

Transcript from the
Dean's Symposium on Social Science Innovations:
"Truth Decay"
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Division of Social Science
Faculty of Arts & Sciences
Harvard University

[00:00:00.77] LAWRENCE BOBO: Good afternoon, everyone, and thank you for joining us this afternoon, for the second dean's symposium on social science innovations. This session is being recorded, just to remind all of you of that taking place.

[00:00:18.50] LAWRENCE BOBO: The ambition of the symposia is to both increase the level of deeply intellectual colloquy and exchange across the 10 units that constitute the division of social science as well as to reinforce our sense of common purpose in serving the academic mission of Harvard University. Someday in the future when the constraints imposed by the COVID19 pandemic era are finally rendered more routine, or endemic, and we can all once again mingle in large groups, we will add a genuinely social dimension to these events: That is, enjoying such things as soothing live music, good food and drink, and casual conversation will be brought into these engagements.

[00:01:05.84] LAWRENCE BOBO: This afternoon's topic is fighting truth decay.

[00:01:10.31] LAWRENCE BOBO: I very much suspect all of us have witnessed a level of contestation over scientific claims, even sometimes observations of seemingly obvious facts, or as is now emerged, alternative facts, that [is then literally bewildering.

[00:01:27.69] LAWRENCE BOBO: Perhaps the signature case in point is the worrisome corners of resistance to the now longstanding consensus scientific case for global warming and the contribution of human activity as a major element in climate change.

[00:01:41.99] LAWRENCE BOBO: There are many signs of wider social concern with this problem as well and, in part, to help frame our discussion today I'll just quickly point out three recent examples before introducing our panel and outlining the strategy for how we will proceed. And, Jennifer, if you would let me share my screen, I would attempt to do so. Okay share screen... Gotta go here... And voila.

[00:02:19.84] LAWRENCE BOBO: Three years ago, the Rand corporation, one of our leading social and behavioral science research groups literally decided to issue a major report on truth decay.

[00:02:32.19] LAWRENCE BOBO: It was co-authored by one of the organization's lead research scientists and, as well, by its President and CEO, Michael Rich.

[00:02:41.59] LAWRENCE BOBO: The report boldly declared that America's reliance on facts to discuss public issues has declined significantly in the past two decades, leading to political paralysis and collapse of civil discourse.

[00:02:57.88] LAWRENCE BOBO: They offered a serviceable definition of what they meant by truth decay, which may serve for some purposes, this afternoon, they say it involves an increasing disagreement about facts, a blurring of the lines separating fact from opinion, an increase in the relative volume of opinion and personal experience over fact, and declining trust in formerly respected sources of factual information.

[00:03:31.06] LAWRENCE BOBO: The report itself, nearly 400 pages in length, delves at length into the historical background pertinent to such a set of claims, including going through other episodes in our past of, of, episodes of fairly serious truth decay, as well as trying to point to several causes and then issuing a call for action.

[00:03:59.06] LAWRENCE BOBO: Their analyses, with respect to causes, pointed to four things: our natural mental habits as one source of this truth decay; changes in the US and, quite frankly, global, information ecosystem that have come rather rapidly of late; the competing demands on our educational system that have contributed to a very limited ability to keep pace with that changed information ecosystem; all of this taking place in a context of rising economic inequality, sociodemographic diversity, and attendant patterns of political polarization.

[00:04:41.77] LAWRENCE BOBO: I think, again, one strong sign that truth decay is something we need to be concerned with: when an organization heavily dependent, in fact, on government contracts declares that a lot of nonsense is getting in the way [chuckles] of us dealing with the facts of the situation. A second illustration in point can be drawn from a recent Kaiser family foundation survey regarding inaccurate beliefs regarding the COVID19 vaccine. In this national survey, with the data [that] were collected this October, they asked about eight circulating falsehoods regarding the COVID19 pandemic and vaccines that we've now hopefully all benefited from. Some of those beliefs were: that the government, for example, has greatly exaggerated the number of deaths; that the vaccine is shown to cause infertility; or that vaccines contain a secret microchip that's being inserted into individuals.

[00:05:46.53] LAWRENCE BOBO: The single most commonly accepted belief--by almost two out of five Americans--was the claim that the government is literally exaggerating the number of deaths. And, a really tragic four out of five have heard and say that at least one of these erroneous claims may well be true.

[00:06:07.95] LAWRENCE BOBO: A distressing set of circumstances, especially given the level of discourse around COVID that has been a part of our news programs and daily lives in recent years.

[00:06:18.62] LAWRENCE BOBO: A third quick illustration of the importance of this general problem or condition can be found in a recent publication, the Pew Charitable Trust Trend Magazine, where they featured an editorial by Sudip Parikh, who is the CEO of the American Association for the Advancement of Science, who, in a very passionate declaration declared, "When the history of our current moment is written science will be central to the story. In the crucible of" -- and he really was saying 2020 -- "did science rebuild the societal trust needed to defeat the coronavirus, or did a break in trust lead to a lingering pandemic that foreshadowed future failures to solve the coming crises of climate change, food and water insecurity, and economic stagnation? Historians will consider what led to this pivotal moment in the relationship of science and society and how it was resolved."

[00:07:19.41] LAWRENCE BOBO: The essay, which is short, but engaging, says that, in general, science does enjoy a relative degree of confidence though there's less certain faith than might have been true in the past. That,

[00:07:32.93] you know, weakening of faith but, but not tragically so, involves in part the growing distance between the processes and discourse of scientific inquiry from everyday life of many individuals.

[00:07:47.73] LAWRENCE BOBO: It involves the very nature of science, that is, hypothesis testing, trial and error, and an approach to building knowledge, rather than having quick, instantly revealed knowledge. And also, to a legacy of instances of bad science, ranging from things like.. like, the, the misguided Tuskegee experiments to highly publicized instances of the falsification of results.

[00:08:12.13] LAWRENCE BOBO: Now he says, there is a generally strong foundation for the regard of science, but a lot of an intense challenges and pockets of resistance that remain out there. So that at the, oops, end of his work he asserts that scientists and society must work together to ensure that this time of uncertainty and upheaval leads to a new era of solutions that enrich the lives and well-being of us all.

[00:08:40.70] LAWRENCE BOBO: And it is in part in service of that ambition that we hold the symposium today. I am delighted that three of our colleagues have will agree to be panelists in this discussion, who will each bring very distinctive insights and information and lenses to this question. I'm going to begin with a set of short introductions for each of each of our panelists, and of our session discussant and rapporteur.

[00:09:09.90] LAWRENCE BOBO: Each of the panelists will have about 15 minutes to present their take on these issues. We'll follow each presentation with a couple of questions, and we hope you will submit your questions through the chat at the end of each talk; and then we will turn to the next speaker, again go for about 15 minutes, take a couple questions, go to the next speaker, and then at the end we'll have our wrap up discussion and then move to more open Q&A, again via the chat through Zoom. So, to our three distinguished panelists: First we'll start with Naomi Oreskes, who is the Henry Charles Lea professor of the history of science.

[00:09:56.22] LAWRENCE BOBO: Her work focuses on the history of environmental science, science and religion, technology and society, and women and gender studies. She is, of course, a member of our history of science department and is affiliated with the department of earth and planetary science.

[00:10:12.34] LAWRENCE BOBO: Our next speaker will be Steven Pinker, who is the Johnstone Family Professor of Psychology. His work focuses on language, communication and common knowledge, history and the psychology of violence and the broad-gauge issues raised at the intersection of language and language acquisition, including the neurobiology and genetics of language, mind, human nature, and human social relations.

[00:10:39.38] LAWRENCE BOBO: Ed Glaeser is the Fred and Eleanor Glimp Professor of Economics and currently Chair of the economics department.

[00:10:45.97] LAWRENCE BOBO: His work focuses on the determinants of economic growth, of city growth, of law and economics, and especially on the role of cities as engines of idea transmission and human development. Our discussant and agent provocateur, wrapping this up and away, will be Dan Gilbert, who is the Edgar Pierce Professor of Psychology.

[00:11:10.68] LAWRENCE BOBO: His work focuses on how well people can predict the emotional consequences of future events, on when and how people sacrifice for the future, and other topics in judgment and decision-making. Dan seems especially appropriate to today's panel inasmuch as his work wrestles, in many respects, with a simple fact [chuckles]: The world is not always as it appears to us. And he uses science to uncover the illusions people have about the world, themselves, and each other. And so, with that introduction I will stop sharing my screen and turn things over to Naomi Oreskes.

[00:11:57.21] NAOMI ORESKES: Thank you so much Larry, it's really a pleasure to be here with everyone So, I'm going to share my screen. [pause] Okay, I think that worked; can you see that?

[00:12:12.77] LAWRENCE BOBO: Yes, yes.

[00:12:13.60] NAOMI ORESKES: Good, excellent, okay, well again, it's really a pleasure to be here to talk about something that's obviously very close to my heart, and has really been a centerpiece of my research for quite a few years now, particularly with respect to the rejection of scientific evidence surrounding climate change.

[00:12:27.61] NAOMI ORESKES: So, I want to start, though, with something that might be surprising, which is to push back against the idea that there's a general crisis of trust in science.

[00:12:36.87] NAOMI ORESKES: Certainly, this is what the media have told us, including the science media. Nearly all of us have seen headlines telling us that there is a crisis of trust in science. Kathleen Hall Jamieson recently affirmed this impression that the crisis narrative has been heavily fueled by the media.

[00:12:55.21] NAOMI ORESKES: So, there are two issues here that I'd like to address that are related, but not the same. One is the possibility of a crisis in science, that science itself is broken.

[00:13:06.55] NAOMI ORESKES: And the other is the possibility of a crisis of trust--of public trust in science, in other words, how the public views science.

[00:13:16.65] NAOMI ORESKES: Now it turns out Oh, sorry, I feel like I just missed a slide Okay, neither of these is actually well supported by available evidence, so let me address the first one first.

[00:13:26.08] NAOMI ORESKES: It turns out that there's shockingly little empirical evidence that science as an enterprise is not working to produce science as knowledge.

[00:13:33.72] NAOMI ORESKES: So why do I say that? Well, first of all, just consider the events of this past year: In a very short period of time scientists were able to identify this new virus that was causing the COVID19 illness, and they did it by sequencing the viral DNA.

[00:13:49.96] NAOMI ORESKES: Now, this is a technology that did not exist when I was a child.

[00:13:53.98] NAOMI ORESKES: It's a science-based technology that has been developed within our own lifetimes, yet today we completely take it for granted, and we use it to do astonishing things.

[00:14:02.90] NAOMI ORESKES: And one of those astonishing things was that, within less than a year, scientists produced not just one, but several, vaccines with extraordinarily high levels of efficacy, and while we may now need boosters, overall the safety and efficacy is holding up as the evidence builds up.

[00:14:22.47] NAOMI ORESKES: Now some of you may be thinking well, but what about the infamous replication crisis? We've all heard, we all know that there's a crisis of replication in science. Well, do we actually know that?

[00:14:33.46] NAOMI ORESKES: There's been a lot of crisis talks surrounding this claim that large numbers of scientific findings cannot be replicated.

[00:14:40.83] NAOMI ORESKES: And to be sure, some scientific papers do turn out to be irreproducible, but this is hardly a new thing! My own introduction to science came in part in high school when my father, who was himself biochemist, bought me a subscription to the satirical Journal of Irreproducible Results, and I still, to this day, remember my favorite article, which was about how to handle data in science, which instructed the reader that two points define a straight line, but under duress one will do.

[00:15:11.65] NAOMI ORESKES: Now, okay, so getting serious, though: If we ask ourselves how widespread is this problem of irreproducible results, we know that there's been the claim that retractions and science are skyrocketing.

[00:15:25.73] NAOMI ORESKES: But this claim is problematic on multiple levels. First of all, as historians, we would argue that retraction, as both a concept and a practice, is actually quite new in science.

[00:15:38.38] NAOMI ORESKES: I would argue that in the past, wrong papers weren't retracted--they were simply ignored or refuted.

[00:15:46.61] NAOMI ORESKES: The earliest known retraction, the earliest documented retraction of a paper in Pubmed was a 1977 retraction of a paper published in 1973. So, we know that the practice of retraction is relatively new. What we don't know is whether error is more common now than in the past.

[00:16:03.84]

[00:16:04.17] NAOMI ORESKES: But we do know that the numbers of published papers is skyrocketing, so we would expect that if the error rate was the same, then the retraction the number Sorry, if the number of errors is the same, and the number of papers published increases, then the number of retractions should increase too; so, the relevant metric here is not the total number of retractions, but the retraction rate.

[00:16:28.50] NAOMI ORESKES: Now here we don't have a lot of robust studies, but two studies that I think are pretty methodologically robust.

