

The U.S. National Science Foundation at 70: Historical and Library Resources- Transcript

Please stand by for realtime captions.

Hello and welcome to the U.S. National Science Foundation at 70. Historical and libraries. Before we get started I have a few housekeeping reminders. Please use the chat box for questions, comments and technical issues, we will keep track of all questions and address those at the end of the presentation. We are recording the conference and all registrants will receive links to the recordings after the event. Please join me in welcoming our sinners today Emily and Sonja. I will now hand the ball over to Emily to start the session. Thanks.

Thank you very much and good afternoon everyone. Thank you for joining our session and a big thank you to the conference organizers for the invitation, and your participation in this year's federal depository library conference. My colleague Sonja and I are delighted to speak with you today about the National Science Foundation and the resources of this fabulous library. You might not know much about the National Science Foundation, but hopefully by the end of our presentation today you will have a new awareness and appreciation for our federal agency. While I am speaking to you today, we thought we would show you a picture of the headquarters located in Alexandria, Virginia. And before we get started Sonja and I will tell you a little bit about ourselves. I have worked that NSF for the last four years in the office of legislative and public affairs. And I came down from graduate school where I received a PhD in history and -- from Georgia Tech in Atlanta. And one of my main topics while at the agency has been to research and write books that detail the history of the foundation. This has really been an exciting project for me to work on and I'm looking forward to telling you a little bit more about it today. So now I will turn things over to Sonja so she can introduce herself.

Thank you Emily, good afternoon. High, as Emily said I, as she mentioned, I have been with the library now for the last seven years working as a program manager providing federal oversight over the library and the library acquisitions and all of our resources. Previously before coming to the NSF I worked for a nonprofit in Miami, Florida, managing grants, several grants for that nonprofit. And previously before that I worked with the NIH in the office of the director. I am not a librarian, however I do understand our library. So I'm hoping you enjoy our presentation and if you have any questions you can always reach me at NSF.gov.

Thank you Sonja. So just by way of a road map today I will begin by giving a little bit of a primer on NSF and how it operates. Want to share with you some insights from my own research into the agency's history. In particular having access to key historical reports and resources was essential to my being able to reconstruct -- I will then turn things over to Sonja who will talk to you in more detail about the NSF library and the crucial role it serves in supporting the agency's operations. And I of course would be remiss if I did not say at the outset of this that as a historian I cannot over emphasize how grateful I am to librarians, archivists, and creators who preserve the resources and materials that really make my job possible. So I am indebted to so

many of you at the national archive, Library of Congress, and of course our own NSF library just to name a few. So what do you need to know about the National Science Foundation? Well NSF is an independent federal agency that was created by Congress in 1950. The decades following World War II were a busy time for science policy in America with a wealth of governmental and nongovernmental institutions playing critical roles in setting up new systems of research, education, and patronage for science in the United States. NSF was founded within this context as the only federal agency dedicated to supporting fundamental science research and education across all science and engineering disciplines. Today with an annual budget of around \$8.3 billion, and around 2100 employees, the agency has grown to support approximately 25% of all federally supported basic research that is conducted by America's colleges and universities. In the agency funds research that is a primary driver of the U.S. economy, enhances the nation's security and enhances knowledge and leadership. While I cannot show you this today, I do have a video on the NSF homepage you see the link displayed here on the slide. To get a more detailed understanding of how the agency operates. For example NSF -- promising lines of research is known as the merit review process and is considered by some to be really the gold standard of science review. And one of the key ways that the agency functions. So this video will explain how all of that works if you are interested in learning more. So some of you out there who might be a little bit more math minded may have already figured out that it is actually a really special year for us at NSF. Because in 2020 indeed marks the agency's 70th anniversary, and there is nothing like a big anniversary here that gives you lots of reflection on history and changes over time. That really makes it an exciting time for me as a historian because I am generally always happy to have opportunities to talk about history, especially NSF history. So even beyond anniversary years, the agency plays an important role in operations. First when thinking about how to communicate the value of the mission to various audiences, having a long, well-documented history of support of major breakthroughs like the recent first image of the black hole from last year which some of you might remember seeing in the newspapers. It is all really a key resource to draw on. A great example of this is NSF's support of research in Antarctica. NSF is the federal agency responsible for finding and managing USX heavies in Antarctica and has been since 1959. This image you see on the right shows the agency's first direct Alan Waterman who was visiting the South Pole in 1963. This is really just one example of how the history of the agency support can tell a really compelling story that communicates its importance. Documenting the agency's history also played an important role in preserving corporate memories for current and future employees. As employees come and go, it is important that some form of institutional memory is documented so that people have a sense of what has been done in the past. And this is important work that is also done by the NSF library which we will hear more about later on. And finally it is important for agency leadership to be able to draw from the historical record in making decisions about the agency's current and future operations. It is important to know where you have been when you're mapping out your future. Which brings me to my book. My history of the agency really helps support these three functions. The history of the National Science Foundation, is the key to understanding the growth of American science and its changing place within the federal government. From World War II through the early 21st century. Beyond cutting-edge research the agency became a key mechanism of the American state to improve science education, broker international scientific collaboration and aid programs and to

