The background of the cover is a photograph of a tropical river at sunset. The sky is a warm, golden-orange color, and the sun is low on the horizon, creating a long, calm reflection on the water. Lush green palm trees and other tropical vegetation line the banks of the river. Numerous birds, likely frigatebirds, are captured in flight across the sky, their dark silhouettes contrasting against the bright light. The overall mood is serene yet urgent, reflecting the theme of climate action.

Bulletin of the American Academy of Arts & Sciences

HONORING HAIFAN LIN
WITH THE FRANCIS AMORY PRIZE

HONORING KWAME ANTHONY APPIAH
WITH THE DON M. RANDEL AWARD
FOR HUMANISTIC STUDIES

UNDERSTANDING IMPLICIT BIAS
AND HOW TO COMBAT IT

Climate Action Has Accelerated

but There Is More Work to Be Done

SUMMER 2024



Paul Castellitto, Anita Allen, and Tommie Shelby outside Sanders Theatre at the 2019 Induction. The Academy looks forward to returning to Sanders Theatre for the 2024 Induction Ceremony.

September 20-22, 2024

Cambridge, MA

Induction Weekend

All current members are warmly invited to attend the Friday evening Opening Celebration, Saturday afternoon Induction Ceremony, and Sunday morning Closing Program with a guest. Registration will open in the summer.

For a full listing of upcoming events, please visit amacad.org/events.
Click on Past Events to find and view recordings of programs you may have missed.



A medal for one of the Academy's prizes.

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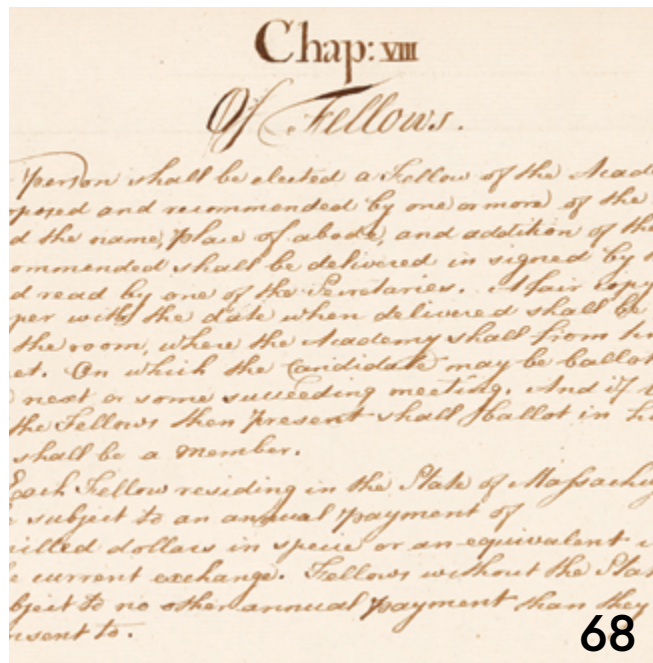
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ON THE COVER: The Academy's Commission on Accelerating Climate Action held a meeting in Miami in January 2023. During a walking tour of the Little River Canal with The CLEO Institute and the Maimi-Dade County Office of Resilience, Commission members experienced climate's impact on infrastructure, flooding, and human health.

From the Chair of the Board of Directors

As the photos and articles in this *Bulletin* convey, the Academy continues to deliver on its important mission of celebrating excellence and advancing the common good. We are well positioned to do so in light of the accomplishments of **David Oxtoby**, who served more than five years as Academy President and stepped down from the role in June. We are indebted to David for his tireless work in developing a robust range of projects and deepening relationships with our members. We are poised for continued strength and impact with the appointment of **Laurie Patton**, President of Middlebury College, as the Academy's next President. A poet, humanist, and expert in South Asian culture and religion, Laurie brings a deep well of experience as a thought leader on democracy and pluralism, and as a seasoned executive at multiple institutions. We look forward to her arrival in January.

