

Executives' Roundtable: The Boundaries are Getting Blurred

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Executives' Roundtable: The Boundaries are Getting Blurred

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Moderated by Anthony Watkinson, University College London

Scott: I am Scott Plutchak. Welcome to the Executives' Roundtable. When I proposed the title *The Boundaries are Getting Blurred*, I was not thinking of eight o'clock in the morning after the welcome reception, but, it probably fits. I'm delighted, astonished, and disturbed to see so many of you here at eight o'clock in the morning. So we'll do our best to make it worth your while and to be entertaining.

I am joined here by Fred Dylla from the American Institute of Physics and Paul Courant from the University of Michigan, and I'm very excited about what we're going to be able to do today. What we're going to do is have a conversation about some issues and topics that are of interest to us, and that hopefully are of interest to you, and we hope that you will participate in the conversation. There are microphones in the room so feel free to come up to a mic. For people in the Colonial and Gold Rooms, you may just have to interrupt because I'm not necessarily going to stop for any sort of formal "Are there questions in the room?" If we are a little bit chaotic that works just fine.

I want to start by telling you a little bit about Paul and Fred and a little bit about the project that initially brought us together. As I said, Fred is the executive director, CEO, of the American Institute of physics, a large umbrella organization. You've got, what, 30 member societies?

Fred: Ten member societies and another 23 affiliated societies.

Scott: Ten members and the affiliate members, and you produce a large portfolio of journals. But, Fred comes to this after over 30 years as a research physicist in Department of Energy, National Laboratories, and he is a member of the STM Board of Directors with over 190 publications on his own. Paul is the University Librarian, Dean of Libraries, Harold Shapiro Professor of Public Policy, Professor

of Economics, Professor of Information at the University of Michigan, formerly Provost, formerly Chair of Economics, and author of half a dozen books and over 70 papers.

What I find really interesting about talking to these two about the issues that are of concern to us is that they come to their current leadership positions after having spent long careers as academics, as researchers, as the very people that we as librarians and publishers claim are the people we are trying to serve, and I think that perspective and that experience gives them a good look at what it is they are trying to do in their current roles. So you have two people who are in charge of very large organizations, who are really thinking creatively about how the roles of those kinds of organizations change.

We got together for the first time in the spring/summer of 2009, when we were called together and participated in the Scholarly Publishing Roundtable. The Roundtable was called together on behalf of the Chair of the House Committee on Science and Technology, as the House Committee and the White House Office of Science and Technology policy were starting to look at the question of public access to federally funded research at the other agencies besides NIH. The staff members of those units were somewhat concerned at how public and contentious and hot the discussions were that had led to the NIH policy, and they wanted to try to bring a group together to see if they could come up with some consensus. But they wanted to do it kind of out of the limelight where people could really be candid and really try to work through these issues. So, there were 13 of us who came together. The group was chaired by John Vaughn of the American Association of Universities. We had three sitting provosts: Richard McCarty from Vanderbilt, David Campbell from Boston, and Jim O'Donnell from Georgetown. Three librarians: myself, Paul, and Anne Okerson from Yale, whom many of you know,

(she's speaking here later this morning). On the publishing side: Fred, of course; YS Chi from Elsevier, who shared this stage with me last year; Mike Patterson who was with the Public Library of Science at the time, who was just recently named Managing Editor of this new open access journal that the Howard Hughes Institute, Wellcome Trust, and Max Planck are putting together; and Crispin Taylor from the American Society of Plant Biology, representing small society publishers.

And then we had a research team: Phil Davis, Don King, Carol Tenopir, (who is sitting up in the front row here), so we really tried to have our discussions based in reality, as if that was something unique. We met four times in person, we had a lot of discussion by e-mail, and we issued a report in January of 2010. Think about how long it takes to get stuff done in our various spheres—we met for the first time in July and we issued a report six months later. You can find the report on the AAU website. It's on the House Committee website; if you Google "Scholarly Publishing Roundtable," you will come across it pretty quickly. But I think it was significant in a couple of ways. It was the first time, and I think the only time in my experience, that that particular group of stakeholders, representing the library community, the publishing community—not for profit and for profit—the academic community, and the position of the provosts was brought together to spend an extended time listening to each other about these issues and trying to find out where there was common ground. Although all of the people in the room, with the exception of our research group, were now in administrative positions, many of them had long, long research records so they adequately represented the research community and the authors as well.