influence national science policies. My book tells the story of how leaders, staff, scientists and policymakers have organized to meet the challenges such a broad mandate -- within the social, political and economic landscape of the past 70 years. And the profound changes that have had on both science and American social and -- life. I'm currently working to finalize the manuscript and to secure open access publishing arrangements and anticipate the copy should be available this coming year. So today instead of giving you sort of a standard history talk, or preview of the book, I want to give you more of a behind-the-scenes look at how I've been able to piece that history together from really a range of different sources. I've relied both on primary and secondary sources including the range of different books, oral histories and archival documents like reports, letters, internal memos and books to name a few. This range of source material helped construct the rich narrative that incorporates different levels of detail as well as points of view or perspectives are particular areas. And consulting a variety of sources also helps to cross-reference sometimes conflict stories or in completed accounts of events. I have drawn from the rich collections -- the agency's official government records at the College Park location, and also Library of Congress is manuscript edition and a wealth of publish materials housed in the NSF library. I especially want to highlight this latter category today, the publish materials produced by NSF that the NSF library has collect it and changed over the years. These agency and program level reports never have had wide distribution, and would be extremely hard and in some cases actually impossible to come by had they not been preserved I the library. They have been extremely valuable to me in my research. So I'd like to illustrate the value for you and the type of analysis they can yelled through a brief historical vignette from my book. And to do that I want to take you to a moment in early 1970s when the nation faced difficult economic times and found itself grappling with a shortage of a key resource in which Americans had come to heavily rely, which of course was oil. Many of you may actually remember the long lines at the gas pump in the fall of 1973, or perhaps you were among the many Americans who weren't able to find gas at all due to oil rationing and steep prices. Geopolitical -- had crescendoed that fall, leaving the organization of Arab petroleum exporting countries to institute an oil embargo against the United States and other nations when the entered the era of Israeli war. The oil embargo kind of sent shockwaves throughout the global economy. Oil prices rose by more than 50% by the end of October, leading to gas shortages and increasing the cost of production across nearly all industries. As a result the general price level of goods began to climb rapidly, and it triggered the highest inflation rates that had yet to be seen in the global era. Though the 1973 oil crisis served as the flashpoint that sent the U.S. economy into the first post-World War II recession, the nation's overreliance on petroleum not to mention the environmental impacts had become apparent by the early 1970s. On June 4, 1971, Richard Nixon delivered the first ever presidential message on the topic of energy to Congress. Motivated by redacted oil shortages, Nixon announced a plan to make it easier to extract oil and gas from federal lands and pledged to increase federal support for research and development related to alternative energy sources. As part of increasing support for alternative energy development, President Nixon specifically directed NSF to give greater attention to solar energy research and development. So in looking through the transcript other presidents addressed, I can see clearly that NSF had received a direct mandate from the highest level of government to take on this work. But I still faced the challenge, how could I figure out how the agency responded to the mandate? Luckily I was able to turn to the library's full collection of

agency reports that had been submitted annually to Congress since its creation. I began my research with the 1971 report which you can see on the left-hand side, to the right are the documents. So I began with the 1971 report since I knew that was when that was issued and direct it to focus on solar energy research. And I was really delighted by what I was able to uncover. Because I saw a wealth of very detailed information about the type of solar energy research the agency began to support in response. I was even able to learn that the agency had worked with several energy companies to build and install large solar heating systems in four public schools as well as a mobile solar heating and cooling laboratory. Schools actually represented the largest solar heating systems in existence at the time that they were built. And you see this picture on the right here. In addition, I was able to trace research projects that led to significant improvements in solar cell manufacturing as well as support for geothermal energy research and several elements of contemporary wind energy systems. And thanks to a program report that I also found in the library, which is here on the left, I discovered that NSF support for these programs would actually form a key part of the energy research and development administration when it was commuted in 1974. And was eventually incorporated into the Department of Energy when it was set up in 1977. So thanks to these reports I was not only able to uncover the access to key research into solar energy systems at the request of the president, but the NSF energy research portfolio came to represent significant piece of the federal response to the overall energy crisis. And I know this is really kind of a truncated brief example, but I hope that it gives you a sense of how access to various documents can really be a key factor in achieving the type and quality of historical accounts that we are able to produce. So at this point I will hand things over to my colleague Sonja who will tell you more about the NSF library and its operations.

