areas and gather together a network of researchers tailored to that issue.

And the bread and butter of OTA were what were called the Technology Assessment Reports, which would be long, thick interdisciplinary reports looking at different areas in science and technology. For example, the use of computers in the healthcare space in the 1980s was one topic. It covered a whole range of things.

There was an infamous OTA—actually it wasn't an official Technology Assessment Report—but there was an infamous OTA report on the Star Wars project during the Reagan administration that was not so favorable, that generated a lot of blow back from Republicans.

CHERVENAK: Would it come down positive or negative on particular policy issues or funding areas? Or was it more like the CRS giving pluses and minuses to various scenarios?

MILLS: It's a good question. So, OTA really developed a distinctive methodology for policy assessment, and that was what I referred to as Technology Assessment. The idea— So looking at the technical components of, say, an emerging issue. You could take contemporary examples, something like artificial intelligence. So you need to know about the technical components of AI—the software component, the underlying data technologies—but there are

also the social and political implications of using AI systems—privacy concerns, its impact on different sectors of the economy.

And so what OTA would do was have this interdisciplinary approach, and it would solicit a range of views on the issue—different stakeholder views, people from industry, academia, the public policy community—and it would synthesize all that together and offer it to Congress without making a recommendation. The idea would simply be to give you a deep dive on this issue, hear what people— This is what credible reputable experts from different backgrounds think about it. And then here are the potential policy interventions. And here are the trade-offs involved with each of them as best as we can see.

Part of the value of it was that it wasn't a technocratic body, in that sense. It wasn't issuing policy recommendations or directly regulating anything. There was actually, and this gets back to the three motivations for OTA, there was a lot of worry in the early days that OTA would just become cover for regulatory overreach.

But what ultimately sold Congress on the idea was its institutional importance, and so Congress came to see it as vital to helping it deliberate about complicated issues—and without coming down one way or the other on those issues—and having that process be housed within Congress rather than in a regulatory agency on the executive side.

And so, in the early days, OTA was accused of being politicized. It needed to go through some institutional reforms. By the early '80s, it had developed a reputation—despite a couple of high-profile issues like the Star Wars brouhaha—it had developed a pretty reputable reputation, a reputable identity within Congress across the political aisle, across the spectrum, I would say.

And I think part of the reason it was able to do that was, first of all, it had a bipartisan structure to it. It was something that was responsive to the needs of committees, and—regardless of who was in charge of the committee, Republican or Democrat—and I think because of this broad institutional demand that it had, it had to retain—it had to have credibility, or it wasn't able to function. And so, I think it was fairly successful in that regard, ultimately.

And for the most part it operated behind the scenes. Besides the reports that would come out, OTA staff had good working relationships with committees and with personal offices, and so on. And a lot of the work was done behind the scenes through informal conversations and things like that, and they would issue smaller reports and explainers, and so on.

So that was kind of what it did. I think what is unfortunate is that the drawback to OTA having developed this very institutional focus in service of Congress was that it became easy over time to see it as just another agency that was providing information to Congress. And so you can see this in a lot of debates about whether to close it in the '90s, the idea was, well, we have the Congressional Research Service, so why do we need an OTA?

And, still today, you hear that question, and I think what that question misses is the distinctive nature of the kinds of policy analysis that OTA provided. And it's something that I think Congress would greatly benefit from today.

CHERVENAK: I'm curious about the structure of the OTA compared to, say, embedding experts in each committee or embedding technology experts at CRS or commissioning some third-party agency on a fee basis to do this. Why that structure versus another? And have you thought about the costs and benefits of different types of arrangements of expertise in Congress?

MILLS: I think the question about the structure is important, and one of the things—I think I started to say this earlier—a lot of the momentum to revive OTA or to build something like it today is coming from people that are former OTA-ers, the people that worked there. I think they have a lot of, to some degree, very justified nostalgia for that particular institution and the way it operated and would like to see it reestablished. And I think that these individuals have a lot of knowledge and experience that's very valuable for thinking about these questions.

But I, myself, am less wedded to a particular institutional structure or arrangement.

I think it's probably not realistic to think that we can just revive OTA as it was. That may not be—one of the challenges with the way OTA operated was, first of all, a lot of people in Congress even didn't know it existed. I mean, it served primarily the committees, and this was a moment in Congress's history when the committees were much stronger, and that's not as true today.