So, it was a really fascinating experience, and I think the core of our recommendations was that it is complicated, that there are things that have to be balanced, that access without paying attention to issues surrounding version of record, surrounding preservation, surrounding interoperability among things isn't worth very much, and that if really robust policies are going to be developed, they have to balance all of these different issues. But, I will leave you to find the report yourselves and read it. I commend it to you. You can make up your own

minds about what we thought of it. But I thought I would use that as a way to kind of kick off the discussion, and we're almost two years since the report was issued. As you guys reflect back on it, what do you take from it? Were we successful? Has it made some kind of a difference? Where do you think things will go from here?

Paul: I don't know. I'm a college professor; that's how I answer all questions. So, I think it was extremely useful because the group of people it got together were able to develop a sense of what each other and each other's kinds are up to. I'm hopeful that in time it will prove useful—and Fred is more on top of things in Washington than I am, and he can comment—in actually helping to be a guide to develop policy around public availability of publicly funded work, which was the original motivation.

I glanced at the report because I knew I was going to be on this stage this morning, and yep, it still seems right to me, and there are a useful set of principles that are articulated in a number of places that I think are helpful as librarians, publishers, societies try to grapple with issues. I just want to say the most useful thing that I keep drawing out of it, and also out of other work, is the remarkable heterogeneity of ways in which things come to be published in different disciplines, different subdisciplines, in different groups of people, and if one doesn't recognize that, one starts out in very serious trouble. So that message, I think, is one that is worth articulating at the beginning every session with when discussing these issues.

Scott: Yeah, I think that since I come out of so much of a health sciences background, that is very much STM, but even the medical and the physics issues were so different, and then you start to bring in...

Fred: And the social sciences...

Scott: and then when you bring in those issues, and I think that was one of the things that we really came out with, you can't just come out of one set of cut and dried policies.

Fred: Well, if you ask me, and I'm a physicist by training, of course, we never say I don't know. We have a very nuanced way of answering questions,

and I think my opinion of the Roundtable is it had two effects. I believe it changed the tone of the debate on public access. I actually had 30 years of practicing physicist so I...

Scott: I thought you were younger than that.

Fred: I wrote papers, I reviewed them, I became an editor, I didn't really understand the business of publishing, but in my 30 years at three different academic institutions, I loved my librarian. You folks out there were very helpful to me as a practicing scientist. So then I am appointed the head of a modest sized publisher. AIP publishes about 15,000 articles a year in our own journals, and I had to understand the business side. My first impression was for 3 1/2 centuries publishers and librarians have worked together and for the last 10 years, because of this public access debate, here were these two groups of absolutely necessary collaborators having this fractious debate. And that was one of the reasons I thought that it was important that we try to put together a group like the Roundtable.

So, did it have an effect? I think it changed the tone of the subsequent discussions. If you see the IFLA statement came out on public access after that, the Chicago Collaborative that Scott's been very involved with, the PEER Project that the STM organization and EU put together. It has attempted to put data behind some of the questions. And in our six months of analysis, we couldn't answer all questions. In fact, most of what we did was ask ourselves additional questions in terms of what should be answered. But, at the second level there was an effect, because as Paul mentioned, we had a set of principles we all agreed upon, we had a set of recommendations that most of us agreed upon, and those recommendations actually showed up pretty much intact one year later in the America COMPETES Reauthorization Act in 2010 signed by the President last January. Many of us in the science community hoped that actually that would help keep the funding of science healthy. That remains to be seen. But, one section of that Bill, section 103, deals with public access to the results of publicly funded research, including publications and data, and that's the law of the land, and what's happened since then? That subsequent language directed the other agencies that fund research above \$100 mil-

lion dollars, and there are 11 of them, to develop public access policies and pay attention to a lot of the things we've put in the report: interoperability between platforms, careful methods of preservation, the fact that there are big differences between disciplines, biomedicine to the hard sciences to the social sciences, and it directed the agencies to interact with the same cohorts that we had on the Roundtable: librarians, research institutions, and publishers, profit and nonprofit.