Sonja your microphone is on mute, can you and me please?

I am sorry, good afternoon everyone. Today my intent is to provide a brief overview of the NSF library, the library's collection, and a brief summary of some of the type of resources and services provided at the library in support of the foundation's mission. What you are seeing here, this image here is our library, our new library. We recently moved from Arlington, we had a much bigger library, to this new building that we have now in Alexandria. Those are our stacks on the left, and our meeting space in the middle, and our records desk is far to the right. So the thing I want to talk to you about today is the circulating collection, and the gray literature specifically. A little bit about some of the other items we hold in the collection and the services like the trainings that we offer at the foundation, our subscriptions and how we use the library to bring people together to offer this space as a meeting space, as a office space, whatever they need to use the library space for. The NSF library circulating Grey Literature collection contains over 12,000 items. And we have catalogued all of these documents. Some of these are in print, about 8000 are available digitally. And the range of the publications dates start from 1938 to present. This graph is the result of an analysis that I performed on our Grey Literature collection. And the purpose of the graph is that I would like to use this to encourage our directorates to provide copies and to share copies of their program requests that I believe are currently being held in their SharePoint sites, and on shared drives, and maybe private drives. You can look at this graph starting from 1938, the NSF didn't act came out in 1950, but we've

been able to find documents that reference pre-tran08 prior to those dates that we thought was important to keep in our collection. As the years went on, and it's the graph indicates, the library became sort of the repository. The program offices would deliver a copy of a report that they felt was important, that they wanted to preserve, and they would bring it to the library. So as the years went on, you can see the documents became more digital and we started getting less documents, I see there was a spike in the 80s, I'm not sure why, and after 1996 it started to decline. We had a small spike back in 2016, I believe that was in reference, in preparation of the move. We were moving to a greener, leaner site, so the directorates decided they wanted to maintain and preserve documents they brought into the library. However, I don't believe that our collection, what we have, totally represents the entire collection of Grey literature that is at the foundation, and as I mentioned they are being held in the directorate. So use this as a goal to encourage them to give up the documents, we will keep them and maintain them and they will be there for all preservation. So the oldest document we have is this research document is titled the national resource, published in 1938, the most current document we have this was Emily's she developed this document, and the Grey literature, these are the categories that make up the Grey literature in our collection, the seven categories. As you see here the reports make up 41% of the entire collection. And news reports are composed of various types of reports that were compared for the foundation. A lot of them are outside with the collaboration, 27% that it shows there. Those documents are things that mention NSF, or result from NSF funding. Or was something that the NSF actually paid a consultant to be prepared, so these are the documents, these are the categories that make up our collection. Most of these items here are available if your library is looking for something, and would like to get a copy for an interlibrary loan, you can request it and we would be more than happy to send you a digital copy if we have it. So now I want to move on to something that is a project we have been working on for a while. The NSF has long been involved in preserving polar research. This poster here on the left was presented in 2018 by our former head librarian, she attended the -- and they were discussing of course polar research. And we were hoping to find a home for one of the microfiche sets we have. So we currently have at least, we have two sets, there were six sets of this microfiche was developed. I'm sorry I should not have jumped ahead. There were six sets of microfiche that were developed in the NSF had been able to place four of the sets, we still have two and we are hoping we can find another library that would be interested in acquiring that. The microfiche, these are the categories that are involved in the microfiche. And at that time, and when the NSF and Library of Congress decided to create this microfiche it was in hopes of preserving everything that was known at the time in the area of polar research. All of that information is on these microfiche. So since I have been at the foundation we have been able to place one set at the Alaska, in the University of Alaska at Anchorage. The cold regions laboratory has a set, and USGS has a set, and like I said we have two sets. And there is an unknown set somewhere in California that I am in the process of looking for. The primary goal as I mentioned is to provide open access to this research to anyone. To the public, and we are hoping that we are able to find someone who would be interested in acquiring the last set, digitizing it, and being able to put it on a website so that the public could have free, open access to it as well. One of the things that I also wanted to talk a little bit about where the services. So -- has enabled me to understand the importance of assets and data. How important it is to the foundation's mission. And it is one of my favorite parts of my job is helping the program offices