And so one argument that you often hear is that whatever OTA or similar body exists should be responsive to rank and file members, should be more of a service agency for the entirety of Congress rather than particular committees. And I think there's a lot of wisdom in that.

Another point of view is that it's unrealistic, and probably not desirable, to have a very large in-house staff for something like an OTA today. And there would be value in a congressional entity that could act as a hub for a broader range of experts outside of Congress and outside of Washington. I think there's—we certainly have the technology to do that nowadays, so I think that that's a very reasonable point of view as well.

The one thing I would say, though, is that I think—going back to this issue of OTA as an information service—I think the danger is conflating what I think is at issue here with the idea that Congress simply needs information. Congress does need, I think, access to reliable information, but what's notable about OTA, especially the initial motivations for it, was how ambitious it was.

The idea was really to reestablish Congress as the primary venue for deliberation about science and technology. I see this as a special instance of a more general problem. Scholars, former colleagues of mine, have made the case—for instance, James Wallner at R Street—that a lot of the frustration in our broader politics right now stems from the fact that Congress is impotent.

That Congress is not a place where the issues that are most important to average Americans are being deliberated about and dealt with. I mean, you can see this from immigration to covid, to some degree, or take any controversial issue, and it tends to be the executive branch that's really leading the charge in whatever direction.

And so that puts all the pressure on the executive branch, on the president, to be the vehicle for political action and change. And what's notable about Congress is that it's responsive to this broad range. And so I think you can make a similar argument about science and technology issues. A lot of our most important issues do have a scientific or technological component. And this was true in the '70s. It's true today.

What I found in doing a lot of research around what motivated Congress to create OTA in the first place was this desire to really strengthen the institution of Congress. Rethink how it did business. It wasn't just getting more information. It was also reigning in the executive branch, reclaiming constitutional authority. That's a tall order, for sure. And I don't think that simply creating another congressional agency is going to do that overnight, but I do think that framework and that goal is important for thinking about what we should do with Congress today.

I think that perhaps the most realistic path forward is going to be building on congressional institutions or mechanisms that are already in place. I'll note one, which I referred to earlier, which is that the Government Accountability Office in 2019 launched a technology assessment program, the Science Technology Assessment and Analytics team, if I'm remembering what the acronym stands for. It's run by Tim Persons, and its goal is to do a lot of what OTA did originally.

It's housed within GAO. It's increased in funding and staff, and it does a lot of great work in this area. There are concerns about it and there are limitations, but that would be one place, I think, where we could build on to try to create something that would be beneficial to Congress. And I think it would be a step in the direction of institutional reform of the broader kind I was talking about.

CHERVENAK: I think one of the differences between general think tanks or expert bodies and something that Congress could do itself might be around the structure of that information. So this OTA or expertise body in whatever form we're talking about they need to provide expertise to members so that they can make better decisions, right. That's the whole point. What kind of decisions are they impacting?

And if we think about what Congress is supposed to do, it's supposed to identify problems, and then it's supposed to create potential policy alternatives to solve those problems. And you can imagine this expertise weighing in on either the problem identification—identifying which problems are there and helping to prioritize what those problems are for society. And then you could imagine it either coming up with options through members—from new bills or assessing each bill, scoring a bill, if you will, on a positive and negative—either the costs or benefits of a

bill from a technology point of view, scoring it just like the just for as it could be done for the budget point of view.

So when I think about structuring information coming into Congress, I think about it funneling into either problems or adding value to solution options. I'm curious about how OTA did that and whether you think that could be improved in any future iteration of OTA.

MILLS: That's a great point. That was one of the tensions that existed within OTA from the beginning. Initially it had more of an independent mandate to decide its own research programs, and there was an important aspect of, and still is, Technology Assessment, which is horizon scanning. What issues are emerging? What technologies are emerging? Or also, What kinds of consequences of technologies that are already developing are there emerging? What do we know about them? And, What can, or should, we do about them?

And initially OTA was operating on the idea, under the assumption, that it should really be choosing its own, should be doing this problem identification type work. And, frankly, that did not go over super well with Congress. And it's easy to look at that and scoff, and say, well, Congress is just responsive to whatever whims of the moment. But, Congress is an institution with its own aims and goals, and it has its own priorities.