We can argue whether that engagement has happened, but the end result is starting to show up—I'd say the next result, rather, because there is never an end result to this—in that that legislation required the Office of the President's Science Advisor (OSTP) to release some overriding principles that these policies could be hung on. And just today in the Federal Register, the OSTP is putting out a request for information on scholarly publications and data, and you would think that maybe this is just kicking the can down the road to another set of events, but, it says more than that -it largely picks up much of the language from the Roundtable report and the COMPETES, and more importantly, it does direct the agencies to develop detailed policies that are discipline specific. So I think in terms of the soft goals of changing the debate and the harder goals of actually getting some work done in Washington, we did have an effect.

Scott: There were so many things that came up during those discussions that I found really illuminating, and, again, I think just getting these people in the same room to talk and to hammer this stuff out was helpful, but one of the things was that this version of record issue went around a lot, and I have personally been concerned that the institutional repository mandates focus on the author's final accepted manuscript. This may be okay for an immediate need, but the concern is what happens down the road with changes and whatever. But when we were talking last night, Paul, you were talking about some stuff that you're seeing in the humanities and social sciences in which the whole concept of the version of record may be shifting.

Paul: Yeah, so let's take a hard problem and make it impossible. It's that department that many of us have spent parts of our careers working in. The ver-

sion of record issue is already complicated by the fact that we are now producing essentially everything electronically, so the version of record often sits on servers that may or may not go away for business reasons, for all kinds of reasons. You can lose the version of record in this world even when its content is nice and stable much more easily than you could lose it in the world of print, and that's an issue that I think we all need to work on. There are various solutions out there, but wait, it is much worse than that! Because it is now the case, in the unhappily named "digital humanities," which might more happily be named "humanities in the digital age," there often is no version of record. The continuing interrogation of the text and commenters on the text and multimedia objects that aren't text is part of the mechanism of production of the work, really, and more and more of this is happening in lots and lots of places. You know, geographers and literary critics are hanging out together with historians trying to put together multilayered objects of various kinds that are publications in the sense that they are definitely scholarly ways in which scholars are making public their ideas. The interactions amongst them are important, and often there is no stable final result. The process doesn't stop, or if it does stop you don't know when it stops, and I think that librarians are of mixed mind on this. Some of the most progressive librarians I know have the point of view, "Look, at some point it stops, and then we will put it in the library and it will all be good, it will be well cataloged, it will be well described, we'll be able to find it, we can search it." But, if it doesn't stop, what is the library's role? How do you tell the difference between the library that is trying to capture this stuff and make it available to its clientele, and the publisher who is producing this stuff? The library and the publisher begin to look very similar and perhaps, in some cases, also indistinguishable from the authors because the medium itself, (I won't say "the medium is the message." I promise never to say that), but the medium itself, the media themselves are part of what's going on. So I think that this is a hard problem for academic libraries. Do we want to preserve the entire record? Do we want to sample from it at given times? What's our sampling theory? I think this is new, fascinating, difficult territory.

Scott: It's, from a health sciences standpoint, it's something that I think my community has been very alert to ever since we started seeing things like the UpToDate product coming out, because every academic librarian is aware of the lawyers coming in, and they want the 13th Edition of Harrison's because some doctor is being sued, and they want to know what was the standard of practice at the particular time that a particular procedure was done. And so you go to the standard textbook that was the standard textbook in that year. Well now do you know what day they went to UpToDate? So it becomes more and more complicated in order to address these. It makes me think a little bit, in going into Fred's area, of the example of the ArXiv where you have work that appears in the ArXiv at many, many stages, some of it may be an almost preliminary piece, some of it which has gone through a great deal of internal review before it ever gets posted, then there's an opportunity for more stuff to happen on it. But then of course, one of the things that's fascinating about that is while the ArXiv has been successful in its own way for a long time, and is often used as an example of where scholarship might go, traditional publishing and physics continues to be robust. Why is that?