[00:16:36.69] NAOMI ORESKES: One was done in 2013 which found an overall retraction rate in papers published in Pubmed between [19]73 and 2011 was one in 23,799, or .004%.

[00:16:49.38] NAOMI ORESKES: Another study done in 2012 concluded that the number of papers retracted because of fraud was increasing but the overall retraction rate was less than .01.

[00:17:00.58] NAOMI ORESKES: Now, no human system will ever be error-free, but if these numbers are even approximately correct, they do not indicate a crisis.

[00:17:11.45] NAOMI ORESKES: Now some of you may be thinking, but what about the Amgen study? There was a lot of publicity a few years ago about a study in 2012 by scientists at Amgen and Bayer who attempted to reproduce several highly cited papers on cancer research, and they were only able to repress... replicate 11%, which they described as shocking.

[00:17:32.37] NAOMI ORESKES: But was it really shocking? The papers were selected because they were papers that claim big surprising effects--in other words, the sample was highly nonrandom.

[00:17:42.87] NAOMI ORESKES: And we all know that big claims often turn out to be false, or at least to be exaggerated, and sometimes claims are surprising because they are wrong.

[00:17:52.51] NAOMI ORESKES: The Amgen study, moreover, was not actually a peer reviewed study! It was a "comment"; the study methodology was not revealed on the basis of its being proprietary.

[00:18:02.47] NAOMI ORESKES: So, there's actually no way for us to judge if it was a good study. In other words, this study criticizing other people for doing irreproducible work, was itself irreproducible.

[00:18:15.49] NAOMI ORESKES: So, I think these results suggest that our scientific enterprise is working well, that actually the error rates are low, and that bad papers are being identified and retracted. I mean, a certain degree of retraction is a good thing.

[00:18:27.80] NAOMI ORESKES: But what about this other question, the crisis of public trust in science.

[00:18:32.50] NAOMI ORESKES: Well, here, the data are a bit more mixed, but I don't think they support the claim of a general crisis of public trust.

[00:18:41.93] NAOMI ORESKES: If you look at a recent report from the American Academy of Arts and Sciences (the other triple A, S), about perceptions of science in America, they produced a result that I think many people would find surprising.

[00:18:53.66] NAOMI ORESKES: That fully 71% of Americans polled say that government investments in basic scientific research pay off in the long run.

[00:19:01.22] NAOMI ORESKES: That sounds to me like a lot of trust in science as an enterprise.

[00:19:04.57] NAOMI ORESKES: And sometimes people make a big distinction between science and technology, saying, well, people like technology but they don't understand its relationship to science--but 72% think we should invest in technology. So, in other words, the confidence in science and confidence in technology are essentially the same.

[00:19:23.82] NAOMI ORESKES: Moreover, and here's another result that I think will surprise many people, if we look at evidence from the General Social Survey that compares trust in science to other institutions, what we find is that science is one of the most trusted institutions; only the military exceeds science in public trust.

[00:19:43.44] NAOMI ORESKES: And that is actually a relatively recent phenomenon. Throughout the 70s, 80s, and 90s, it was science that was the most trusted of these major institutions.

[00:19:52.91] NAOMI ORESKES: And, moreover--and this, I think, is the most important thing in this particular slide--if we look at the data--so this is a longitudinal study going back to 1973--you can see that there's essentially no change in the level of public trust in science, so that's very different than the impression that many of us have that something dramatic and bad has happened in recent years.

[00:20:13.95] NAOMI ORESKES: And I don't have time to go into this, but data from other countries are, in most cases, fairly similar. So, what's going on? Why do we have this perception of a crisis of public trust?

[00:20:27.94] NAOMI ORESKES: Well, I think, and my own work speaks to this, that a significant part of the answer is that there is serious rejection of science in some quarters--rejection of some science in some quarters, and that's different from a general crisis of trust.

[00:20:42.78] NAOMI ORESKES: But it still matters a lot, because that rejection creates serious problems for schoolteachers, for public health, sorry, for public policy like climate change and, as we saw so clearly this year, for public health.

[00:20:57.04] NAOMI ORESKES: There are three areas that are very well studied: evolutionary biology, climate change, and the panoply of issues associated with COVID19 mask refusal and vaccine hesitancy.

[00:21:09.16] NAOMI ORESKES: All three of these fit the category that I call implicatory denial, and by that, I mean: When people reject science because of its either real or perceived implications, not because the science is weak or uncertain or otherwise inadequate, but because the science implies, or is interpreted to imply, things that some people don't like.

[00:21:31.26] NAOMI ORESKES: So, if we look at evolutionary biology, where we have quite a bit of empirical and ethnographic data I we know that many scientists, that is to say, biologists, think that the rejection of evolution is rampant and that it's mostly driven by religious people who reject evolutionary theory, because it conflicts with the literal meaning of the Bible, particularly the Book of Genesis.

[00:21:54.55] NAOMI ORESKES: The data do not support that interpretation. I don't have time to go into the details of this slide, but polls show that what people say about evolutionary theory is highly sensitive to wording, but only 18% of Americans reject evolutionary theory outright.

[00:22:10.74] NAOMI ORESKES: What the evidence does show is that this skepticism is not driven by a literal reading of the Bible, but it does involve views about the role of God in evolution and, more importantly, in our lives.

[00:22:24.46] NAOMI ORESKES: So, what we see from the evidence is that people who are skeptical of evolutionary theory do so because they reject what they see as its implications: that there's no God, that life is random and therefore has no meaning, or, as the former Senator Rick Santorum said, that evolution makes humans into mistakes of nature.

[00:22:46.29] NAOMI ORESKES: Well, I would argue that none of these conclusions, not one, follows. First of all, science does not, and cannot, disprove the existence of God.

[00:22:56.43] NAOMI ORESKES: Science does not tell us the meaning of life, and even though some people may be mistakes, science doesn't tell us that-- because these are not scientific questions, these are philosophical, metaphysical, ethical, and theological questions.

[00:23:09.95] NAOMI ORESKES: So, these objections arise from a mistaken conception of what a scientific theory can and cannot do. Now, admittedly, this mistaken conception has been perpetrated by some scientists.

[00:23:22.44] NAOMI ORESKES: But what this tells us is that giving people more data about evolution, for example, about how the eye could evolve through natural selection, will not address the source of their concerns.

[00:23:33.63] NAOMI ORESKES: A similar pattern arises in climate change: Many scientists think that skepticism about climate change is driven by uncertainty. I have heard many scientists over the years say words to the effect, "if only we could narrow the error bars".

[00:23:49.89] NAOMI ORESKES: And those of you who follow the IPCC know they have spent huge amounts of time trying to reduce the uncertainties, and to more clearly articulate the uncertainties that cannot be reduced or eliminated, but as in evolution, I think this mis-diagnoses the problem.

[00:24:06.93] NAOMI ORESKES: One indication of that is the huge degree of political polarization that has now been extremely well documented with respect to this issue.

[00:24:14.18] NAOMI ORESKES: We know that there's been a big increase in concern about climate change since 2009. We also know that almost all of that increasing concern is among Democrats or people who self-identify as leaning Democratic.

[00:24:27.83] NAOMI ORESKES: And this reflects a broader pattern of polarization between Republicans and Democrats on environmental issues. And something that's interesting is that up until 1990 there were definite differences between how Democrats and Republicans in Congress voted on environmental issues, but the differences weren't that great--but after 1990 they became a kind of complete and acute polarization.

[00:24:52.88] NAOMI ORESKES: An important point to point out here is that 1988 is the year the IPCC was created; 1992 is when the UN Framework Convention on Climate Change was signed; and 1995 is when the IPCC first said that the scientific evidence showed a discernible human impact on the climate.

[00:25:11.78] NAOMI ORESKES: So, while the science got more certain, the polarization got worse; in other words, polarization dramatically increased while the uncertainties in the science dramatically decreased.

[00:25:25.68] NAOMI ORESKES: Now in Merchants of Doubt, I spent well, I spent a lot of years trying to explain the sources of climate change denial, and I was able to show that, for many of the most active people involved in active climate change denial, it was rooted in market fundamentalism.

[00:25:41.45] NAOMI ORESKES: That is to say, a fear or anxiety or concern that government action in the marketplace to address climate change would compromise political and personal freedom.

[00:25:50.86] NAOMI ORESKES: And we were able to show through the historical record that these concerns were rooted in Cold War anxieties about containing communism, and the fear that government regulation of business was a backdoor to communism, so they saw environmentalist as watermelons: green on the outside, but red on the inside.

[00:26:08.46] NAOMI ORESKES: And we also were able to show that, while the motivation for this denial was mostly ideological, the money to support it and expand it and get out the message was mostly provided by fossil fuels and other regulated industries.

[00:26:24.66] NAOMI ORESKES: So how do we address this? Finding the answer here is trickier than the case of evolutionary biology because climate change really is a market failure, and in that sense, it really does challenge the belief in the magic of the marketplace.

[00:26:40.00] NAOMI ORESKES: The third example is COVID19, and I want to move briskly because I know I'm supposed to only take 15 minutes, and I don't I don't know how long the introduction was, but I'll do my best to keep moving. So what about the recent set of, of, issues around COVID19?

[00:26:52.41] NAOMI ORESKES: Well again, I think we all know that this issue is highly polarized politically; in fact, I would argue that even more than evolutionary biology and climate change, mask and vaccine rejection aligns with the radical individualism--especially mask rejection--the radical individualism that characterizes a good deal of conservative- thinking United States.

[00:27:13.31] NAOMI ORESKES: In fact, it aligns with a conservative political rejection of mandates generally and attracts with a general hostility towards what is often referred to as, quote, big government.

[00:27:24.35] NAOMI ORESKES: And we see this we don't have a lot of good empirical data now--it's too soon--but we certainly see this in the images from the anti-masking rallies where mask rejection is expressed as individualism and the defense of individual and personal rights. It's also expressed as a defiance of tyranny and as hostility to government, particularly the federal government.

[00:27:47.78] NAOMI ORESKES: What we see in all of this is that there is rejection of science, but it's not being driven by a lack of trust in science, much less by real epistemological problems in science.

[00:27:59.50] NAOMI ORESKES: It's being driven by theological, political, ideological, and personal concerns. So, what does this mean?

[00:28:07.65] NAOMI ORESKES: Well, for the vast majority of Americans who do trust science, the 70% or so, I think it shows, and we have -- I mean, if I had more time, I could show you the evidence on this -- but that facts do count. If anyone tells you facts don't count, I don't think that's right; I think facts count tremendously for the majority of us, and particularly for schoolteachers who are trying to do the right thing in the classroom.

[00:28:30.84] NAOMI ORESKES: So, this tells us that it behooves us, as natural and social scientists, to provide good quality information in formats that non-experts can understand.

[00:28:40.99] NAOMI ORESKES: But for the minority, that 30% or so who are motivated by non-empirical concerns, the outreach must recognize those concerns, particularly insofar as they may be valid. I mean, for example, I don't want the government telling me what to do either.

[00:28:56.80] NAOMI ORESKES: What won't work is just to give people more science, and by that, I mean, more facts, more empirical data, more arguments about how the eye could evolve, or more data about how we know climate change is real. Because the rejection is not caused by weakness or inadequacy in the science, giving people more science won't solve the problem.

[00:29:20.00] But because it is associated with these real or perceived implications, addressing the implications--the political, social, and cultural implications--may help. And it matters because if we misdiagnose the problem, then our remedies are likely to fail. So, just to conclude by cycling back to Larry's introduction, the burden is not on natural scientists to rebuild trust in their project, the burden is actually on social scientists to correctly diagnose it and to figure out solutions. Thank you very much.

[00:29:57.25] LAWRENCE BOBO: Thank you so much, Naomi, that was absolutely terrific and a tour de force. We have a couple minutes for questions if people want to submit something into the chat. I will happily pass it on. Well, I'll pose one quickly myself. How much of the, say, challenge we face in communicating about science in these times, would you say is attributable to both either how the media covers and reports on scientific discoveries and contributions, and how they frame or package the so-called crisis of science itself. And what are our vehicles, if the media is a key ingredient here, what are our vehicles for effecting that?