Meanwhile, the work of the Academy continues apace. Each year, we celebrate excellence by electing a diverse group of new members who bring wide-ranging expertise and remarkable accomplishments. The 250 members elected in April include some of the foremost artists, innovators, scientists, business leaders, and humanists in our nation and the world. They hail from 29 states, 22 countries, and over 135 institutions, and we look forward to honoring them at Induction Weekend in September.

We also celebrate excellence by awarding prizes that acknowledge outstanding contributions to science, the humanities, the social sciences, and public policy, and a commitment to intellectual inquiry and leadership. This year, we presented the Francis Amory Prize, which recognizes significant scientific advances in reproductive biology, to Academy member **Haifan Lin** (Yale School of Medicine; Yale Stem Cell Center) for his contributions to stem cell research. We also presented the Don M. Randel Award for Humanistic Studies, which recognizes outstanding humanistic scholarship, to Academy member **Kwame Anthony Appiah** (New York University), one of the most prolific and influential thinkers of our time. Insightful remarks by both honorees at their award ceremonies appear in the pages that follow.

In February, we published the *Dædalus* volume, "Understanding Implicit Bias: Insights & Innovations,"



which I guest edited with **Camara Phyllis Jones** (King's College London), and this spring we hosted a virtual event, "Understanding Implicit Bias and How to Combat It," which featured a presentation by Camara and my conversation with authors **Jennifer Eberhardt** (Stanford University) and **Frank Dobbin** (Harvard University), attended by over 230 people. These projects underscore the Academy's commitment to elevating the use of evidence and knowledge to inform an issue of public importance. Scientific inquiry has advanced our understanding of implicit bias in recent decades and has also illuminated the limitations of certain cognitive measures and commonplace interventions like implicit bias training. This *Bulletin* includes a feature about the virtual event, which sheds light on effective strategies to mitigate the adverse effects of bias throughout our society.

As detailed in the pages that follow, the Academy's core values and principles deeply inform many other projects – from the Commission on Accelerating Climate Action to Making Justice Accessible – and recent work including a meeting on Climate and Security and a *Dædalus* issue on "Advances & Challenges in International Higher Education." Everything we do relies on the expertise of members from across the arts and sciences. Thank you for your invaluable contributions to exploring new ideas, addressing issues of importance to the nation and the world, and advancing the Academy's mission.

Goodwin Liu

An architectural model of the campus of the Asian University for Women in Bangladesh, designed by Academy member Moshe Safdie. The campus employs numerous sustainable design strategies, including natural ventilation, daylighting, high-thermal mass construction, hillside stabilization, and mass re-vegetation.



Dædalus Explores Advances & Challenges in International Higher Education

By *Dædalus* Editorial

While U.S. colleges struggle against broad disinvestment, institutions of higher education in many parts of the world have imagined ambitious new models of twenty-first-century education. From world-class public research universities to online and binational start-ups, the landscape of global higher education is shaped by ongoing experimentation and change. What have these approaches taught us? And what lessons can we apply to institutions in the United States?


In the Spring 2024 issue of *Dædalus*, “Advances & Challenges in International Higher Education,” guest edited by Wendy Fischman, Howard Gardner, and William C. Kirby, university founders, classroom innovators, and education advocates highlight the successes and growing pains new universities and colleges around the world have experienced as they rise to meet modern challenges.

Climate action, geopolitics, and shifting pedagogies are among the major issues addressed in these

essays. Together, the authors are engaged in a rich discussion of the evolving missions of higher-education institutions worldwide, reexamining the basic aims of a liberal arts and sciences education: truth and freedom.

&

“Advances & Challenges in International Higher Education” is available on the Academy’s website at www.amacad.org/daedalus/advances-and-challenges-international-higher-education. *Dædalus* is an open access publication.



“Advances & Challenges in International Higher Education”
features the following essays:

Introduction: International Innovation & American Challenges

William C. Kirby

Research & Teaching: Lasting Union or House Divided?