Fred: That is a question that I get often. It is a very interesting example of the coexistence of the ArXiv and formal publishing physics community. But physicists have this habit that goes back, I won't say to parchment, but it certainly goes back to the mimeograph machine where they routinely sent around early versions, even preprints, to their collection of colleagues asking for comments, and the medium has just been replaced from mimeo, to fax, to push the button on your forward key. And of course the ArXiv was a joint expression coming out of the high energy physics community, which is a very well-knit community who works on very difficult, very expensive problems. So they have now a half-century culture of working together on difficult problems, and some of you, I'm sure, have seen some of the famous papers that are four pages of authors with one page of discussion. A 1,000 author paper coming out of the Fermilab or the Large Hadron Collider is not unusual. And then there is the whole question of what does it mean to peer review a paper with that many authors? Is there anyone left in the field who can do

it? And how does it get done internally, in fact, because you're talking about U.S. taxpayers who have paid for these very expensive experiments—there is a lot of data, and it goes through internal rounds of peer review on the data, on the methodology, and then it goes out there, usually first on the ArXiv, but then you'll watch the progression. Eventually, that work is published in one of the small subset of high energy physics journals. There are only about a half-dozen of them. But those ecosystems are completely coexistent. The ArXiv only publishes about 20% of physics, predominantly it would be these very large group activities, but you also see it used for a few other things.

In an interesting case last year of a complicated mathematics article being put on the ArXiv, and the solutions developing in real-time, as you described, with sociology and just last month many of you saw the press conference at CERN for a group of neutrinos that may have traveled 600 km from Geneva to Gran Sasso 50 microseconds faster than the speed of light. Most physicists, if you ask them say “Well, we’ll stick with Einstein.” But, that I thought was a model of modern science and new tools, where that group of scientists completely put out all of their analysis, all of their techniques, and then they asked the physics world to critique. So, eventually that will show probably up in a physics article and a version of record will be declared.

Paul: Just a comment on this, my field of economics is like physics not only in that its practitioners often exhibit a modicum of intellectual arrogance, but also in that it has always had a preprint culture. So circulating working papers, getting ideas out into public view long before they are formally reviewed is common in economics, in physics, and in some other fields, but it is unthinkable in many other fields. I watch a colleague of mine who is an economist in a public health school. I see an economist who wants to get his stuff out there, but since he is in the public health-NIH-doc world, you keep it very, very close until you publish it. As we think about how we interact as publishers, librarians, and scholars, recognizing these really powerful differences in local culture is important, and we shouldn’t believe that just because a model works over here the same model is also going to work over there.

Scott: It makes me think, I hear two different and contradictory streams about what is happening with science and scholarship. One is that it is becoming more and more and more siloed. And the other is that it is becoming more and more and more interdisciplinary. And it becomes an issue for librarians in terms of trying to figure out why do we provide access to our communities? Because if we think of our research communities as these very, very small interlocked things, we think in one way about how we provide access. If we think about them as continually looking for information outside of their particular area of expertise, because they are branching out, it creates a different issue for us. So what do you see in the fields that you are familiar with?

Paul: Both. I'm going to use a football analogy; forgive me, for those of you who don't like football analogies. But, there is nothing more effective than trick plays off of an offense that basically runs 3 yards up the middle on most of its plays, so the siloed “do the next piece of work,” “calibrate the calculation to the next decimal place,” that work is extremely important because if you don't do that work very well, you actually don't have a basis for other stuff. But, then where is that most useful? It is often most useful when it jumps over into a different discipline and changes the way you think about that, and indeed as a problem of management of a library or a university you actually want to have both of those things going on and respecting each other all the time.