[00:30:59.26] NAOMI ORESKES: Well, the media is certainly part of the story, and I'm not an expert on media, so I tend not to want to just throw stones in areas that I don't know well, but I think one thing that is really interesting about this, that does fall in my bailiwick, is the role of the science media. So those headlines that I showed were almost entirely drawn from science journalism: Nature, Science. And they were often articles written by scientists, so I think this is a

really serious issue that the scientific community needs to address, why is it that scientists are fueling this misleading narrative? And you know, I have some ideas, I think that a scientist can get a lot of attention by presenting himself as, you know, 'I am the savior who is honest enough and brave enough to say that we have a crisis.' And maybe, 'I'm the savior because I am going to tell you how to fix it' So you can get a lot of attention for yourself by being the person to make these bald declarations, but often--and I have done this work--if you actually read these articles, the evidence presented is shockingly scant and kind of, in a way, disgraceful, for people who are claiming making a claim about problems in science to not actually have good scientific data to support it. So, I think the scientific community desperately needs to be more scientific about this problem, to really clarify I'm not saying there aren't areas in science that have problems, and we're about to hear from Steve Pinker who maybe wants to talk about psychology.

[00:32:26.22] NAOMI ORESKES: There are certainly issues in science that need to be addressed, but I don't think it's helpful to over-generalize and say that there's a general crisis when the data don't actually support that.

[00:32:35.99] LAWRENCE BOBO: Okay, thank you. Well that's great. I, we're, going to be able to come back to a lot of the issues that Naomi's presentation put on the table, but at this point let me move over to Steven Pinker.

[00:32:50.68] STEVEN PINKER: Thank you.

[00:32:54.54] STEVEN PINKER: Ever since I taught a course in the general education curriculum called 'Rationality' and then turned it into a book called Rationality, probably the most frequently asked question that I got was: if people can be rational, why does it appear that humanity is losing its mind? Why do we seem to be flooded with fake news and conspiracy theories and post-truth rhetoric and paranormal woo-woo and other forms of apparently rampant irrationality? It's a great question for a psychologist. It does not have a simple answer. I'm going to suggest that there are four components, at least to my best answer.

[00:33:44.54] STEVEN PINKER: The first and most obvious is a well-known phenomenon in psychology called motivated reasoning. Rationality is always in service of a goal, but that goal is not necessarily objective truth. People can deploy their powers of reason to win an argument in which the stakes matter--as Upton Sinclair famously wrote, "it is very difficult to get a man to understand something when his livelihood depends on not understanding it."

[00:34:11.45] STEVEN PINKER: To show how wise and moral your group is--your religion, your tribe, your political sect--and how stupid and evil the opposing one is, known as the "myside bias", for obvious reasons, subject of a recent excellent book by Keith Stanovich, *The Bias That Divides Us*, in which Stanovich suggested it may be the most robust and powerful cognitive bias of the hundreds that have been documented by psychologists. Relatedly, to gain status and avoid ostracism, as a hero for your side, as an intrepid warrior for the glory and nobility of your political faction, your religion, your coalition--this leads to what I think of as a "tragedy of the rationality commons" that alluding to the famous game-theoretic situation in

which a number of rational agents, each doing what is in his or her self-interests, can actually end up worse off. The classic example being the fact that every shepherd has a rational incentive to graze his sheep on the town commons, but if all the [shepherds do this they can] denude the commons faster than the grass can grow back, leaving all of them worse off. In the case of the tragedy of the rationality commons we can all be ingenious at being intrepid warriors for our side, for avoiding the kind of social death of betraying one's side by voicing an opinion that makes you persona non grata within your institution. Of course, if everyone does that then we fail to get at the kind of democratic decision-making toward the most fact-based and beneficial policies. Let me just give you an example of the myside bias.

[00:36:07.19] STEVEN PINKER: This is a logic question: is the following syllogism valid, which is to say, does the conclusion follow logically from the premises? "If college admissions are fair, then affirmative action laws are no longer necessary. College admissions are not fair. Therefore, affirmative action laws are necessary." Now that, it turns out, and our colleagues in philosophy can assure us, is not a valid syllogism; it is not logical; it commits the fallacy of "denying the antecedent".

[00:36:39.54] STEVEN PINKER: And a majority of Liberals commit the fallacy. Conservatives avoid it. Now, of course, if you ask a conservative what is, what the explanation is, they say, 'Well it's obvious, as we told you all along, Liberals are illogical.' But not so fast... Here's another syllogism.

[00:36:56.11] STEVEN PINKER: "If less severe punishments deter people from committing crime, then capital punishment should not be used. Less severe punishments do not deter people from committing crime. Therefore, capital punishment should be used."

[00:37:08.01] STEVEN PINKER: Again, it is an example of denying the antecedent, it is logically fallacious. This time, a majority of conservatives commit the fallacy. Liberals don't. The common denominator, of course, is that people think that the logic points to whatever conclusion they were ideologically committed to it in the first place in other words, politics makes you illogical.

[00:37:29.93] STEVEN PINKER: The second part of the explanation is that we all house primitive intuitions, probably a legacy from our evolutionary history, that served us well enough in traditional small-scale pre-scientific societies. An example is the intuition of "dualism": that every person has a body, and they have a mind. Well, from there it's a short step to positing that there are minds without bodies, and to belief in spirits, souls, ghosts, afterlife, reincarnation, and ESP.

[00:38:06.28] STEVEN PINKER: Another primitive intuition is "essentialism", that living things contain an invisible essence that gives them their form and powers.

[00:38:15.28] STEVEN PINKER: From there it's a short step to intuit that disease must be caused by an adulteration of one's essence by some kind of foreign contaminant.

[00:38:24.72] STEVEN PINKER: From there, resistance to vaccines does not seem so bizarre, in fact, there has been resistance to vaccines for as long as there have been vaccines, for the obvious reason that it consists of actually taking a version of the infectious agent and actually injecting it into your flesh.

[00:38:42.69] STEVEN PINKER: It's not surprising that people would find that deeply weird. Likewise, genetically modified organisms, repeatedly shown to be perfectly safe, but people perceive them to be some kind of foreign pollutant or adulterant.

[00:38:56.46] STEVEN PINKER: It makes people susceptible to homeopathy and herbal remedies which seem to involve transferring the healthful essence of some natural substance.

[00:39:06.56] STEVEN PINKER: And it leads to the, the, widespread adoption, in many many cultures, of treatment of disease by purging, bloodletting--independently discovered by a number of cultures--fasting, and a general sense that "you have to get rid of toxins".

[00:39:21.93] STEVEN PINKER: A third intuition that we're we all are vulnerable to is "teleology": We know that our own plans and artifacts are designed with a purpose. From there it's a short step to think that the world was designed for a purpose, and it makes it quite intuitive to believe in creationism, in astrology, in synchronicity, and the vague sense that everything happens for a reason, there are no coincidences.

[00:39:45.55] STEVEN PINKER: A third part of the explanation: These primitive intuitions are unlearned, and objective truths are acquired only by trusting legitimate expertise--scientists, historians, journalists, government, and so on.

[00:40:00.72] STEVEN PINKER: Few of us, of course, can justify our beliefs, including our true beliefs, and a lot of research has shown that people's scientific understanding is surprisingly shallow. Few people can explain even how a zipper works or a toilet, let alone climate change, and in tests of scientific knowledge, it turns out that creationists and climate deniers are no less scientifically literate than believers. So, this is a point that of course Naomi Oreskes made with much more quantitative detail, but even people who endorsed the scientific consensus on anthropogenic climate change are a little squirrely let us say, about the reasons. If you ask people who believe in climate change what causes it, you get answers like, "Well, doesn't it have something to do with the ozone hole" or "toxic waste dumps" or "plastic straws in the oceans"; they have a vague sense of green versus pollution. They just differ in political ideology: as Naomi pointed out, the farther to the right, the more climate denial.

[00:41:06.65] STEVEN PINKER: Weird beliefs persist in people who don't trust the establishment. And, though it is fascinating, as Naomi reminded us, that trust in science in fact defies the general downward trend in trust in institutions such as politics and journalism, um, while trust in science remains constant, trust in academia has been plunging and, of course, trust in government agencies that often implement science, such as the, say, the CDC. And I'd be curious--I don't know, perhaps Naomi knows the answer--whether anyone has done the study of

asking people about trust and simply substituting "scientist" for "professor" or "scientist" for "agent of a public health agency," and..I would not be surprised, if the, if that has been done over time, if trust in science scientists, when they are described as professors, declines.

[00:42:10.38] STEVEN PINKER: Finally, to the question, "Why do people believe outlandish fake news and conspiracy theories?"

[00:42:17.74] STEVEN PINKER: Part of the answer is, it depends what you mean by "believe," and here I'm appealing to a distinction first outlined by the social psychologist Robert Abelson between two kinds of belief.

[00:42:30.11] STEVEN PINKER: There's... I'm renaming it... there's what I call the "Reality Zone": The physical objects around people, the other people they deal with face to face, the memory of their interactions. And here, beliefs in this zone are treated as testable, as true or false, and they're held if they're true. And indeed, even people who subscribe to the most wacky conspiracy theories like QAnon, you know, a lot of them hold jobs and they keep food in the fridge and gas in the car and they get the kids clothed and fed and off to school on time It's not that they are irrational throughout their lives; there is a zone in which they subscribe to, uh, to realism and to verifiability of beliefs-- they would have to, to live their lives.

[00:43:17.00] STEVEN PINKER: Then there's a set of beliefs, I call them the "Mythology Zone": the distant past, the unknowable future, far away peoples and places, remote corridors of power, the microscopic, the cosmic, the counterfactual, the metaphysical.

[00:43:31.20] STEVEN PINKER: Beliefs in this zone are held because they're entertaining, they're uplifting, they're empowering, they're morally edifying. Whether they are true or false is unknowable and irrelevant. In fact, for most of our history, until the rise of science and government agencies and reliable record-keeping, you couldn't know the answers to these questions, and so, insisting that you hold them because there's evidence for them is kind of pedantic, was kind of pedantic. Examples are: religion, which almost by definition is a matter of faith, not of reason or evidence; myths about the great founding heroes and martyrs of a nation; historical fiction--do people really care whether Henry the Fifth delivered that stirring speech on St Crispin's Day that Shakespeare attributed to him--it seems a matter of pedantry to point out that he didn't; and fake news and conspiracy theories, I submit.

[00:44:36.55]

[00:44:36.83] STEVEN PINKER: So, let's take as an example "Pizzagate," the predecessor of QAnon, according to which Hillary Clinton ran a child sex ring in the basement of a Comet Ping Pong, the Washington area pizzeria.

[00:44:50.53] STEVEN PINKER: What was a typical response to a believer in Pizzagate? Well, as Hugo Mercier points out, a number of them reacted by leaving a one-star Google review for Comet Ping Pong Pizzeria, such as "the pizza was incredibly under baked and suspicious looking men gave funny looks to my son."

[00:45:11.83] STEVEN PINKER: Now, this is not the kind of reaction you would have if you literally thought that children were being raped in the basement. And, uh, the perhaps the exception that proves the rule is Edgar Welch, who actually did burst into the restaurant with his guns ablazing in a heroic attempt to raise, to rescue, the children.

[00:45:28.25] STEVEN PINKER: At least he had... For him that belief was in the reality zone, but for most people the belief "Hillary Clinton ran a child sex ring" can pretty much be translated as "Hillary Clinton is so depraved that she's capable of doing that, and how do we know that she didn't" or even, perhaps most, even more accurately "Boo, Hillary!"

[00:45:51.68] STEVEN PINKER: Beliefs, in other words, can be expressions of moral convictions. Now of course this is uh runs against the grain of those of us in social science, who have the conviction, that first you establish what the facts are and then you, ideally, ought to shape your

[00:46:10.02] political and moral convictions around the facts. But it can very easily be the other way around: facts are just a edifying narrative in support of your political convictions.

[00:46:23.20] STEVEN PINKER: Bertrand Russell once wrote, "It is undesirable to believe a proposition when there is no ground whatsoever for supposing it is true."

[00:46:30.73] STEVEN PINKER: If that strikes you as trite, banal, obvious, then you are a child of the Enlightenment and are holding on to a radical unnatural manifesto when it comes to the psychology of human belief.

[00:46:46.27] STEVEN PINKER: Well, this leads to the obvious question: How can we become more rational?

[00:46:50.91] STEVEN PINKER: Well, for a start, I think that the tools of formal rationality should be second nature, that that teaching probability and statistics, logic, critical thinking, obvious fallacy, should be part of the educational curriculum right back into elementary school. Rationality, as I said, should be the fourth "R" after reading, writing and arithmetic.

[00:47:12.82] STEVEN PINKER: Norms of rationality should be promoted, that is, we should there should be a greater awareness of the cognitive fallacies that we're susceptible to, like the availability bias--in other words, reasoning from available anecdotes--the myside bias, arguing ad hominem That it should be common knowledge that these are fallacies, and it should lose you cred if you commit them The conviction that we should base our beliefs on evidence, change our mind when the evidence changes, should be seen as signs of strength not weakness. Now, granted, norms are not something that one can implement from the top down; they've got to spread virally from the grass roots, but this can be a start.