And so there was always—OTA moved toward being more responsive to those congressional priorities. And, ultimately, the way it operated was that the projects it undertook, it did at the request of committees in Congress.

And so that tension between—as you put it, problem identification versus dealing with existing congressional priorities—that tension was there and it moved from, I don't want to call it an extreme, but one emphasis toward the other.

But I think that that dynamic is still really important, and I think one of the reasons why it's important to think about a congressional entity to fulfill this role. Sometimes you will hear people say, and this again, these arguments have been around for quite some time, Why does Congress need an OTA if it has the National Academies of Sciences? If it has all these think tanks? If it has access to universities? There are plenty of sources of information and expertise out there.

And I think that there are two important answers to that. One is a lot of those sources of information are biased, and part of what OTA did at its best was solicit all of those stakeholder viewpoints. So I think it's important that, to the extent possible, Congress has access to unbiased information.

This is always going to be a relative game, right. I mean, there's no perfectly unbiased source of information, but if, for example, Congress is called upon to legislate in the area—take a timely example of FDA reform—if its only source of expert information is the FDA or the regulated

entities, obviously there's a conflict of interest. So I think there's value—or you could have entities that are funded by those in some way—so there's value in that relative unbiasedness.

And the other is having an entity that's responsive to congressional priorities, which after all is the way something like this will survive. OTA, by that measure, failed. It ceased to exist. It clearly didn't have broad enough support within its own institution to survive. And so I think that, while there are lots of different ways we might think about structuring something like this, I think the idea of having something that really is Congress's own is key.

And actually one of the criticisms of GAO is that it's just physically not proximate enough to Congress. OTA staffers were on the Hill. They were rubbing shoulders with staff and members, and they developed personal relationships. And I think that that is a very important aspect of how an institution like this would be able to function effectively.

CHERVENAK: Let's talk about Congress's expertise in aggregate compared with the executive branch. I know you've thought and talked about this issue. Obviously, Congress has delegated a lot of expertise to the executive branch and even the policymaking to the regulatory agencies, so you can imagine that there's a lot more expertise in the executive branch than Congress.

And what should the right balance be, and what are your thoughts on that kind of situation? Is it an issue where Congress needs expertise to balance executive branch? Or is there some magic ratio? Should it bring the regulation back to Congress? Should it have so much expertise that it should do the regulation? What is your opinion on that balance?

MILLS: One of the arguments for—you mentioned that Congress has delegated more and more of this, of its lawmaking power to the executive branch, which is absolutely right—one of the arguments for that or sort of rationalizations for that is, Well, Congress just doesn't have the expertise: Let's be honest, how could Congress ever get into the nitty-gritty on FDA reform, or you name it, environmental regulation or artificial intelligence? And then people usually will point to the Facebook hearings, or something like that, [and say] Look, these people don't know anything.

That's a persuasive argument on its face. The problem with it is that it hasn't always been thus. Congress has delegated a lot of its power, and in doing that, it's depleted its own expertise. Those two things go together. If we go back to the historical narrative I was telling, there was this big push to strengthen Congress in the late '60s and early '70s, but since then, there's been a lot of devolution from that.

Political scientists measure this a lot of different ways, but if you just look simply at, say, staffing counts in Congress overall, especially committee staff, you can see net declines. In other words, Congress has less personnel now than it did in the '70s. And if you look at where staff has—the allocation of staff—it has moved from committees to personal offices to communications teams rather than substantive policy expertise.

And so the general picture—and then there is a broader dynamic of committees’ weakening, leadership growing in power—so the dynamic you see is Congress giving away, if you want, its expertise in favor of partisan leadership—within Congress—and [to] the executive branch.

And so it's a self-fulfilling prophecy that if Congress is weakening itself that it will not be capable of discharging its duties. It's going to have to delegate more and more of what it's supposed to do to the executive branch. In a sense, it's descriptively true that Congress doesn't have the expertise to do a lot of the things that it's supposed to do. The question is, Does it have to be that way?

Now, I don't believe, I mean, I know that there are people, especially on the right, who believe that we can do away with the entire administrative apparatus on the executive side. I think it's very unrealistic to think that Congress could ever—or really should leave nothing to the executive branch in terms of implementing and interpreting complicated statutes and technical issues. I think the executive branch plays a very important role. But I do think that it is not unrealistic, even if it's ambitious, to imagine that Congress could greatly strengthen its hand and take a more active role and that doing so would actually be, I think, very healthy politically and could possibly issue in better policy.