Fred: I would agree with you, Paul. PLoS ONE is an interesting example because the brand started out much heralded with the PLoS journals, but of course they had a business model that looked difficult, and by forming this very interdisciplinary, wide open journal with a different reviewing style, it is now the largest journal in the world, in three or four years. And, you could ask yourself, “Who wants to deal with the largest journal in the world?” And the reason you don't even have to concern yourself with that question is if you ask the academic community how they find an article, typically half of us start at Google and you go right to the article. You ignore the platform, you ignore the publisher, you ignore the journal title, and go right to the abstract landing page. Of course, this disturbs all of us working on those things on top of that because we're all putting

energy and resources into that, but, it actually tells us there is room for very circumscribed, niche work, and then there is room for the very grandiose articles that pull it together, and we all, as a collective—libraries, research institutions, and publishers—need to be working on search tools, accurate search tools, and discovery tools that enable authors and readers, our primary customers, to find things like that.

Scott: To my mind, PLoS ONE is the first real game changer in thinking about journal publishing because of the way that it has shifted the concept of peer review. Clearly, the rest of the publishing community sees the PLoS ONE model as an opportunity, and we now have four or five alternatives being backed by very, very smart organizations.

Paul: Blatant clones, actually...

Scott: Blatant clones, and so one wonders, “What's going to happen to the rest of the journal space?” And I can speculate, for example, that, depending on my field, the typical thing might be that I send it to *Nature* or *Science* or whatever would be the top journal, it comes back from that, I go to the next one, I go to the next one, I go to the next one, and eventually it finds its home. If, on the other hand, there are several options that do technical peer-review, and I'm reasonably confident that my journal or that my article is technically sound, I may still send it to one of the top tier journals first because I want that brand authority, but, if it comes back from that, then I should just send it to PLoS ONE or one of the PLoS ONE clones where my chances of getting published are greatly increased. So, does that impact all of the mid-list journals?

Paul: I expect vertical alliances. I actually like the idea of vertical alliances. There are some journals that do this. BE Press, which has now gone to De Gruyter, and who knows what's going to happen to it, has in many of its journals a set up where you submit an article and it can be called a whiz-bang advance, a contribution, a PLoS ONE-ish thing, they've got various different categories. It gets reviewed once instead of having to get reviewed three times as you work down the tiers, and they'll actually publish it but they'll put different headlines on top of it depending on where they think it falls in

the standard set up of importance and that's really quite efficient.

Well, you could do that, in mid-tier journals—you could set things up so that if people submit to the top journal on the list, there is a sort of offer, “No, we're not going to publish, but, we have a relationship with so-and-so and they would be happy to publish it,” and that strikes me as really a pretty good idea. Because what you want to do is get the ideas out there. As Fred pointed out, half the time people just go find the article anyhow, they don't care what journal it's in, and then the post-publication peer review, which isn't being used in the development of the field, which is the most important review that we do, is facilitated because we get there faster and more efficiently. I would love to see the ecosystem move in that direction. I don't have any ideas on how, but, it looks like a good idea, so I'm sure it will happen.

Fred: I like the word ecosystem. I think it's just another corner of the ecosystem. This style of journal will coexist with the more traditional ones and three or four years from now we'll be looking at different things. And the diversity of this field is one of the things that I admire, that we have 25,000 different journals and we continue to get new titles. Those of you have to pay for them, by various means, I'm sure are worried about that, but, the best survive, ok? Journals that don't meet the cut get cut. With the mechanism that you described, Paul, we actually were one of the blatant clones of PLoS ONE in March, because if you looked at PLoS ONE, all 7000 articles, it's 90% biomedicine. I actually have a minor in literature at a little trade school called MIT. I had a one semester course that was guest taught by Lillian Hellman, and she told the students that “good writers borrow and great writers steal,” okay? And many of these ideas are not copyrighted or patented, and when you see a good idea we run with it. So, we started a PLoS ONE-like thing in March and we've already had 200 acceptances. And we do tier it down because we looked at our journal suite, and a particular journal that has a brand, that's been around for a while has an editorial bias, editorial preferences. We did a study of 1,000 articles that were rejected by one of our premier journals and found that 40% of them showed up in other premier journals. And that

meant that some part of the peer review process was being reproduced and paid for. So, we decided to connect to PLoS, our version of PLoS ONE, called AIP Advances, to our standard journal suite, and the editors actually collaborate so that if an article is rejected purely because it is not a first-ranking advance in the field but the science is good, then we tier down and save that effort.