[00:47:59.40] STEVEN PINKER: And perhaps most important, institutions with rationality-promoting rules must be safeguarded. And I, uh, in raising the question of how as a species, we have managed to be so rational discovering the origin of the cosmos, the secrets of life and mind,

as Naomi pointed out even technologies that allowed us to sequence the COVID pathogen and develop a vaccine in just a few months--these, of course, are not the brain children of some individual genius, but they are the products of institutions that, uh, where one person can notice and make up for another's biases Now, this is a bright spot in the rather depressing literature on cognitive biases from judgment and decision making.

[00:48:51.78] STEVEN PINKER: We all tend to be blind to our own biases; we're subject to a bias, bias, namely, we think everyone else is biased. However, we're not so bad at spotting other people's biases and that can be put to work in They can make us collectively more rational than any of us is individually if we belong to communities where there is where you may voice a hypothesis and it may be criticized by someone else. In tests of logic, you find, for example, that 10% of people will get a typical logic question right. When people work in groups, seven out of 10 get it right. All it takes us is for one person to spot the answer, and he or she can convince everyone else.

[00:49:39.93] STEVEN PINKER: What I mean by rationality-promoting institutions: Science, with its mechanisms of empirical testing and peer review; democratic government with its checks and balances--as James Madison said, "in a functioning democracy ambition can counter ambition"-- journalism, with its mechanisms for editing and fact checking and corrections; the judicial system, with its adversarial proceedings; academia at least in theory with freedom of inquiry and open debate; and even Wikipedia as an example of a new institution, completely online, surprisingly accurate, given that it is a joint effort--the members of the community have committed themselves to neutrality and objectivity, and their mechanisms for errors to be corrected, under that ethos.

[00:50:34.44] STEVEN PINKER: You can compare rather unfavorably social media which, rather than rewarding error-correction and fact-checking and a reputation for accuracy, reward notoriety and instant responses.

[00:50:49.11] STEVEN PINKER: Now, what can we do to fight truth decay? We obviously can't abolish Fox News, even if, even if, that were a good thing, or to change its editorial policies, but we can, I think, pay more attention to our own little garden, and safeguard the credibility and objectivity of the institutions we do influence, namely universities, and for those of us who have a role in them, journalism and public health agencies.

[00:51:18.10] STEVEN PINKER: For example, I think it should be, there should be much more of a demand to show your work. We've had a lot of pronouncements from scientists and public health officials, as if they were a kind of Oracle or priesthood issuing you cases and pronouncements. There, there should be much more of an onus on people giving public health advice to explain the rationale behind their, uh, their advisory, which also makes it less humiliating when the evidence changes, and the recommendations have to change. That should be presented as a good thing, not a bad thing; it's a bad thing if the original pronouncement was presented as an oracular diktat. If it was an interpretation of the best evidence, then it's less shocking that when the evidence changes the recommendation does.

[00:52:11.27] STEVEN PINKER: We should avoid gratuitous politicization. That is, given that so much of science denial is in fact expression of politics, when scientists and public health agencies go out of their ways to brand themselves as branches of the political Left, they should not be shocked when people on the Right blow them off as just an opposing tribe.

[00:52:35.07] STEVEN PINKER: Perhaps the most conspicuous example was the advisory during the height of the COVID crisis that people not go to MAGA rallies but it's okay to go to Black Lives Matter rallies because the cause of social justice is so important that it's worth people taking the risk of exposing themselves to COVID. This, to put it mildly, was a blunder. Likewise the just the day before yesterday, the American Medical Association came out with recommendations for the language physicians should use: Basically, they should turn themselves into full bore "woke" bots and not use words like "vulnerable", but instead use the words the word "oppressed", turning them into almost a satire of a politically correct social justice warrior - pretty much the last thing that we need as the public face of medicine in an era in which we seek to increase its level of trust.

[00:53:32.29] STEVEN PINKER: We should avoid conspicuously disabling mechanisms of error correction: When a professor criticizes the Title IX policies of a university and she is hauled up for discipline for a Title IX violation When another professor writes an op-ed criticizing diversity, inclusion, and belonging policies, and he is disinvented from speaking about climate change, people get a sense - a not entirely unjustified sense -- that the very mechanism that could prevent the institution of academia, and related institutions, from painting themselves into a corner, or a falling into Groupthink or delusion, have been disabled. That if you can, if, if we conspicuously advertise "you may not criticize our policies or you are punished," we should not be surprised that credibility in the institution diminishes. Finally, we should... most generally, we should follow the Obama doctrine: The Obama doctrine in foreign policy was "don't do stupid shit," and we've been doing plenty of stupid shit in academia. When a, uh, a residential housemaster writes an editorial that students should decide for themselves what Halloween costumes they should wear and then her husband is the victim of mobbing and an obscene tirade, and the president of the university praises the student When a professor of Chinese explains the Chinese fill-in word "neige" and he is disciplined because it reminded some people of a racial slur.

[00:55:10.96] STEVEN PINKER: There are literally dozens of examples in which academia seems to be going out of its way to discredit its own seriousness and credibility, so we should stop. Realizing that every one of these

[00:55:25.85] signals that cast doubt on the objectivity and reliability of academia, of public health, of science, is a little bit of corrosion of the trust in these institutions that we need for people to unlearn their primitive intuitions and to align their beliefs with the scientific consensus okay.

[00:55:47.39] LAWRENCE BOBO: Thank you very much Steven.

[00:55:50.99] LAWRENCE BOBO: And I'm trying to see if there are questions coming into the chat here.

[00:56:06.00] LAWRENCE BOBO: Um.

[00:56:08.30] LAWRENCE BOBO: Well, I'm waiting for a question to come across to me here.

[00:56:13.70] LAWRENCE BOBO: So I guess I'll just quickly ask then, before moving on, are you I mean, in part, I read Naomi's comments as reassuring with respect to the general public perception of "science," though I think you're quite right in observing if we did the experiment of replacing it with "professors," "academia," uh, we would produce some very interesting changes in results, and perhaps even if we could go back in time observe different trends for some of these things.

[00:57:04.47] LAWRENCE BOBO: Does that mean that, that, you're kind-of optimistic about the capacity to deliver on the strategies for greater rationality, and related to that, where do you kind-of stand on the issue of whether we're in a moment of some kind of crisis of truth decay, whether it's really doubt about science, or just polarization with certain pockets of people really becoming entrenched skeptics about some of our putative sources of knowledge delivery?

[00:57:39.96] STEVEN PINKER: Yeah, I guess I'm not optimistic, at least in the in the short term; I tend to be optimistic in the longer term, that's kind-of part of my brand.

[00:57:48.61] STEVEN PINKER: Because I see a lot of things going in the wrong direction in terms of restoring trust in universities and in the science-adjacent institutions like public health agencies -- I think they're often moving in the wrong direction by adopting quite alienating rhetoric, at least alienating to large parts of the American population, and I think that that's moving in the wrong direction. Although I tell you, I tend to, I do agree with, with Naomi, I mean, I think we've looked at the same data, that it's that there isn't it a widespread distrust of "science," that there are hundreds of scientific issues in which no one gets exercised, no one really gets exercised as to whether, you know, drunk driving is a good idea, or antibiotics work, but there are a number of highly politicized issues, and the problem is that, unlike evolution, where it is a kind of identity test, but it doesn't most of the time it doesn't have huge implications. But, of course, when it comes to vaccines, the implications are massive, and this is a scientific issue that we have allowed to become politicized--or that has been, for many reasons, has become politicized, much to our detriment. And I do tend to agree that the probably the root cause is the polarization, and the distrust of these bloody shirts in science is a consequence of that, and we've become politicized for, I mean polarized, for reasons that I'm sure you know much more than I do--everything from social media echo chambers to residential segregation by, by, education, a huge and important topic, obviously.

[00:59:27.72] LAWRENCE BOBO: Okay, thank you, thank you. Well, let's now turn to Ed Glaeser.

[00:59:33.11] EDWARD GLAESER: Wonderful. Thank you, Larry. I am, I am delighted to be here as part of this remarkable group.

[00:59:46.55] EDWARD GLAESER: And I'm going to take a somewhat more economic approach to this, and the economic approach to the equilibrium level of falsehood and I'm going to give you sort of an algebraic model in words.

[01:00:06.19] EDWARD GLAESER: There is a supply of entities and individuals who have some kind of political or economic interest promulgating false beliefs, sometimes for as base a motive as simply expanding their audience share, sometimes because they want policies that will go along with their particular belief, sometimes because they want to promulgate the belief that their enemies are, uh their enemies of their political party are evil in some way.

[01:00:33.04] EDWARD GLAESER: So, Merchants of Death [sic] provides a perfect example of this, right? Energy-producing companies have a strong financial interest to convince people that climate change is not a serious thing, and consequently we don't need carbon taxes.

[01:00:46.72] EDWARD GLAESER: Much ordinary advertising also fits this bill, okay, and it's often misleading, right? That new chevy will not actually induce you to experience long-term happiness--unless Dan Gilbert says it will, in which case, maybe it maybe it will do that--but most of the most harmful examples that I can think of are actually in the political sphere, so the spread of racism, the spread of racial hatred, um, false, false stories of African Americans or Jews committing atrocities that are used to build up anti-Semitic or anti- African American hatred.

[01:01:21.14] EDWARD GLAESER: The goals of those are typically discrediting the opposition. There is then a machinery of persuasion, which includes both the technologies of dissemination of ideas--so this may be books, it may be newsprint, it may be Twitter--and that combines with our psychological frailties.

[01:01:36.93] EDWARD GLAESER: And you've heard a lot about our psychological frailties from Steve; I have very little to add on that.

[01:01:41.61] EDWARD GLAESER: Um, you know, even though economist models often assume perfect rationality, none of us actually believe this, OK? This is not a, this is a convenient mathematical thing, not, not, true.

[01:01:50.89] EDWARD GLAESER: We also have a demand for certain falsehoods, and I think Steve has made that point very clear, and I will turn to motivated reasoning myself on this.

[01:01:58.16] EDWARD GLAESER: We have some ability to undo this persuasion, depending on whether or not we have an interest in doing so, right, and depending on, you know, our ability to discern lie from truth.

[01:02:07.36] EDWARD GLAESER: So Pinker's "Mythology Zone" beliefs are going to be far more vulnerable to external persuaders than "Reality Zone" beliefs, both because we know much

more about our reality zone and because we have incentives to get our reality zone right, right? Whereas in our mythology zone, we have neither the incentives, nor the ordinary means of expelling the falsehoods that are fed to us.

[01:02:27.26] EDWARD GLAESER: And so, this framework suggests that we should expect to see error when there are stronger incentives to supply falsehood and when those falsehoods are either appealing to consumers or unlikely to be investigated. So, let me give sort-of three examples of this.

[01:02:40.36] EDWARD GLAESER: In a sense, the, you know, the algebra in words that I just gave is just a rip off of *The Strange Career of Jim Crow*, okay, which is a book that strongly influenced me, and, you know, like many economists, I think that I have sometimes written papers where essentially the idea is somewhere else, and we get credit within the narrow world of economics because we put algebra to it.

[01:03:01.10] EDWARD GLAESER: But this is a tale in which the Populist competitors with the rightwing, the Bourbon Democrats of the late 19th century South, use anti-Black hatred in order to discredit the Populist attempt to acquire African Americans' support.

[01:03:18.68] EDWARD GLAESER: I showed a little bit of newspaper documentation that went along with that in my original work on this. This page, this regression table is from a very recent paper by two young scholars Oettinger and Winkler, and what they show is that newspapers were much more likely to have, you know, anti-Black propaganda--typical stories of African Americans committing rapes against white girls, right, of which there's very rarely any evidence that any of these stories are true.

[01:03:42.89] EDWARD GLAESER: And, you know, the, the, those stories are much more common in places where there's a political threat to the Bourbon Democrats, right? And it's one of the things about the technology of hatred is--many of these stories were false--but there also is just the fact that we don't divide by the denominator, right, we don't have a right, so you have one story, and you repeat it, and that counts for much more than some sort of, you know, overall average. I mean it's pretty clear by 1890 that one of the races had been raping and murdering and enslaving another one of the races for hundreds of years and it certainly wasn't the African Americans.

[01:04:13.60] EDWARD GLAESER: Next example: Karl Lueger is an, you know, a central figure in the political supply of hatred.

[01:04:21.92] EDWARD GLAESER: He's sort of amazing, both because he was so effective and poisonous in the long run, I mean he created the anti-Semitic, you know, milieu of Vienna, where the young Adolf Hitler grew up. He also was to all, you know, obvious evidence, not an anti-Semite himself, right, he had many Jewish friends and famously declared "I decide who is a Jew," right? Meaning that he was using this for sort-of naked political reasons, not because he had a particular belief in this.