There was, in the mid-20th century, this idea that the way—this maybe goes back as far as the Progressive Era—that the way to get sound policy is to insulate it from democratic politics as much as possible. Independent agencies staffed by scientific experts. We can look at history to see that that hasn't really worked out so well. And, ironically, I think a lot of the movement to do that has resulted in the executive branch becoming much more politicized and much less dependable.

I mean, you could be forgiven for thinking in 1950 that if you put this kind of scientific power in the hands of executive agencies, you would at least have stability over time. And there was a broad bipartisan consensus about blah blah blah. Nowadays, what you see are administrations with very different priorities see-sawing the political system in different directions. And I don't see how that benefits policy or science particularly. And so I'd like to see Congress at least give this a shot. Obviously, it's a tall order, as I said before.

CHERVENAK: Since you've spent so much time thinking about it, what would be your ideal makeup of this expertise? How would you implement better expertise into Congress? And under what form?

MILLS: I would like to see, in my ideal realm, I'd like to see an OTA, maybe, refunded and refashioned. I have come around to the more realist perspective that our best bet is probably to build on what the Government Accountability Office is doing. I think there are different proposals for how to do that.

I think essentially building more institutional independence within the STAA program within GAO is needed so that it can operate with its own mission and it can be more responsive to

Congress. GAO has its own bureaucratic identity and function, for better or worse. Whatever STAA is doing, I think it's going to have to develop its own independence, probably its own budget line item, to do that.

CHERVENAK: How would it function and how many people would be in it?

MILLS: I don't really have a magic number. As I mentioned earlier, I think that a lot of what I think that there's a very persuasive argument to be made that it's less important that this entity have a large in-house staff than that it be widely recognized by Congress and it have access to the relevant kinds of expertise. So, it's hard to imagine it functioning with fewer than a hundred individuals or something like that. But there's no there's no magic number there.

I think what's more important is that it be recognized by Congress as a vital service. And so this actually gets to another issue, which is what is called the absorptive capacity problem, which is that even if you created such an entity—to some extent we already have these sorts of resources within Congress—is Congress using them? Or will these things just meet the fate that OTA did?

And that's a hard problem, and I don't have a silver bullet for that either. It really gets to the thorny issue of changing institutional behavior, and that's a tough one. But it needs to be dealt with if, especially, you have this more ambitious idea that I have, that Congress should reassert itself in these complex policy areas.

CHERVENAK: Before we move on to our lightning round questions, I'll just ask about how you think Congress has done in this COVID environment given that this pandemic is, really, the response has to be highly technical in a way. It has to be informed by science. How has Congress done? Has it done a good job of integrating the knowledge that's been being generated by the scientific sphere? Or has it not implemented that?

MILLS: I would not give it a passing grade. This actually, this gets to something you asked earlier, too, which is you mentioned that part of Congress's job is to identify problems. And that may be a part of its job, but it doesn't really do it. And I think, again, part of the reason why it's useful to have expert resources within Congress is to help it do that.

Congress, as my colleague Phil Wallach has argued, has become increasingly a crisis response institution. It tends to only operate when there is a crisis. It's very reactive. And when there is a crisis like the current pandemic—it's amazing actually—or the 2008 recession—it's amazing how bipartisan it's capable of acting. The Congress has spent lots of money, for example, on all kinds of things in response to the pandemic. And so, in one sense, it's been very active, as it has in previous crises.

But the problem—we could talk about specific problems with the pandemic response—but the broader institutional failure is a failure to be less reactive, to try to identify problems, and to build up an institutional resilience and infrastructure to deal with crises. I mean, the idea that

there would be a pandemic like this, and this is hardly—obviously we couldn't have predicted this particular one—but we've had pandemics before. I think that it would have been helpful in the government's broader response had Congress played a more active role in these areas, in the technical domains in which pandemic response clearly falls.

So, I see a broader institutional failure.

In terms of the more specific things, I think there's no question this gets to this separation of powers issue that in a crisis like this you do need the executive branch. You need it to act, hopefully, nimbly and deftly, and it's not clear that it has done that. That's a whole other question: Whether the executive branch has performed well during the pandemic.