Scott: I do want to mention again by the way that if anybody has a comment, question, suggestion you need to go to the microphone, you need to interrupt, otherwise we're just going to keep chattering away up here. Some of this discussion reminds me, it sort of links back to what Michael Keller was talking about yesterday in terms of linked data. I mean, the thing that worries me about the PLoS ONE type of thing really is the findability. And Clay Shirky talks about how we just need better filters. I'm not convinced that that's exactly the right way of looking at it. Nick Carr uses the metaphor that the problem is not that we are trying to find a needle in haystack, it's that we have to haystack sized pile of needles. There's so much stuff that is of interest being published now that the challenge is not how to find the interesting from the uninteresting, it's to go through the interesting and find the stuff you really need because you've only got a limited amount of time, and Google is not going to address that as far as I can see at this point. So can we, using things like semantic technologies and these new tools, come up with some better systems? And we have a person at the microphone at this point, so I'm going to ask you to jump in.

Audience Member: To complicate things a little bit, I look at how our students are using technology, because they're going to be the next generation of scientists. They're all hooked into PDA's, they're very social, and they share very small thoughts at this point, like "I'm shopping." Oh good, you enriched my life. But, when they're scientists one day, they want to have a social connection to every little thing they do. So are these documents going to have another dimension of workspace, a social element, that scientists across disciplines can hurry up and get together instantly because there's a link on the document of record that says "Connect with me and tell me your thoughts, no matter who you are." And some of it will be wonderful, and some will be

weeds in a pile. But there will be a mechanism and a new dimension for this new environment of sociability.

Scott: Yeah, we have a small project going on at UAB trying to deal with the issues surrounding preservation of data. There was a lot of talk about this yesterday and Liz Lorbeer, who's my person working on that, says that data has to be social.

Fred: I would agree with your assessment that the generation that grew up wired, and can't live without a wired or wireless device, is going to work very differently. And I think most publishers and most library systems are looking at how to incorporate these tools. It will be a continuous process, particularly trying to find the areas that will be useful for the profession and divorce that from, "Where am I going to eat tonight?" You see these things evolving and they will be incorporated. We try, as a science publisher, to occasionally go into a university and buy a group of students a pizza, and sit them down in front of their terminals, or their iPhones, or their iPads, and just ask them questions. How do you work? We think it's a very important part of customer feedback on developing tools, because, as I said earlier, our most important customers are either the authors or the readers. The rest of us serve those two communities.

Anthony: Could I come in at this point, because this is an area that we've done research on, and I'm speaking on behalf of CIBER Research and rather than University College London, and we did research which was exposed first at the Charleston Conference last year on the use of social media. We've done focus groups, and we've done quite a lot of publications on this area, and it looks to us as if the use of social media actually is just reinforcing the existing networks. So most scholars are using social media to improve their performance among their collaborators, to improve the interaction with their collaborators, but it's not actually getting out widely outside those small groups in which most scholars work.

Paul: Yes, so when Google Plus came out last year, a number of my colleagues started putting up posts in some Google Plus circles of the form: "Here's the most interesting thing I've read this week." "Here's

this cool idea by so-and-so.” “I don’t believe that this coefficient can possibly be true,” the usual stuff that academics say. And so it’s extremely useful, there are exactly the people that I would’ve called up anyhow, but now they’re doing it in a sort of automatic way so that’s a helper. It’s conceivable that the next generation will do it in a somewhat different way. What you seemed to be asking was: Would we then carry around in the article information about who had made these comments, or where such comments had been made? That’s an interesting notion.

Audience Member: What I was thinking about was a document workspace, like maybe Google Docs, where if people wanted to participate they could have this little link or mechanism that would create a dimension of sociability around that document. Just a “what if,” you know, it’s there if you want it; jump in from archaeology into physics. You could say, “I’m out here, let’s get together. Where are you? Are you still at Brandeis?” So it would encourage these unlikely relationships. These people around the mimeograph all worked at the same place, but we’re so global now. I could be in Singapore and I see that you’re in Massachusetts, and I want to get to you right away, I don’t want to have to Google you and call the institution. So just a way, not exactly as personal as, you don’t want people calling you at home and saying “Hi, you don’t know me, but I’m in your backyard.” It would have to be thought out, but just a potential workspace attached or a mechanism...