[01:04:49.68] EDWARD GLAESER: The usual model, though it's not exactly Lueger's model, is that--and I'm just quoting Weiss here--"From Stoecker to Hitler, rightists rarely attempted to refute socialism, preferring to cite the high percentage of intellectuals of Jewish origin among socialist publicists as proof of its subversion", right? So, your enemies are disproportionately Jewish and so you use anti-Jewish hatred, anti-Semitic hatred, in order to discredit your enemies.

[01:05:11.22] EDWARD GLAESER: I put this graph on the second because it makes a point, which is the political roots of late 19th century anti-Semitism come out in the surprising exception of Italy, which had plenty of religious Semitism prior to 1870. After all, the Papal States continued to have an enforced ghetto in Rome throughout much of the 19th century, and yet Italy This shows the number of rescuers of Jews by country, controlling for per capita GDP, and you can see Italy is a huge outlier; Italy also, in Martin Gilbert's Atlas of the Holocaust, is a remarkably safe place for a Jew to live in the 1940s.

[01:05:45.97] EDWARD GLAESER: What's going on there? There's no supply a political anti-Semitism, as far as I've been able to tell, in late 19th century Italy, or early 20th century, because Jews are on both sides of the political aisle. And the difference is that, in many countries, the Right and the Church are allied, which means the Jews are necessarily on the other side of the aisle. So, you know, the Kaiser is essentially the head of the Lutheran church, the Tsar is the "Little Father" in charge of the Eastern Orthodox church.

[01:06:12.07] EDWARD GLAESER: And so, you know, Jews are always gonna be on the Left. But, the unification of Italy, the [inaudible] occurs through the expropriation of Pius the ninth, and taking all of his, all of his, worldly dominion, and so, you know, the Pope basically excommunicated everyone who was involved in Italian politics in the late 19th century, thereby making religion irrelevant, thereby ensuring the Jews are on both sides of it and so no one has an interest to promulgate anti- Semitic Hatred.

[01:06:35.38] EDWARD GLAESER: Third example: Not all errors pushed by politicians are as harmful.

[01:06:40.92] EDWARD GLAESER: You know, national religious identity is also often an error, creating a sense that we share a common bond with people because we happen to have the same flag or the same religion, right? For millennia, religious leaders have long inculcated a common sense of familial community stretching vast distances.

[01:06:55.18] EDWARD GLAESER: That doesn't sound so bad, to me, as long as it's not coupled with the idea that you should then slaughter that people don't share that religious identity.

[01:07:01.22] EDWARD GLAESER: More recently, of course, nation builders have, you know, sometimes been in the identity formation business, sometimes from the top down, as in France post 1871, as in Eugen Weber's *Peasants Into Frenchmen*, and sometimes from the bottom up, think of German national, nation building after the Napoleonic Wars. Benedict Anderson is, I

think of, the great book in this genre, emphasizing the role of communications technology in shaping the creation of, of imagined communities.

[01:07:25.48] EDWARD GLAESER: Now, truth decay in the 21st century, how can we bring this apparatus to thinking about it?

[01:07:29.64] EDWARD GLAESER: Climate change skepticism: I'm going to say very little about this, because I think the Oreskes model fits perfectly into the model that I just sketched.

[01:07:36.30] EDWARD GLAESER: There are highly interested parties, they're supplying error; motivated reasoning makes it even more appealing. The fight against Cancer by the Carton, right, the Reader's Digest story in the early 1950s when cigarette companies went into overgear to discredit very, very similar.

[01:07:48.84] EDWARD GLAESER: Hostility to vaccination, and sometimes mass and mandates as well. So, I really don't understand the hostility of vaccination. I have yet to figure out who benefits from convincing Americans that vaccines are harmful or unhelpful.

[01:08:03.32] EDWARD GLAESER: I'm going to bring up a third, though, modern error, which I think of as being, in effect, more politically consequential than the previous two, and, you know, potentially, just as damaging, which is creating the, the myth of immigrant criminality. Right? With threatening tales of immigrants of immigrants, particularly illegal immigrants, doing harm; these have probably been the most politically consequential. I'm happy to argue about that in the, in the, particular, because of the election of Trump and their role in that.

[01:08:28.40] EDWARD GLAESER: But they seem less like an attack on real science, perhaps because the lies are actually social science errors, rather than, and so we should push back on that.

[01:08:35.63] EDWARD GLAESER: And of course, I feel like it's incumbent upon myself to admit that academics like Harvard's William Z. Ripley, he was a professor of political economy, was part of stoking anti-immigrant fever 100 years ago.

[01:08:47.18] EDWARD GLAESER: But first let me give you three facts from our new, a new member of our faculty who'll be joining in January, the Gund Professor Jesse Shapiro. First is this sort of background for this stuff, one of which is a significant rise in the polarization of both voting and speech in Congress.

[01:09:01.79] EDWARD GLAESER: Second, is that media bias, more surprisingly, appears to be driven by demand, not supply. And third, the internet is more of an intellectual melting pot than an echo chamber.

[01:09:11.05] EDWARD GLAESER: So, first fact, this comes from a 2019 Econometrica paper.

[01:09:15.07] EDWARD GLAESER: This shows the distance between parties and roll call voting, this is just a straight political fact, there's nothing they didn't do anything to document this.

[01:09:22.15] EDWARD GLAESER: Interestingly, there's a, there's a dip in the middle 20th century, which was our epic of, you know, it was in some sense the 20th century's era of good feelings.

[01:09:29.62] EDWARD GLAESER: The black line shows average partisanship by speech, so how much the words of Republicans and Democrats have diverged over time, and they really did some major methodological shifts to actually get this right; earlier evidence had actually seen much more of a u-shape. So, that really has gone up, and the fact that speech differs is a sense in which, you know, we believe different things, we say different things on different sides of the aisle.

[01:09:52.34] Secondly, newspaper slant is demand, not supply. Okay, they have a number of ways of showing the power of demand, so this is just how much newspaper slant goes along with the share Republican in the newspapers market; that's a very strong effect.

[01:10:03.60] EDWARD GLAESER: But the impact of ownership? And so, what they're looking at is newspapers who have a common owner and are in different markets; and the answer is, the correlation of slant between those newspapers is very, very weak, and you can see that in the scatter plot. So, there's some, but essentially, the, the owner fixed effects, if you will, are very modest, and so your prevalent model is these newspapers are not some vast conspiracy, they're just trying to get market share, most of the time, with a few minor modest exceptions.

[01:10:28.95] EDWARD GLAESER: And third, this looks at ideological segregation by medium and type of interaction: So, it is true that the internet is more segregated in terms of what people look at, and the political isolation that you get on it, than local newspapers or magazines or cable or broadcast news, which were very non-isolated, but they're much less isolated than national newspapers or voluntary associations--it's certainly much less isolated than neighborhood.

[01:10:53.18] EDWARD GLAESER: And the other thing that's sort-of important is that the groups that have been polarized are the least internet-intensive.

[01:10:58.96] EDWARD GLAESER: So, it's not as if the internet-intensive group--and that's what you're seeing here--it's not as if the rise of ultra- polarization are people who are spending all the time on the internet. I mean, there may be some people for whom that's particular salient, but by and large, it has been the least internet-savvy, the least internet- engaged people, who have seen the most rise in their polarization.

[01:11:13.90] EDWARD GLAESER: Now, um, just three final reflections on this sort-of three errors that I highlighted: So, this is just looking across countries, this is Gallup warning Gallup, Gallup data on "global warming is seen as a serious personal threat" and "global warming is caused by human activities."

[01:11:34.02] EDWARD GLAESER: You can see the US is down here, we're with Belgium and the UK over here; this data is a little old, it's probably changed a bit over time.

[01:11:39.88] EDWARD GLAESER: We're far from the most extreme, so, you know, the Saudis are, are, you know, showing motivated reasoning at its, at its best; the Saudis are really climate skeptics in this.

[01:11:47.96] EDWARD GLAESER: The Norwegians are also pretty good on climate skepticism, very different from many other of the as that energy intensive company, country, much very different than much of Scandinavia.

[01:11:56.98] EDWARD GLAESER: So, to big shots: we are particularly unlikely to believe that humans did it--so it's not that we don't, aren't, worried about global warming, at least in this data. We're less likely to believe that humans had a role in this.

[01:12:07.44] EDWARD GLAESER: And, of course, this does, indeed, reflect the supply of, of error, I mean, and you can see the billboards on, on the other side.

[01:12:14.31] EDWARD GLAESER: And the motivated reason by ordinary people, the fact that if you're either in--and we have strong evidence this is just that people who live, not just in areas that were producing, energy producing counties today, but that were energy producing counties in the not-so-distant past, they are also more likely to not believe in climate change.

[01:12:30.49] EDWARD GLAESER: So again, this sort of is the, is the, the, the anti-vaccine movement: Again, this is highly puzzling to me. So, going back to, this is 2015 data from Pew, so pre-Trump.

[01:12:40.12] EDWARD GLAESER: Here I, it was, if you, if you look in, this is, the first thing is trends on vaccines, childhood vaccines by party and ideology. There's no question, even in 2014, that Republicans are more likely to believe that parents should decide over vaccines, right? There is that belief in, in freedom, in the, in the Republican side, parental autonomy.

[01:12:57.44] EDWARD GLAESER: But if you look at childhood vaccines being safety, safe, there's no party difference at all on this and, if anything, "not safe" is higher among Democrats than among, than among Republicans, so that there's, there's not really an ideological thing at that point time; obviously, this has widened over time.

[01:13:13.09] EDWARD GLAESER: I am, you know, one of my mantras that I have often repeated in my own home topic of city-building is "there is no Democratic or Republican way of cleaning the streets." This, you know, this fundamental fact that Fiorello La Guardia expressed is, possibly explains why the work of Fernando Ferreira and Joe Gyourko finds that when you see a Republican just win election to a mayoralty by 51%, or a Democrat win by 51%, there's no functional difference in how they govern the city; there's no big difference in what they do.

[01:13:40.57] EDWARD GLAESER: There is a difference between big Republican cities and big Democratic cities, but on the margin, it doesn't matter if it's Bloomberg selected as a Republican or Daley is elected as a Democrat.

[01:13:49.85] EDWARD GLAESER: I would have thought there's no Republican or Democratic way to fight a pandemic. I mean it seems just insane that we have a difference on it, and yet, you know, we have this type of incredible relationship between political shares--so this is share, a share voting for Biden in 2020 with share vaccinated. This comes from the New York Times, and I find this deeply puzzling and deeply troubling.

[01:14:08.53] EDWARD GLAESER: Finally, this is Texas data, and apparently Texas is the only state that we know of which can actually track immigrant status with crime propensity.

[01:14:18.13] EDWARD GLAESER: This shows convictions per 100,000 overall. This is convictions per 100,000 for homicide. Um, you can see that there's a clear hierarchy in who's being captured, who's being, being convicted for crimes. Legal immigrants are the lowest category.

[01:14:31.87] EDWARD GLAESER: Illegal immigrants are between native-born and legal, and native-born are by far the worst. Same thing for homicides, illegal immigrants in the middle.

[01:14:40.01]

[01:14:40.47] EDWARD GLAESER: And yet, you know--look first on the, on the, right-hand side--right, large swaths of the population, particularly conservative, believe that immigrants are more likely to commit crimes than ordinary citizens, right? So, this is a very common belief on the, on the, Right, and it's fueled with the same technology, right? Stories of past and current atrocities, atrocities, that were used in the late 19th century against African Americans and or against Jews, right, it's a very common, very common, thing.

[01:15:06.19] EDWARD GLAESER: And this is another sort of factoid thing over there on the left, just the, you know, the share of the population who think that immigrants who are now living in the US are predominantly illegal or predominantly legal. And large swaths of America think that the largest share of immigrants in in the US are here illegally, although that's probably more like a quarter, at most.

[01:15:23.99] EDWARD GLAESER: Okay, some final observations: I am much less clear on what the normative predictions are on this or how we fight this than Steve is, so I, I, you know, I, I deeply enjoyed both Steven and Naomi's remarks.

[01:15:36.22] EDWARD GLAESER: Just a few observations, there are Persuasion and education are different things, and we need to be clear about what we need in different contexts.

[01:15:43.38] EDWARD GLAESER: I would have said, in the case of global warming, we're probably thinking more about persuasion than we are about education, right?

[01:15:48.74] EDWARD GLAESER: That, in fact, as, as, Steven pinker has just told us, right, we're never going to educate millions of ordinary Americans about how climate change actually works.

[01:15:56.15] EDWARD GLAESER: The... To get change we just wanna persuade, and I would have thought for persuasion you'd turn to people who are experts in the technology of persuasion, which include some psychologists and actually advertising agents who earn their living by doing this.