Emily J. Levine

The International University in an Age of Deglobalization

Mariët Westermann

The Rise & Restructuring of Yale-NUS College: An International Liberal Arts Partnership in Singapore

Pericles Lewis

Northwestern University in Qatar: A Distinctive Global University

Marwan M. Kraidy

Establishing a Research-Focused Liberal Arts College in China: Duke Kunshan University

Haiyan Gao & Yijun Gu

Chinese Universities on the Global Stage: Perspectives from the Recent Past

Wen-hsin Yeh

The Liberal Arts in a Chinese Tech University: ShanghaiTech

Mianheng Jiang

Valuing & Defending the Arts in Hong Kong

Mette Hjort

A Long & Wrong Road to Globalization: Why Have Japanese Universities Failed in “Catching Up” in the Twenty-First Century?

Takehiko Kariya

India’s Realignment of Higher Education

Jamshed Bharucha

One Aspirational Future for India’s Higher-Education Sector

Tarun Khanna

Up Close: Asian University for Women

Kamal Ahmad

The Socialist Model of Higher Education: The Dream Faces Reality

Isak Frumin & Daria Platonova

The Geopolitics of Academic Freedom: Universities, Democracy & the Authoritarian Challenge

Michael Ignatieff

The Pandora’s Box of Fudan Hungary

Ágota Révész

Teaching for Synthesis at The London Interdisciplinary School

Carl Gombrich & Amelia Peterson

The Rise of University Colleges in Europe: A New Future for Liberal Arts & Sciences in the Twenty-First Century?

Marijk C. van der Wende

Global Education without Walls: A Multidisciplinary Investigation of University Learning in Online Environments across Disciplines

Olga Zlatkin-Troitschanskaia

Educating Students for Climate Action: Distraction or Higher-Education Capital?