Scott: So, to follow what Anthony was saying, the types of interactions that may happen through social networks are the same types of interactions that happen among colleagues now. But what you’re suggesting, and this makes sense to me, that the use of social networking may enable researchers to broaden that circle of colleagues beyond what has been practical without those tools. You now may be able to foster more interdisciplinary things that are more difficult to achieve without those tools.

Fred: There is an interesting example of just the thing you’ve been suggesting. A small company called Collexis started something called BioMed Experts. It was a work tool, a social tool, for some-

one interested in a particular biomedical technology to contact someone else and to form networks. That technology was absorbed by Elsevier last year, and they’re integrating it into their platform. We have a version of that for the physics community. We view it as an experiment on how to develop such things. We call it “Uniphy” and it connects all the authors of any of the papers that are in this database. It’s particularly useful for editors and reviewers who are looking for a reviewer that is not a recent co-author. Six months ago, we established a work group platform in there for people working in a particular field to share data. I would say that it’s not too successful yet, but one thing that I admire about this field is that we’re not afraid to experiment and we’re also willing to say, “That didn’t work, we’ll try something else.”

Scott: I’d like to make the point that my view of where we are in the digital space is that we’re a long way—at least a generation or two—away from a mature digital culture that parallels the mature print culture that we all grew up in. And what that should do is give us tremendous freedom to experiment because we’ll never know if we got it right.

I’m keeping an eye on the clock, and not surprisingly I’ve not gotten to all the questions I had. So, I want to shift gears a little bit because I want to draw a little bit on Paul’s economics expertise.

One of the things that I’m interested in—and this goes back to Bob Darnton’s comments yesterday on the Digital Public Library of America— is something you’ve been involved with Paul. We’re now seeing in the wake of the Google Settlement collapse a number of initiatives to try to build on that and develop large, publicly available databases of stuff. There’s a lot of interesting work being done and the presentation yesterday highlighted many of them in a detailed way. It seems to me that the technical challenges, which are very fun and very interesting, are very solvable. What I’m less certain about are the economics and the legal issues involved in dealing with copyright and dealing with the traditional economics of publishing, and how all that fits in. I’d be interested in hearing your thoughts on that.

Paul: Well, I’m not sure I can respond in less than four hours. I think you’re exactly right; the technical

problems are not enormous. We've actually gotten really good at copying, maintaining, transmitting around big files, keeping their integrity, and so on. I think the big issue is "What would a Digital Public Library be?" If it really is a public library, if any member of the public can go to this thing through some portal through which he or she has legal access, and acquire and use the materials, that's open access city. Which means that requires a set of prepayments, subscriptions of various kinds. I don't know what the legal arrangements would be, but for in-copyright work, which is what public libraries mostly have, it requires an extremely different set of arrangements than anything we've seen. One could imagine it, one could imagine arrangements under which this entity, or this set of federated entities, would pay publishers, authors, everybody in the chain, to provide this kind of access to everybody in society, but wow, does that look very, very different from anything we've ever seen!

Scott: One of the points that you made repeatedly during the Roundtable is that there is enough money currently in the system to do what the system does. So we can do open access with the money that's currently in the system, but it's going to have to flow in really different ways.

Paul: That impossible problem, which is getting the entire scholarly and academic literature available to the world, there is enough money in the system for the system to do that. I don't know what the incentive structure would be to cause individual Provosts to continue to write annual checks in the \$10-20 million range if the stuff were freely available anyhow. But even that is a much easier problem than the problem of public libraries generally, which are in a different commercial space of books that sell to a much broader audience. And so that system is not clear, because that system is not producing things digitally mostly yet, although it will. So I can imagine what the Digital *Scholarly* Library of American might look like, and the Google Settlement at one point gave us the notion of what that might look like, at least for monographs, but if we're genuinely going to replicate what public libraries do, I think it's a new kind of institutional arrangement that we haven't seen and I don't think we're there yet.