[01:16:05.94] EDWARD GLAESER: If we're trying to educate and, of course, that is our mission, right, then it's more plausible to educate the young. Science should be part of any attempt to fix America's woefully dysfunctional opportunity deficit. I share the view that's been expressed by previous speakers that Athens should stay far from Jerusalem.

[01:16:21.99] EDWARD GLAESER: It is far easier to disseminate knowledge if you are not moralizing at the same time, right?

[01:16:27.08] EDWARD GLAESER: It is also important to separate science, i.e., 'masks may prevent the spread of COVID'--masks do prevent the spread of COVID--with the, the, normative, with the policy conclusions 'masks should therefore be, be mandated'. Those two things are, are, not obvious links to me.

[01:16:41.80] EDWARD GLAESER: You know, there are, there are, trades There are costs and benefits of the second policy, and, you know, it shouldn't We shouldn't have the same people, I think, necessarily giving both, both, messages.

[01:16:50.71] EDWARD GLAESER: You know, lockdowns--most of the available evidence suggests most lockdowns did not do much to either mobility or the spread of illness. The one exception on this was the ending of lockdowns in May and June of 2020 in Texas and Florida. Arguably those ends of lockdowns were so impactful because they came with a message that said, 'now it's safe to move around.'

[01:17:13.86] EDWARD GLAESER: Just as, you know, swimmers interpret the end of a 'don't swim on this beach, there's a shark there' with meaning 'now it's safe for you to swim.'

[01:17:20.34] EDWARD GLAESER: I think there's reasonable evidence to suggest that people interpreted the end of the lockdown in Texas as 'now it's safe to go back to the bar' when it most emphatically wasn't. Which means that we really should separate the messaging which says 'look, it's not safe' with the, with the, policy which says 'look, I'm not going to stop you from opening your bar during this time period, even though I'm just gonna, because I think you, you know, you have a constitutional right to cause yourself mischief.'

[01:17:41.85] EDWARD GLAESER: Two more points that come out of the hatred literature: All groups, whether scientists or immigrants, are safer from politically motivated hatred, if they are politically irrelevant, i.e., if they're spread between parties. And if they don't engage in political

debates that are far from their area of expertise, right? I often feel myself if I'm desperately trying to convince people that we should have some kind of reform in land use regulation that allows more construction of low- cost housing, or we embrace congestion pricing to charge drivers for the social costs of their actions, it's probably not a good idea for me to take on any sort of debates on, you know, the war in Afghanistan. I just don't see how that's a helpful thing in terms of building consensus on urban policies.

[01:18:18.30] EDWARD GLAESER: And finally, I'll end on one sad observation, but 'hating the haters' has typically been far more effective historically than preaching love.

[01:18:25.71] EDWARD GLAESER: And, of course, that's what this is, right? This is how Emile Zola fought anti-Semitism, right, by building hatred against the, you know, 'nest of vipers' that he called the, the, Jesuits of the French Right.

[01:18:37.05] EDWARD GLAESER: Arguably nonviolent protest is effective in part because it builds images which create hate against the oppressors.

[01:18:46.06] EDWARD GLAESER: Right, so if you think of what Gandhi is sending back to England in the 1920s, the 1930s, it is making English feel terrible about their own regime, it is making them, in fact, despise their own regime.

[01:18:56.47] EDWARD GLAESER: And so, you know, in some sense, that is, that has been historically the most effective way that we have of striking back. So, I will end there, but just again, thank you, Dean Bobo, for allowing me to participate in this extraordinary exchange.

[01:19:09.65] LAWRENCE BOBO: Thank you very much Ed, and for giving us some narrative algebra, if you will, on, on how to think through these issues. Much appreciated. And can I ask others to raise questions out there again.

[01:19:24.03] LAWRENCE BOBO: And it may be the case that I should let people raise hands, rather than do the chat, and just look for an electronic hand or two.

[01:19:34.14] LAWRENCE BOBO: I think you may have overwhelmed us with information there, Ed.

[01:19:46.10] EDWARD GLAESER: Professor Gates appears to have raised his hand, which is very exciting.

[01:19:50.44] LAWRENCE BOBO: Oh. All right

[01:19:51.14] EDWARD GLAESER: I was quite terrified about citing C. Vann Woodward in the presence of Professor Gates, so I

[01:19:54.77] HENRY LOUIS GATES JR.: I haven't seen that, I haven't seen that dust jacket since sophomore year. At Yale. So that was a nice experience. Actually, I tried, Dean Bobo, to

submit a question for Professor Pinker, but I think it went into chat never-neverland but it's really for

[01:20:13.24] HENRY LOUIS GATES JR.: It was for Steven, but you can wait till the, the, final person has spoken. My question was if Steven felt that Harvard was a place where colloquy and the free expression of, of, thought was fostered, and he felt comfortable in this environment freely expressing unpopular ideas and if not, what can we do about it?

[01:20:40.10] LAWRENCE BOBO: I love that question, but I don't want to let Steven do it yet, I want to come back to it. I want to let Dan Gilbert jump in, but we will absolutely come back to that, that, question; that might be the first open question we run.

[01:20:52.00] HENRY LOUIS GATES JR.: Perfect. Thank you.

[01:20:53.45] LAWRENCE BOBO: So, yeah, Dan, go ahead.

[01:20:55.09] DANIEL GILBERT: Okay, thanks so much for having me, and I'm delighted to have heard these three amazing talks.

[01:21:03.62] DANIEL GILBERT: Larry asked me if I would be 'agent provocateur,' and that is by far the best appointment I've ever had, and coming from my dean, I'm now putting it on my CV.

[01:21:13.37] DANIEL GILBERT: But it's a very hard role to play when you hear three talks that deserve nothing more or less than wild applause in assent. I just find nothing to disagree with in what I've heard, so let me instead

[01:21:26.87] DANIEL GILBERT: raise two issues that were touched on, but, I suspect, should be a focus of our discussions and not just a footnote.

[01:21:34.31] DANIEL GILBERT: The first is this: our speakers did remarkable jobs of describing various biases in information that reaches people, and biases in the way people consume that information, and there's no doubt that that's a part, maybe even the most important part, of the problem of truth decay.

[01:21:51.96] DANIEL GILBERT: But I found myself wondering if we might also need to think more about how information flows.

[01:21:59.20] DANIEL GILBERT: For most of human history information had a lot of barriers to overcome if it wanted to travel from one mind to another.

[01:22:06.61] DANIEL GILBERT: Right? People had to expend a lot of effort to make that happen and to find people to talk to; they had to travel over mountains and oceans.

[01:22:14.03] DANIEL GILBERT: They had to print books and ship them and distribute them and even when they did these things, the information traveled slowly and usually not that far.

[01:22:22.68] DANIEL GILBERT: And what motivated people to do all that work with such uncertain payoff was information quality: When someone found a better way to make bread, the news spread--not fast, but far and wide--even though the communication network was wildly inefficient. Because each person who received it found it so useful, they were willing to do the hard work of spreading it.

[01:22:45.61] DANIEL GILBERT: Today, of course, the spreading of information is ridiculously easy and deadly efficient; we can reach hundreds or thousands or if you're Steve Pinker, millions of people, with the click of a button.

[01:22:56.76] DANIEL GILBERT: And as such we no longer have to be motivated by information quality in order to share it with others. In just the last decade I think we've witnessed a truly seismic change in how information flows through human networks. For the first time in history communication is virtually frictionless; information costs almost nothing to spread, it's not limited by distance, it can be spread to millions of minds in the same second.

[01:23:25.28] DANIEL GILBERT: Every one of us now has a megaphone larger and more powerful than any king or president or pope of the past could ever have dreamed of.

[01:23:34.47] DANIEL GILBERT: And one of the things that we know is that when you remove friction from a system it doesn't just produce the same old phenomena more efficiently, more quickly; it produces entirely new phenomena.

[01:23:47.55] DANIEL GILBERT: If a, if you took a human brain and rewired it so that every neuron was directly connected to every other and had no refractory period and no inhibitory processes, that brain wouldn't think faster, it would think differently, and maybe not at all.

[01:24:02.83] DANIEL GILBERT: So, I guess as I listened to our speakers today, I found myself wondering if much of what we know about belief and persuasion, which hasn't actually changed that much since Aristotle wrote *The Rhetoric*, might have just been made obsolete while we weren't looking; and that perhaps the pro, solutions, to the problem of truth decay in the year 2021 are going to have to look very different than the slo, solutions, we might have considered in the year 2001 or 1801, or even 1.

[01:24:33.04] DANIEL GILBERT: William S. Burroughs famously said, "language is a virus," and I guess if that's true, it seems to me we need to be thinking every bit as much about the vector as about the pathogen.

[01:24:46.03] DANIEL GILBERT: So that was my first thought. Uh, my second thought is, was, that these talks emphasized the people, except for Ed's, they emphasized the people who are the recipients of scientific information and how they might be changed so that they accept truth more readily, reject falsehood more often, distinguish between the two more reliably, and I'm all for

that--I've studied it myself--but I wonder if, in addition to thinking about how to fix those who consume the fruits of science, we also have to think a bit about those who grow them. Because

[01:25:20.84] I wonder if we're not also playing a role in truth decay, and here I'm just going to expand a bit on some of Steve's remarks, which took me by surprise, but I can't agree with more.

[01:25:31.18] DANIEL GILBERT: I agree with Naomi--and how can you not, she's got the data? People do trust science, they say it in opinion polls, they show it in their behavior.

[01:25:38.67] DANIEL GILBERT: Every time they get their teeth drilled by dentists, or drive cars designed by engineers over bridges designed by engineers, or send email, so on.

[01:25:47.61] DANIEL GILBERT: To live a single day in the modern world is to trust your life to science a dozen times over.

[01:25:53.24] DANIEL GILBERT: What they don't always trust are scientists, because, I think, they're increasingly worried that many of us have allowed our search for truth to be co-opted by commercial interests and political ideologies, and because they don't know which particular scientists have been co-opted, they just have a vague mistrust of all of us.

[01:26:14.06] DANIEL GILBERT: I have to agree; these are legitimate concerns. A decade ago, I used to do what my doctor told me, or at least I'd pretend to do what my doctor told me.

[01:26:23.43] DANIEL GILBERT: Now, when he told me I should take fish oil for high triglycerides I spent weeks reading the literature to see who did these studies and how they were funded.

[01:26:32.00] DANIEL GILBERT: In the last year we asked Americans to trust the pharmaceutical companies that made these miraculous vaccines, at exactly the same time they were reading about pharmaceutical companies that purposefully created an opioid epidemic for their own profit.

[01:26:47.17] DANIEL GILBERT: I mean if I were not as fortunate and educated as I am, I would be suspicious too.

[01:26:52.71] DANIEL GILBERT: And the corruption of science by ideology gets even more airtight in the public square. In the social sciences, in particular, I think we all know, some empirical studies of politically charged topics are really attempts to find data to support a conclusion, rather than searching open-minded analyses of hard problems. And there are many such topics that no one with any sense in the social sciences would study at all because they involve points of view that no one dares express--even in order to defeat them.

[01:27:25.39] DANIEL GILBERT: The public hears about all this, not just courtesy of Fox News, but on the front pages of the New York Times.

[01:27:31.92] DANIEL GILBERT: And it quite rightly wonders whether we can be trusted to provide honest answers to complex questions like, "does affirmative action work," "do gun laws reduce homicide," "do government benefits undermine people's motivation to find employment," "does immigration increase crime?"

[01:27:48.59] DANIEL GILBERT: Now I personally think the data favor liberal positions on most of these issues, but that's not the point.

[01:27:55.12] DANIEL GILBERT: The point is, that most people simply aren't convinced that academic scientists can be trusted to tell them the truth, no matter what it turns out to be.

[01:28:03.49] DANIEL GILBERT: So, to fight truth decay, I think we have to ameliorate the public's mistrust--not of science, but of scientists. Not of the basic process of science, which they already trust with their lives every day, but of scientists, and I think one way to do that is to make scientists more trustworthy.

[01:28:21.05] DANIEL GILBERT: We don't do that by de-platforming speakers to mollify student groups who feel unsafe when somebody disagrees with them; we don't do that by making examples of people who use the wrong pronoun.

[01:28:33.41] DANIEL GILBERT: Now, to answer Skip's question, I see much less of this sort of thing at Harvard than at any of my peer institutions, and it's one of the many things that make me very happy to be a member of this particular faculty--but they're happening.

[01:28:47.03] DANIEL GILBERT: And they're happening with greater frequency and visibility than ever before. These are not the kinds of things that enhance our reputation in the eyes of the people. When the majority of psychology professors in a recent survey said they would not hire a colleague who was a conservative that didn't help our cause. I, I, don't want conservative colleagues because I think they're right. I mainly don't.