Fernando M. Reimers

Online Learning & the Transformation of Global Higher Education

Richard C. Levin

Minerva: The Intentional University

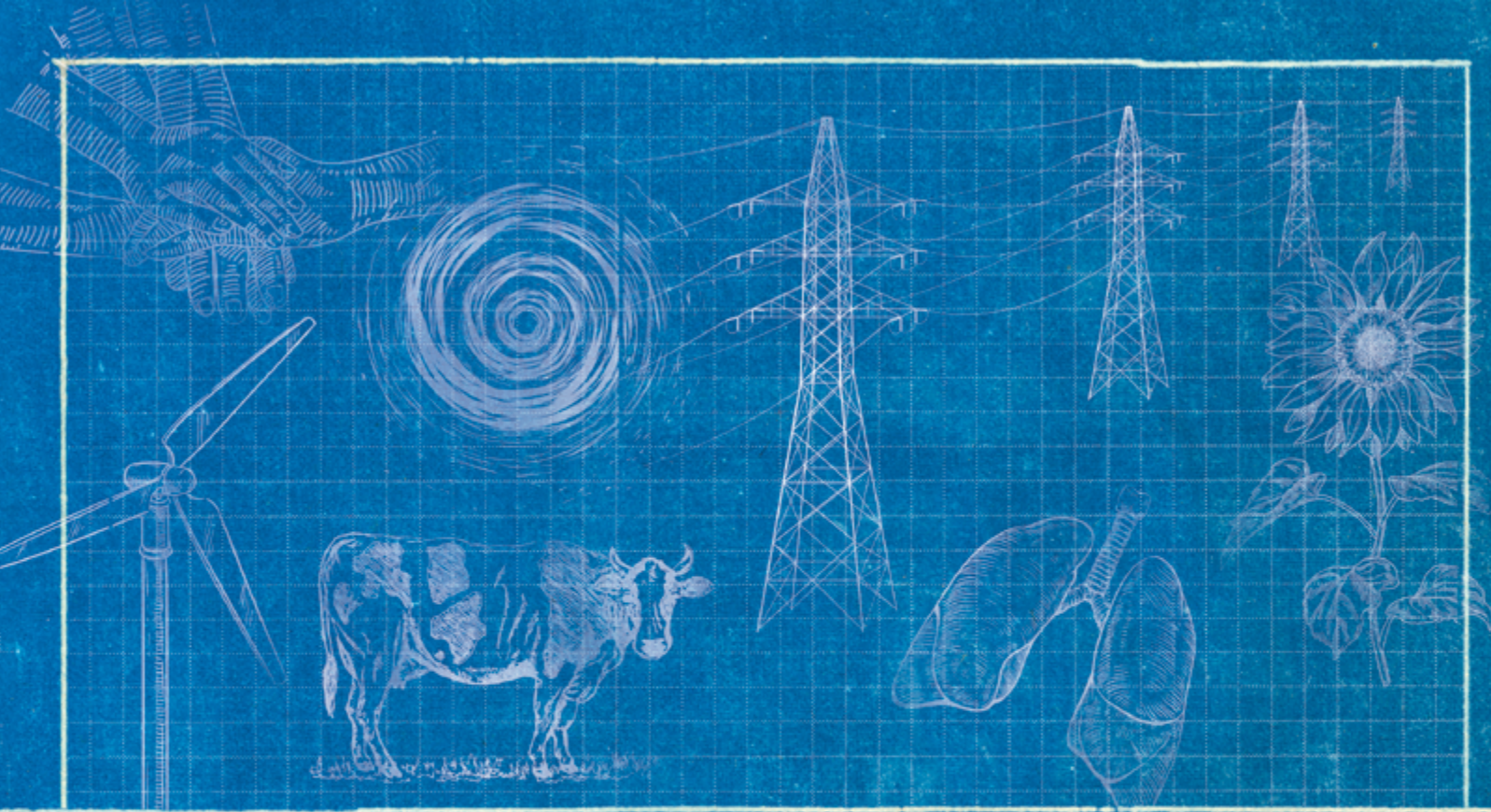
Teri A. Cannon & Stephen M. Kosslyn

The Role & Rule of Rankings

Gökhan Depo

Higher Education in the Twenty-First Century: What’s the Mission?

Katie Abramowitz, Wendy Fischman & Howard Gardner



Climate Action Has Accelerated but There Is More Work to Be Done

By **Kate Carter**, Senior Program Officer for Science, Engineering, and Technology at the Academy

The conversation about climate change has evolved dramatically over the past three years. Since the Academy's Board of Directors issued a public statement on climate change and the Academy's Commission on Accelerating Climate Action began, public opinion and legislative measures have shifted toward more significant climate solutions.

The Academy started the Commission on Accelerating Climate Action at a time when the discussion in the media focused predominantly on elevating awareness and acceptance of climate change. While there will always be skeptics, there is now a growing agreement of the realities of climate change and a shift in public discourse about how

to act. The Commission's work began after a notable phase of federal inaction on climate change, and it concludes during the implementation of the Inflation Reduction Act, a landmark piece of climate legislation. Moreover, while more work is needed, there is a growing recognition among the private sector that climate mitigation and adaptation are necessary to remain competitive.

Though these promising outcomes feel new, they have been bolstered by decades of significant research and policy efforts across sectors. The sheer volume of climate research produced each week is overwhelming, making it nearly impossible to fully grasp the scope of the work. (*Forging Climate Solutions*,

the final report from the Commission on Accelerating Climate Action, was released within a week or two of other major climate reports from the National Climate Assessment and the National Academies.) The knowledge base for effective climate action exists – if only policymakers knew where to look.

However, as often happens with multitudinous efforts, there was no unified plan for action across reports. One of the earliest problems that the Commission's cochairs – **Mustafa Santiago Ali** (National Wildlife Federation), **Christopher Field** (Stanford University), **David G. Victor** (University of California, San Diego; Brookings Institution), and **Patricia Vincent-Collawn** (PNM Resources) – identified was



Christian Kamrath, Resilience Program Manager at the Miami-Dade County Office of Resilience, leads members of the Commission on Accelerating Climate Action and project staff on a climate walking tour of Miami's Little River neighborhood in January 2023. Miami's CLEO Institute also joined the tour to discuss the impact of extreme heat and sea level rise on human health.

the disjointed approach to climate policy that left meaningful efforts vulnerable to shifting political priorities. There was a need to reach across reports and expertise to construct a unified strategy that could help the country manage a climate response across sectors and locations. To meet this need, the Commission would have to establish a broad and durable coalition capable of transcending the labels that divide us to confront this existential threat, which will affect all of society.