But I think that is an area where Congress has an important role to play. Why, for example, has the testing capacity in this country been such a disaster, especially in the early days of the pandemic? What was going on at the FDA that made it more difficult to roll out diagnostic testing? Why did the CDC decide to develop its own test and botched them?

There are lots of issues in how the executive branch has dealt with this pandemic that need to be understood not only to do a postmortem but also to think about how we could respond more effectively to a future crisis like this. And who is going to be doing that? Well, Congress is who should be doing it.

And the question is, Does Congress have the capacity it needs to do that well and in a relatively unbiased way? I mentioned FDA reform. Is Congress going to be making changes in that space that might lead to a more effective pandemic response in the future? If so, is it relying on the FDA to get its expert information?

These are, I think, they're very timely questions. And so I guess the short answer to your question is, I don't think Congress has done well. That's not very surprising, but I think this is a very good example of why the issues we're talking about are so vital.

CHERVENAK: Let's move on to our lightning round, the questions that I ask all of our guests. You ready?

MILLS: Sure.

CHERVENAK: What do you think congressional representation should mean?

MILLS: That's an important and difficult question. One of the things that I would say, maybe slightly dodging your question, is thinking about it in connection with expertise in particular.

I think one of the things that makes Congress distinctive is that it is a deliberative body, but it's one that's responsive to a lot of different viewpoints. And I think there's a tendency to see that sometimes in very simplistic terms like, well, Congress is where we have dialogues about issues.

But, really, the viewpoints we're talking about are radically divergent. And this could be true in technical domains or in issues of value conflict. So Congress, in representing the broad range, is taking on a very unique role as a site of conflict in a certain sense.

And so I think what I would like to see in how we think about congressional representation is more sensitivity, I guess a way to put it is, to diversity, to the kinds of conflicts that are generated by the diversity that exists in our country rather than seeing it simply as a place where our representatives can have nice conversations about things.

CHERVENAK: But it sounds like, at least from your previous conversations, that Congress needs to have a way to magnify the experts. Would that be an accurate concept in representation? When it's considering problems or solutions, who is it representing well? Or what views is it listening to? It sounds like you're making an argument that it needs to amplify the voices of the experts.

MILLS: Well, I think it needs to do both. I think one of—I think Congress, sort of the promise of Congress, is that it is a place where it is a venue in which we can have deliberation about complicated issues, where there are rival viewpoints and value conflicts, but do it in a way that is informed by expertise. I think that's really what's unique about Congress as an institution in the federal government, and just more generally.

So, I would reject the idea that expertise and democratic representation have to be in tension. Obviously, there is—or maybe I should say have to be in conflict—obviously there is a kind of tension there, but I think, again, a well-functioning Congress can be effective because it finds a way to live with that tension. And I think, right now, a lot of the emphasis that I've made is on the importance of increasing expertise, and that's because that's just something where Congress is clearly currently lacking.

But I would also say I think it's also currently lacking in its representative function, in thinking too much in terms of party electoral wins and party leadership rather than in being responsive to a plurality of viewpoints. So I see that those two trends are probably related, and that's why I say I'd like to reject the idea that they have to be in conflict.

CHERVENAK: How would your ideal Congress allocate its time?

MILLS: Well, I think the simplest, shortest answer would be, going back to our previous conversation, doing more problem identification, thinking more proactively about the kinds of issues that it needs to tackle. To do that, I think we have to solve that first problem we were just talking about, right. I mean, Congress has to be more than reactive, and I think here expertise can be valuable.

It's really surprising—One of the arguments against having an OTA or a congressional entity to do the work that I've been talking about is that, Well, Congress, it needs information quickly. It doesn't have time to wait around for a long ponderous report. It has to act now.

This has always baffled me because, first of all, Congress isn't acting all that much, and second of all, complex problems don't lend themselves to brief reports. It's just the nature of the beast, that complex problems are multifaceted, multisectoral, require weighing competing interests and viewpoints.

And so it seems to me that Congress needs to rethink what its role is, and so, yeah, in my ideal, Congress is allocating a lot more time to identifying and engaging with those complex issues before they show up on your doorstep, like the pandemic.

CHERVENAK: How should debate, deliberation, or dialogue occur or be structured in Congress?

MILLS: Well, here I'm probably going to just end up repeating myself to a certain degree. What I would like to see is Congress actually engaging in and debating and deliberating about a lot more controversial issues than it does.