[01:29:10.74] DANIEL GILBERT: I want them because they keep us honest, and just as importantly, they preserve our reputation for honesty.

[01:29:17.82] DANIEL GILBERT: So, I guess I'm just saying, I think we have to start fighting truth decay in our own backyard. If scientists have a reputation problem, I think we need to talk at least as much about what we've done to deserve it, as we talk about how we can repair the people who actually have noticed. I'll end there.

[01:29:35.81] LAWRENCE BOBO: Thank you, Dan, that was, that was, really marvelous and hit that important nail right on the head, so to speak, and why don't we go to Skip's question and let Steven speak to it, since it's really right back on the table.

[01:29:49.48] LAWRENCE BOBO: And maybe each of you can take a shot at it; I'd love to hear from Ed and from Naomi on this as well.

[01:29:58.45] STEVEN PINKER: Yeah, I can answer for myself, I feel perfectly comfortable at Harvard. Harvard has been very, very good to me. Thank you, Larry Bobo, thank you, Claudine. Thank you, Larry Bacow, and all of their predecessors. But it's the wrong question 'cause I have tenure and I'm a, I'm a, "big shot."

[01:30:17.44] STEVEN PINKER: We should really ask the question to our, our, adjuncts, our assistant professors, our postdocs, our grad students, our undergraduates, who don't have power, and I think many of them actually are terrified.

[01:30:32.58] STEVEN PINKER: If we wanted to look compare Harvard against other institutions, we could look at the rankings for the Foundation for the Individual Rights in Education, which is a non-partisan academic freedom institution. It goes after violations both from, from, the left and from the right, and Harvard doesn't do so well: We're actually, we get a red rating on the red, yellow, green scale, because we have speech codes that are, are, rather indefensible; there are notorious incidents in which Harvard has repressed speech, such as publicly shaming a law school student for a private email; the banning of single sex organizations off campus, over which the University has no jurisdiction. There are others; you can go to the FIRE website to see what's, uh, what's wrong with Harvard.

[01:31:24.07] STEVEN PINKER: Although again, I personally have no complaints, but I'm not the one to ask. Now I wanted to just mention, together with agreeing with, with the thrust of Dan's comments, I just want to bring up a point relevant to his first observation, namely that the, we have now, today, new technologies that allow for the spread of information like never before. Uh, but there is an interesting phenomenon, and some of our colleagues like Bob Darnton and Leah Price, who've studied the history of print and prior communication technology, could speak more about this, but my understanding is that in the early days of a new medium, there're always a kind of Wild West, a kind of carnival of what we would today we call fake news, and misinformation, and conspiracy theories, and plagiarism, that in the 19th century with, with the rotary press made newspapers affordable and widely disseminated, newspapers were full of tall tales of civilizations on Mars, and the sea monsters dredged up from the ocean floor, and conspiracy theories by, by, the, involving the Irishman and other groups. That in each case, each of these media had to clean up their act and adopt, uh, professional codes of conduct to restore their own credibility after no one believed anything.

[01:32:51.65] STEVEN PINKER: Newspapers began schools of journalism, codes of ethics for journalists that involve things like fact checking, and more than one source, and so on, in the 1920s.

[01:33:00.70] STEVEN PINKER: The excellent new book by Jonathan Rauch called The Constitution of Knowledge, in which he goes over this history in many institutions, and I think a charitable view of the current moment is that we have unleashed, as Dan points out, unprecedented technologies for spreading information at zero cost and haven't yet developed the countermeasures to clamp down on the inevitable nonsense.

[01:33:26.84] LAWRENCE BOBO: Great. Thank you, Steven. Let me, let me go to Ed and then Naomi, if they wanna engage sort-of the Gates/Gilbert question.

[01:33:37.88] EDWARD GLAESER: Wow, I don't know, I also don't know, Larry, what I'm supposed to say as Chair versus, versus as not Chair. So it's, uh, it becomes slightly more difficult.

[01:33:46.42] LAWRENCE BOBO: You are relieved of speaking for the economics department on this occasion. You get to speak as Ed Glaeser, member of the faculty.

[01:33:54.22] EDWARD GLAESER: I think, you know, economists tend to be fairly dispersed ideologically, we're sort of unusual within the university. I think that's what's happened over time in economics is we've become more sort-of purely scientific as opposed to being more of the Heilbroner model of worldly philosophers who regularly opine on public policies, and that's, that's, all to the good, but that has sort of meant politics has receded somewhat in its importance, in its importance, in terms of our daily, our daily, discourse. I will say, though, that in terms of graduate students we had a fairly healthy dialogue about the union. There were certainly graduate students who were livid at the idea that they were going to be forced to pay for the union, and we had others who thought that it was absolutely necessary that everything should be forced to pay for the union, and so I felt, I felt that, that was, that was healthy.

[01:34:41.02] I certainly reached out to some of the graduate students who had taken, taken views that I thought were more unpopular just to make them know that just as we protect strongly the, the, students' rights to express themselves through striking, we take strongly the, the, students' rights to complain about the striking--that that's, that that's a, that's part of the free speech world in which the, we, we operate.

[01:35:01.08] EDWARD GLAESER: And so at least that's how, I mean, I think about it as one is just, just, creating an atmosphere of trust, where the goal is very much to figure out what the right answer is, to discern, you know, what the truth is, and that, you know, pretty much every question is on the table, and there's nothing, there's nothing, that's ruled off arbitrarily.

[01:35:22.38] LAWRENCE BOBO: Okay, and I guess I might ask: So, are you, are you saying Harvard's at a good place and it's moving in the right direction, or where we're at a risky place and maybe moving in a bad direction.

[01:35:36.33] EDWARD GLAESER: So, I don't, I don't, you know, I just don't feel comfortable necessarily speaking outside of, of economics. I will say with, in terms of undergraduates, so, for example, I was disturbed by the fact that the Salient was published with almost entirely pseudonymous authors--almost no one put their name down--which I do not believe is true in the old Salient.

[01:35:58.65] EDWARD GLAESER: That certainly suggests an atmosphere of fear among

Harvard students on the right, so I, I think, you know, I can't say that I think that everything is moving, moving the right direction.

[01:36:07.68] EDWARD GLAESER: But it is true that this, I think, is not just an issue of big shots and small shots; I will say that our graduate students feel reasonably, you know, safe in the little Littauer bubble.

[01:36:15.67] EDWARD GLAESER: I don't think our undergraduates feel safe to express themselves at all on everything, so that that's where I think it's, that, those would be the group that I would think would be most vulnerable. And I can't speak for graduate students in other departments at all.

[01:36:25.34] LAWRENCE BOBO: Thank you, Ed. Let's go to Naomi, and then I'm going to go to Emmanuel Akyeampong, who has his hand up.

[01:36:30.18] NAOMI ORESKES: Well, there's a ton here, and I want to say

[01:36:32.23] LAWRENCE BOBO: Yes, there is.

[01:36:33.27] NAOMI ORESKES: This has been an incredibly great exchange, and I, we can have a whole day, a whole weekend, workshop in this, and maybe we should, 'cause I think that people have raised, really, really important issues.

[01:36:42.73] NAOMI ORESKES: And I want to say I agreed with just about everything that Steven and Ed said, but I'm going to push back in a friendly way against Dan Gilbert on a couple of levels, and first I'm just gonna start with a small detail.

[01:36:53.71] NAOMI ORESKES: Lots of undergraduates are afraid to say what they think in many contexts, and I certainly know women and people of color who have felt intimidated in classrooms. So, the question of how we create a safe and supportive environment for all of our students is a really, really important one, but I think it would be very misleading to give the impression that it's something that uniquely or disproportionately affects Conservatives, I just want to get that out there.

[01:37:17.41] NAOMI ORESKES: But, the bigger intellectual question: So, I think that Dan Gilbert is absolutely right to raise the question of whether the problem is distrust in science as an enterprise versus distrust in scientists, and I was super happy to hear Steven Pinker talk about, you know, the idea of, you know, identifying other people's biases because that's completely consistent with my view that and then, when I wrote my most recent book, which is called *Why Trust Science*, the original title of the project was 'Why Trust Scientists,' and I scrapped that title because I realized that I actually don't believe we should be trusting scientists. I adamantly reject the 'great man individual genius' model, which I was happy to hear Steven also rejects.

[01:37:58.16] NAOMI ORESKES: The strength of science is the collective enterprise in which we have mechanisms, both formal and informal, for identifying other people's errors--and

hopefully our own as well, but usually other people's--and embracing that and being part of a community of practitioners who accept criticism as part of the structure of the enterprise. And you may not like it, and it hurts--we've all had reviews that we didn't like--but we've been trained to say, 'Okay, you know, that guy might have been jerk'--this is what I say to my graduate students--'they may have said it in a rude way, but it doesn't matter; you still have to take the criticism on board.' And I think that is an incredibly important thing, and we do need to do more work to explain to people that process, so that they understand that science isn't about individual opinion.

[01:38:45.12] NAOMI ORESKES: That said, I think Dan's hypothesis that there are these two things that compromise people's trust in scientists, is something that we need to do more work on. I don't think we know the answer to that, but to the extent that I have looked at evidence of this--and I've been looking for evidence of this---um, he put forward two hypotheses: One was that people didn't trust scientists because they were, um, co-opted by political ideology or corrupted by political ideology, and the other was they were corrupted by corporate interests. Well, we do have evidence on this. That same AAAS study that I cited showed that people are suspicious of science when they think that it's being unduly influenced by financial interests.

[01:39:23.09] NAOMI ORESKES: And personally, I think they are right to be suspicious about that; this is another thing I actually find reassuring.

[01:39:28.30] NAOMI ORESKES: I think that a source of public suspicion is a legitimate one, and we have to do a lot of work, and I have written on this, and I've written on it in ways that I know have upset some of my Harvard colleagues.

[01:39:39.00] NAOMI ORESKES: I think we are way too cavalier about thinking that, you know, what Derek Bok famously said, "there's no such thing as tainted money, except 'tain't enough."

[01:39:46.84] NAOMI ORESKES: The fact that the money supports a good cause does not solve these problems because, even if we do good things with the money, even if the research we do with it is peer reviewed and valid, if it's seen to be coming from suspect sources, that advert that can adversely influence how people think about us. But we don't have good data; we definitely need to do more.

[01:40:08.48] NAOMI ORESKES: On the political corruption thing, we have very little data. Now, it may well be the case that that is an influence, but we don't have good data to support that. And here again I want to push back a little bit, because if we think about the political pressures on scientists, yes, there are political pressures from the right and left, but in my lifetime, in the last 40 years or so--and certainly the last 20 years ago where I have been studying this as an empirical problem--we have far more evidence of pressure from the right than the left, and that the pressure is not so much coming from individual wokeness or political correctness, but it's actually structural. So, for example, Don mentioned the issue of guns, and I think the way

he phrased this was, 'do gun laws reduce crime,' but we do have a slightly different question that scientists have tried to look at:

[01:40:59.58] NAOMI ORESKES: Do gun laws reduce deaths? Like homicide deaths or accidentally. And we know that Congress forbade the NIH from allowing funds to go to medical researchers looking at this as a public health question and that some of our own colleagues here at Harvard had to stop doing research that they were doing on this question because of political pressure from the right connected to the gun lobby. And so, this totally fits with Ed's argument about, there are people for whom the purveying of error is in their interest or their suppression of knowledge is in their interest, and I don't think we've done nearly enough to talk about that. And I just want to add one more thing that's related to that, then, um

[01:41:41.84] NAOMI ORESKES: So yes, in theory, we, you know, we all read John Stuart Mill and in theory we all believe, you know, there should... 1000 intellectual flowers should bloom, and we should hear all the arguments, and the arguments should be judged in their merits, of course, we believe that in principle.

[01:41:58.36] NAOMI ORESKES: But in practice, we know that some of the so-called "conservative" speakers who people have sometimes objected to--and I put conservatives in scare quotes because I think some of these people are not conservatives, I think some of these people are radicals.

[01:42:10.82] NAOMI ORESKES: And some of them--not all, but some of the people about whom there've been fuss--are purveyors of error, they are putting forward arguments that we know are empirically inadequate at best, and sometimes completely false. And the idea that our students could just listen to this, and, and kind-of have the wherewithal to sort out, you know, the deliberate purveyors of error from the sort-of legitimate difference between, is a really, really complicated question, and I'm not saying that I necessarily know the answer.

[01:42:40.93] NAOMI ORESKES: But I am saying that I do know for sure that simply inviting a climate change denier to campus, or a creationist to campus, by itself is not a good solution to this problem. So yes, we definitely need to hear a variety of voices, we need to make sure that Harvard and all universities are safe places for authentic good faith exchange of ideas. But there are people who are not operating in good faith, who do not share our values of good faith exchanging of ideas and are purveying falsehoods, and I think we can't just brush that under the rug.