Fred: My advice is to keep people like Paul involved in this problem because he's an economist, he understands money flows, he understands costs, and a lot of the discussions, which vary from insightful to noise, ignore the very basic facts of who's going to pay for a certain service? Anybody can be a publisher. I can pick up my iPhone and in five minutes put a publication out on the cloud. But someone else has paid a lot for that infrastructure, and the infrastructure of your libraries, of public libraries, of the electronic communications infrastructure that allows that communication are paid for by somebody. Usually it's a hidden overhead on someone's tuition, or your taxes for a fraction of that. And if you're talking about rearranging the cost structure and the benefits, that has to be a very important part of the equation and it's often missing in these discussions: who pays? And models where nobody pays are problematic. Now, you've heard me wax on about the ArXiv, the ArXiv for all its benefits, doesn't have a working business model right now. Its infrastructure, they will admit, is a decade old and they've been searching for ways to keep it funded and it runs into the same problem that Paul hinted at. If only a small fraction of the community pays for it, the rest of it doesn't. And that doesn't seem like a good way to proceed. It's such a good idea that we'll figure out a way to do it, but these kinds of discussions have to involve someone with Paul's expertise.

Paul: Well, let me turn that back to everybody. The academic world is pretty good at everybody collaborating with each other, and they're good at sharing with each other. The digital technologies actually make it easy to share. If we can take that digital collaboration and turn it into sharing, then there is enough money in the system to do what the system does for scholarly work, and that strikes me as an almost workable goal for us all to be working on. But the other piece of it, the work that we do that other people don't care about very much, is preservation. And we should remember all the time that the mechanisms that made access and preservation inseparable for millennia, or at least a millennium or so, no longer make them inseparable and they will separate if we don't make the effort to keep them glued together. (Invest in the drachma, by the way, is my economic advice.)

Scott: I'm keeping an eye on the clock, and I think that Anthony is going to say "time." Okay, so we've got a couple of minutes, and we could continue on like this for a long time. I think one of the things that has been encouraging to me and enjoyable in my discussions with both of you is that you both seem to be tremendously optimistic about where we're going. And despite the various challenges that you face in your organizations, and despite that challenges that you see us facing, you seem to be having a good bit of fun doing what you're doing. Is that accurate, and where do you see the bright spots for all of us as we move forward?

Fred: Yes, most of the time it's fun. Like any other job, there are days you'd rather forget, but going back to our first question about the Roundtable, I think that this diverse group of people that had a wide variety of opinions got together for six months, we actually wrote a report that we hid for six months and we were in Washington, DC, so that's pretty amazing. But that, I think, pointed a way for us to work through these problems, as difficult as they are, and I think probably the most important lesson I got from the Roundtable is put the different stakeholders involved in a situation where they can have a reasonable conversation and we'll work out solutions on that. The fact that we all agreed on a set of principles for the enterprise of scholarly publishing was very important, and deeply embedded in one of those principles was the intrinsic value of peer review, which will remain even as we dance around different ways of doing it.

Paul: So, what keeps me optimistic, here are the basic economics of the digital age: It's very inexpensive to copy and distribute work. That's good for the world. It's cool, and people do very interesting things with it that we don't imagine when we produce the work, because when it's copied and distributed it's now in a form where it can be recombined and remixed, and you can do things with it that were unimaginable before. All kinds of legal issues often arise, and that makes it more complicated, but more and more people want to do cool things with the basic data of scholarship. And the other thing is, every day, someone on the faculty, some student, somebody way out in the boonies that's gotten to our website one way or another,

comes to me or comes to our librarians and says "I found this thing!" or "Your people helped me find this thing, I had no idea there was this book that my great-great-grandfather wrote in 1873 and here it is and I can get a PDF of it this way or that way, and can you help me?" And we say yes, and they do it. And how can you not be optimistic in an environment where people are so enthusiastic about what you're doing?

Scott: Okay, I'm going to leave it at that. Thank the two of you so much for coming. This has been great. And thank all of you for coming out early and listening to us talk!