understand how to find the information they seek in published data. Some of the trainings that we offer among the others is how to use the library resources like scope us, Web of science and the other journals we subscribe to to perform analysis and identify experts in very scientific fields that we use in our panels and to make decisions when we are awarding our grants. And some of the things they have to look for as they look for these individuals are they have to resolve conflicts of interest to ensure the reviewers and the grantees, and the recipients of the grants do not have a prior relationship. We also use the citation, the public's data to provide a performance, and evaluation of our awards to see how well our words are performing. And we use it as again to measure the outcomes of our funding. So what I did was a quick search using, this is FDL -- Scopus, and I pulled up as you see pulled up over -- I can't -- the high search area of physics and astronomy, and I pulled up about 505 patents. I'm sure there are more, but I did a basic search just for the purpose of this presentation. And I did a similar search using the web of science, and that pulled up again and it showed that our highly searched areas again re: materials and science for the astronomy program which is located within that program. Pulled up over 950,000 documents and showing that we were cited in all of these documents. So the searches here were just using the affiliations and the institutions that the NSF, not specifically looking for a particular subject area. Just to show you how well our grabs are performing and how well and how wide of a reach our citations are, that we are being cited in documents. So this too is from the web of science, which is one of my favorite tools, it gives you more of an opportunity to analyze your reports. You get to look at, this is the NSF again and it shows how well we are performing, and using the web of science and Scopus there are a lot of analytical tools that we are able to tap into that shows us how well the foundation is performing. Some of the other services we provide access to over 10,000 journals, we have about 16,000 commercial books imprint. We currently are working on increasing our e-books, specifically during this time when we are all Teleworking, we found that to be a really sought-after area. And we provide access to the regular newspapers, and of course interlibrary loans, and as I mentioned earlier in the day meeting space in the library. At times we do have vendor led trainings that offers a deeper dive in how to use and ways of how to use the citation databases and all of the other subscriptions that we offer. So I believe this is at the point where I have nothing more to offer. Are there any questions?

I do not believe any questions have come in although we do have comments on the importance of Grey literature.

Yes, if you have questions please put them in the chat box at the bottom, we have one. You have plans to transfer your VHS/CDs to updated media storage?

Yes. As funding becomes available that is something that we would like to do we would like to have it available for any of our staff that are Teleworking. We would like to change the m to a format that anyone would be able to -- without VHS tape recorder.

Do you have any partnerships with OSTI or other science agencies?

No, although the library does participate in a lot of working groups with the Library of Congress, and other working groups. But we don't actually have partnerships with other libraries or any other science institutions. We do collaborate, we grant with other science agencies like the NIH another science agencies, but the library itself doesn't have any type of partnerships.

How did you conduct the analysis of your collection on your first slide?

The first slide, I believe that was with the web of science. Let me see, I can just go back to that first one. This one here? So what I did here on the web of science is they offer various ways to search. You can either search on a person, you can search on a subject, or you can search on any situation. So this slide on the left in figure 1 is an affiliation search. I went to the portal and I typed in the National Science Foundation, and then it returned this, which provides an overview of our funding, more specifically it provides an overview of all of our awards that are being cited in documents that focus has indexed into their database. So this is a basic search. I mean if we wanted to dig deeper we would use the filters and limit the years the subjects maybe affiliations with other collaborations with all the other institutions. There is so much more you can do with the filtered steps

Okay, next question, so I did understand you correctly, you are keeping print copies of material and digital versions too?

Of our Grey literature, yes. The goal is to make digital copies, that is to preserve the print copies. So over the years what has happened, prior to us digitizing, you could see the wear and tear on the documents that had been used most frequently. Specifically the program documents, a lot of those documents were prepared pre-born digital, so some of this is on onion skin type paper, various types of paper. So when you digitize them, we asked that our program officers use the digital copies. But if they need to see the print copies and they come into the library.

Okay, next question, NSF materials are in science.gov, correct ?

So NSF materials are in science.gov? You mean our Grey literature? Our Grey literature for the most part is not, however you can find if you would like to get a copy of something, you go through OCLC or you send a request to NSF. And we will try and find that document for you. But science.gov I believe they are indexing published data. The Grey literature is not published data.

Is interlibrary loan via OCLC?

Yes. And we would try to assist you, if you send an email directly to library NSF -- however we do prefer OCLC because it is a better way of tracking the request. But on occasion we do try to assist when we do get a direct request.

Okay, do we have any more questions for Emily and Sonja? Please type them in the chat box we will give it a couple of more minutes. Okay, I am not seeing any more questions. So we want to

thank Emily and Sonja today for your wonderful program and thank you to our audience for participating in the virtual conference. Up next we have the what, where, and how a discussion on digital humanities and government information. In our other virtual meeting room the next is DLC business meeting. If you want to join that program you will need to close out this virtual room first and use the other URL to enter the other meeting room. So the URL can be found on the event page which is linked off of the FDLP homepage, and on the event page click on join the session. So for now we will take a short break and we will pick back up that 2:15 p.m. Eastern.