[01:43:12.01] LAWRENCE BOBO: Thank you, thank you, that was a really important and complex engagement, with, with these issues. Let me turn to Emmanuel Akyeampong You have your hand up and maybe we can unmute you. Emmanuel, is there a chance of doing that or did we lose you?

[01:43:27.30] EMMANUEL AKYEAMPONG: Okay, can I, can you hear me?

[01:43:29.56] LAWRENCE BOBO: Yes, yeah, very good.

[01:43:30.60] EMMANUEL AKYEAMPONG: OK, I wanted to bring an international perspective to this. We live in a very international world; Harvard is a world leader, and as I travel around the world, I hear very interesting comments about what is happening in America.

[01:43:47.76] EMMANUEL AKYEAMPONG: Fake news, alternative news, etc. etc. Does what the rest of the world think matter in this conversation we're having about truth decay in America? That is one question.

[01:44:03.77] EMMANUEL AKYEAMPONG: Or do we live in our own bubble? We're seeing fake news, we're seeing alternative news, we're seeing truth decay, and, and Daniel Gilbert mentioned that perhaps what we are seeing is, is, a new creation that has been birthed by the kinds of new media that we have.

[01:44:25.31] EMMANUEL AKYEAMPONG: Is our conversation part of a global phenomenon? Is truth decay something that has become global? And Harvard is a very internationalized university, then has a very interesting place in all this, because then it has also implications for us if we claim to be that international university, we hold ourselves out to be. So, so, if we open the window a little bit to let in the rest of the world, what are the implications for the conversations we are having, or are we having just a typically American conversation? Thank you.

[01:45:01.23] LAWRENCE BOBO: Terrific question, Professor Akyeampong. What... I guess, whoever on the panel wants to engage it first, just wave, and, and I will let you go first.

[01:45:14.67] LAWRENCE BOBO: Otherwise, I have to cold call somebody.

[01:45:19.81] LAWRENCE BOBO: Let's go to Ed; I think you gave us more of the international data in your remarks.

[01:45:27.58] EDWARD GLAESER: Sure, I, you know, certainly, I believe very strongly that Harvard needs to be engaged with the world on this. I have a, I have a, UK presentation I'm supposed to be giving tomorrow morning on the impacts of climate change on developing world cities, which is a topic I care deeply about and know far too little about in terms of giving this presentation, but for sure, we need to be engaged. I didn't, I'm not sure I like the idea of, sort of, I mean the phrasing that we should care about other people's opinions.

[01:45:53.00] EDWARD GLAESER: And I'm sure that's not what you meant, but I sort of don't like the idea of really caring about anyone's opinion, other than, other than, truth, if that's ultimately what our objective is.

[01:46:01.62] EDWARD GLAESER: But, in terms of learning from the, the rest of the world, in terms of talking to the rest of the world, in terms of recognizing that, you know, America certainly doesn't have any kind of monopoly on truth, uh, that's obviously part of our, part of our mission and should be essential to us.

[01:46:18.59] EDWARD GLAESER: So, I don't know that I had a, had a reaction stronger than that, but I cannot tell you how important it is to me that Harvard is as international a place as it is, and I think it's one of the greatest assets at the institution.

[01:46:30.26] LAWRENCE BOBO: I guess I would push it not so much on you, Ed, but maybe to Naomi, or for some reason, perhaps Dan, on whether it is your sense or experience that the kind of, let's say worry, that we have about truth decay here exists in other countries, either the kind of leading industrial democracies, or other parts of the world, or is this, this discussion, this conversation, a kind of uniquely American preoccupation in the moment.

[01:47:05.70] EDWARD GLAESER: Well, I would just say, certainly, certainly in the UK, there is some of this, it's just not as extreme, certainly when I'm, when I'm exposed to it in the UK.

[01:47:18.60] LAWRENCE BOBO: All right, anyone else want to comment before I move to our next question?

[01:47:22.12] NAOMI ORESKES: Yeah, I mean I could just second that, in the sense that we do have data; we have, uh, public opinion poll data, for example, on climate change denial. We do know that the United States is far worse than, say, other OECD countries, so in that sense, sure, this is an issue that exists everywhere in the world, it takes different forms in different places, obviously, because the cultural and political situation are different, but in terms of certain kinds of, let's say motivated purveying, of error and disinformation, we do have evidence that that is worse here in the United States than in other comparable countries.

[01:47:58.71] LAWRENCE BOBO: Thank you. So, let's, let's turn to Chris Winship.

[01:48:05.07] LAWRENCE BOBO: You can unmute yourself there.

[01:48:06.66] CHRISTOPHER WINSHIP: Thanks, Larry, and thanks to all four people for great presentations.

[01:48:13.87] CHRISTOPHER WINSHIP: Um, I wanted to point to another possible issue in terms of the academy, which is sort-of the lack of any serious boundary maintenance between the academy and the public. So, in terms of journals, um, we've got a whole peer review system; um, it works so-so, but you know, probably, you know, keeps some of the worst research out there.

[01:48:43.62] CHRISTOPHER WINSHIP: Um, you know, we now have a media that's more than happy to go look at working papers and report results--I think of a paper that I won't mention names, but, you know, this was a paper that needed at least another year or two of work, but there it was in The Economist reporting a set of very provocative results.

[01:49:09.31] CHRISTOPHER WINSHIP: And, of course, the, the other issue here is that, I think this alludes to a comment Steve made, the media likes the most extreme findings, the most provocative ones, and of course we know that the most extreme improba, provocative, findings, on average, are likely to be wrong. We can just do a particular, you know, straight statistical

analysis, right, but when your effect is super significant there is a good chance that that's because it's not true.

[01:49:47.55] CHRISTOPHER WINSHIP: And, of course, it's exactly, you know, in that context that the media love, loves, you know, writing the story. And, you know, I think this goes back to sort of the issues that, you know, were true of journalism when they had to develop a whole set of norms.

[01:50:07.27] 691

[01:50:07.84] CHRISTOPHER WINSHIP: And you know, today we have academics participating in the media and [inaudible] and we have Ted talks and everything else, often positioning themselves as, you know, kind-of 'here is the truth,' when, you know, they maybe have some interesting ideas, some interesting findings, they may or may not stand the test of time.

[01:50:41.03] LAWRENCE BOBO: Well, thank you, Chris. Does anyone want to engage that, that observation? I think it's a really quite important point.

[01:50:57.24] NAOMI ORESKES: Well, well, I can jump in. I think it's tricky, because I think you're absolutely right that we do have to be careful about, you know, exaggerated claims to get attention, or things that get circulated, you know, before they've really been, you know, fully baked.

[01:51:11.88] NAOMI ORESKES: But on the other hand, there's also a lot of pressure on us, you know, not to just be "in the ivory tower," to connect with larger communities.

[01:51:18.46] NAOMI ORESKES: You know, NSF has this "broader impacts" thing now, which in the beginning was just lip service, but now it's actually taken seriously.

[01:51:25.40] NAOMI ORESKES: So, I think if there are sort of competing pressures, and I don't think there's a simple answer to that except to be mindful of the fact that there are competing pressures.

[01:51:34.22] NAOMI ORESKES: I know one thing that I do, a personal practice I have, is to be pretty strict about not commenting in public on things Well, first of all, I would never comment on the Afghanistan war. I now--and I'm sure Steven and Ed get this, too--once you become "known," you get invited to talk about all kinds of things that you know very little about.

[01:51:52.20] NAOMI ORESKES: And so, there is a kind of personal discipline you have to exercise to say, 'no, thank you' to things where you really are not the expert, and to recommend other people who know more about the topic than you do. I have a whole rolodex of--well, rolodex is dating myself--but, you know, a whole metaphorical rolodex of colleagues who know more than I do about issues that I sometimes often get asked about.

[01:52:14.03] NAOMI ORESKES: So, there's that. And then also that I try not to write a Scientific American column or op-ed piece until I have done some serious research--and usually published in peer reviewed journals--so that if people ask, you know... Because if you write an Op-ed piece it's necessarily short, it's necessarily abbreviated, and it's necessarily simplified, but you can refer people then to the more complex version of the, of the argument.

[01:52:39.98] LAWRENCE BOBO: Thank you, all well taken. Let's turn to Dan Smail, you have a question. Oh, Steven, did you want to comment on this first, before going to Dan?

[01:52:49.91] STEVEN PINKER: A quick comment that, um... And we could have a whole other symposium on the reputation of science in light of the replicability, replicability failures, but one thing: It's not so much a question of outreach but what scientists and scholars in general are recognized for. There's much too a kind of a compact between academics and science journalists to report the sexy finding, the finding that seems to overturn the apple cart, the surprising finding, the counter-intuitive finding.

[01:53:24.78] STEVEN PINKER: All of the ones that, based on Bayesian reasoning, have a low prior probability, and therefore the posterior probability should be lower as well, and that if we could convey the idea, as one historian of physics put it, that 90% of claims in physics journals are false, 90% of claims in physics textbooks are true, that science actually does, is cumulative, corrects its errors over the long term, on average.

[01:53:51.37] STEVEN PINKER: But it's the flash in the pan, uh, study, as opposed to the meta-analysis, the literature review, that tend to be targets for replicability police.

[01:54:01.00] LAWRENCE BOBO: Well taken. So, Dan your question; you get the last question, I think.

[01:54:05.17] DAN SMAIL: Yes, well thank you, Larry, and thank you all, this has been extremely interesting.

[01:54:08.83] DAN SMAIL: Naomi, you seem to imply in one of your comments that the growing dependency of universities on donor gifts may be undermining some of the public's trust in universities.

[01:54:22.47] DAN SMAIL: And I wanted to know whether, first of all, whether I heard this correctly and whether there, in, in the spirit of your own remarks, whether there's actually data on that, or whether there can be data on that, and, and the larger question, perhaps for our dean, Larry, is what should we do about it?

[01:54:39.46] NAOMI ORESKES: Yeah, thanks, Dan, for that question. So, this is a really important topic that I think we badly need to collect more data on. So, I wasn't really thinking so much about donor gifts, although as Steven knows, the issue of Epstein, Jeff, Jeffrey Epstein, is something I've written about, but I wasn't thinking so much about donor gifts as more like

corporate and industrial funding, direct funding, of research, which I think has a whole set of questions that need to be discussed.

[01:55:11.09] NAOMI ORESKES: But I think both are relevant--but the data that I know of has to do with corporate funding, or financial interests, say, for example, when scientists take out patents, or when scientists themselves create companies.

[01:55:23.19] NAOMI ORESKES: And this was a big issue, you may remember, a few years back, when there was a death of a young man who was in a clinical trial at the University of Pennsylvania.

[01:55:30.10] NAOMI ORESKES: And it turned out that the scientists involved had patented the techniques, and had created a company to commercialize this product, and then the young man in this study died, and he was suffering a non-fatal disease, which to me is ethically relevant. So, there was a lot of talk after that, and, and there was definitely sort of, at least, what we could call case report evidence that the potential commercialization of the product did raise a lot of questions in the minds of observers about the objectivity of the scientist. More recently, the AAAS study that I referred to had data on this, and it was one of the things that was raised, was that the data seem to show that, while overall people had a fairly high level of trust in science and believe that science and technology investments pay off in the long run, they also raised questions--they have a lower level of trust in science, where there was the perception or the reality of a corporate or competing financial interest. So, we do have some data on that, and I do think that that supports Dan's argument that there can be questions about trust in scientists, that can spill over into questions about trust in science when the public perceives and, in this case sometimes correctly, that there could be a competing conflict of interest that could, in fact, undermine the objectivity of the of the process.

[01:56:52.49] LAWRENCE BOBO: Yeah, and, you know, from the decanal point of view, you know, last year the University promulgated publicly a far more explicit set of criteria for accepting funds, so that that's clarified, and I think, certainly for years, and particularly in the current era, works very conscientiously to, not so much create a wall, but to keep very distinct the ambitions, goals, interests, and pursuits of the faculty from ever being driven by, or subject to, the claims or interests of a particular donor. So... And I would encourage you to go to the provost's website to find this information.

[01:57:34.37] LAWRENCE BOBO: We are, sadly, at the end of our time. I am enormously appreciative to Naomi, to Steve, to Ed, and to Dan for your contributions to this panel. I'm delighted by the exchange we got into toward, toward the end here, and it looks as though part of the solution is to get our own house in order before anything else, and we will certainly continue to work on that. Look for another one of these sessions next term, and we will keep these discussions going, but thank you all very much and have a, have a wonderful evening.