CHERVENAK: For instance, in that kind of debate or dialogue, would that happen in committees? Would it happen on the floor? Would it happen in a boxing ring on prime-time television? Where should that happen and how should that happen?

MILLS: I think, yes to the first two. I mean, it seems to me that Congress spends a lot of its time now being tightly controlled by party leadership and preventing a lot of important issues from making it anywhere into that legislative pipeline, whether it's committee deliberation or onto the floor, and so I'd like to see more of both. I think it's difficult, for me, to imagine how a well-functioning Congress could be engaging in deliberation, especially about the kinds of technical issues that I care about, without a stronger role for the committees. So that would be one thing.

But broadly speaking, and I'm sort of cribbing here from colleagues and former colleagues who have made the case—I'm thinking of, as I mentioned, James Wallner and Phil Wallach—who have made the case that a lot of what makes Congress weak now is that it's not engaging in disagreement and conflict enough. There's this idea that we have too much polarization and so that that's the problem of Congress. But—we obviously, in some sense, we have lots of polarization—but Congress is not really disagreeing *enough*. A lot of the controversial issues that people care about, it's doing a great job of avoiding and allowing the executive branch to handle.

And so I'd like to see a return to something like regular order in Congress, where committees are less focused on the sound bites that are going to be generated for C-SPAN and more on the substantive issues that are before them. Where once issues move out of committee, they are actually being debated on the floor.

You asked about ideal, right? So that's what I'm talking about.

CHERVENAK: What, and maybe this is related to your previous point, but what fundamental institutional improvement should Congress make within 50 years?

MILLS: I think a big one would be the creation of, or the strengthening of, existing expert agencies within Congress. I think that would be—If you think about how important science and technology issues are for politics, for society, today, it is shocking that there doesn't exist such an entity at all. That from '72 to '95 we had something like that. It's really quite surprising that Congress doesn't have anything like that. I mean, it just seems out of step with the prevalence of those issues. The Biden administration recently elevated the office of the OSTP, the Office of Science and Technology Policy, to a cabinet-level position.

One of the reasons Congress got in the science and technology game in the '60s and '70s was in response to the growing prominence of the scientific advisory system in the White House. So this might be a great moment for Congress to try to do to do that again and say, look, we recognize these are important issues—the White House has recognized they're important—it's time for us to get back in the game.

CHERVENAK: What book or article most shaped your thinking with respect to congressional reform?

MILLS: Well, so I would say, again focusing on my issue areas in particular, one book that had an influence on me was Bruce Bimber's *Politics of Expertise*, if I'm remembering the title of that correctly. It's a history of the rise of OTA and how it operated. And in it he offers also a pretty compelling theory of expertise and how it should function and operate within the political realm.

And his idea is that expertise is able to be most effective and credible not when it is housed—insulated within—a nondemocratic institution, like the executive branch, for instance, or an executive branch agency, but rather when it's responsive to a broad range of institutional and political pressures. And that OTA at its best embodied that. So I thought it was a very useful book in terms of the history, and I think that that theory of expertise is very compelling. That's one I would mention.

The other thing I would say—this is maybe a little strange—but, a lot of my thinking about congressional reform, especially in the science policy area, was influenced by the research I did on the background to the legislative reform efforts, the late-60s and early-70s and the creation of OTA in particular, but more broadly. The National Academy of Sciences and the National Academy of Engineering, which were then separate, each issued reports at the request of Congress on the issue of technology assessment. This was in the late-60s. And I found both of those reports very compelling and refreshingly ambitious in the agenda that they saw for Congress's role in science and technology.

So those two reports actually had a pretty big influence on my own thinking about this.

CHERVENAK: What plans do you have for your research over the long term, over the next few years and then long term? What do you want to do? Is it all technology area? Or do you have other interests as well?

MILLS: I do have broader interests. I think I mentioned political philosophy, and I have fairly broad-ranging interests, but I would say that my more immediate ambitions are: I'm writing a book right now on federal science policy and the rise of federal science funding, how it works today, and how it should be reformed. And I also have had in the works for some time a book on expertise. So the two focuses of my science policy work—the role of science in government and the government's role in science—I have book projects for both of those that I'm working on. So that'll keep me busy for a little while.

CHERVENAK: Tony, thanks so much for joining us.

MILLS: Thank you for having me. It was a pleasure.