That meant enlisting the help of one of the most interdisciplinary Commissions that have ever tackled climate issues. The only requirements for Commission membership were a belief in climate change and expertise in one of the numerous sectors impacted by its effects. From actors to activists, lawmakers to lawyers, energy executives to

environmental justice advocates – all found their way onto the Commission. Though they held differing views on the problem and its solutions, they wanted to be a model for how cross-sector and bipartisan collaboration could affect climate action.

One of the earliest challenges for the Commission, therefore, was helping everyone learn to speak the same language. Coming from diverse backgrounds, Commission members initially struggled with differing definitions of terms like *cooperation* and *environmental justice*. However, through ongoing dialogue and keeping an open perspective, they were able to move past these differences. This process helped them realize that they shared core values, which were more significant than the varied words they used to express them.

To build bridges within shared content expertise, the Commission was divided across three working groups: one on understanding effective climate communication, a second on building private sector engagement, and a third on considering the national security implications for climate. These working groups engaged an even broader and more diverse range of experts to explore topics from how film and television discuss climate to discussions with military leaders regarding how their bases have led adaptation efforts. Another group convened private sector leaders with environmental justice experts to ask challenging questions about how businesses could adapt to climate change in a way that centers the needs of their local communities. The contributions of these

working groups were essential in informing the Commission’s final report.

Given the diverse membership of the Commission, producing a consensus report was a challenging task. The five strategies and twenty-one recommendations survived multiple trials by fire during the Commission’s meetings. Those strategies and recommendations articulate a “fair bargain” on climate change: a roadmap for climate action that outlines how a whole-of-society commitment can emerge. It is surprising then that one of the report’s major strengths was that none of the Commission members were completely satisfied with it.

Since the report’s launch in October 2023, the Commission’s co-chairs and members have been sharing the strategies and recommendations nationwide. They have convened discussions not only with audiences already engaged in climate action but also with those

interested in learning more. The report found eager audiences at the American Geophysical Union, the Consortium on Climate and Health, and the Alaska Forum on the Environment. But the Commission was also able to enter spaces where climate is not frequently discussed. Commission members from the private sector spoke to energy executives at both the Edison Electric Institute Annual Conference and CERAWeek about the report and how to equitably prepare for climate change.

Applying the report’s interdisciplinary nature to spur equally interdisciplinary conversations, the Commission was able to bring together diverse audiences. In May 2024, the Commission organized a virtual panel discussion to connect environmental justice advocates with grantmakers who were already invested in climate change funding but had not yet considered the benefits of justice-focused philanthropy. The conversations focused on

how a justice-centered approach to grantmaking addresses the disproportionate impact of climate change on marginalized communities and enhances the effectiveness and long-term impact of philanthropic investments.

Academy members provided valuable feedback and engaged with Commission members across various events, including the San Diego Program Committee’s program on “Inspiring Collective Climate Action in California and Beyond,” a Bay Area gathering about climate action, and an event on “Accelerating Climate Action Across America” hosted by the Houston Program Committee.

The Academy addresses society-level challenges that do not always have clear solutions. It is, therefore, rare and encouraging to see the progress that the Commission on Accelerating Climate Action was able to make over its relatively short lifespan. However, this incremental progress – though promising – is ultimately insufficient to meet the country’s needs to decarbonize and adapt. In May 2024, the Academy hosted an exploratory meeting on Climate and Security that drew upon some of the foundational work of the human and military security group to engage experts in the geopolitics of decarbonization and resilience-building. The Science, Engineering, and Technology program staff are planning additional member events and workshops to build on and continue the work of the Climate Commission.



To learn more about the Commission on Accelerating Climate Action and to read the report *Forging Climate Solutions*, please visit www.amacad.org/climate.



Commission member **Phil Bredesen** toasts the Commission during the October 2023 launch of *Forging Climate Solutions*.



Stacy Jane (standing; Innovation for Justice) facilitates a design workshop with Summit participants centered around networks, technology, and collaboration across sectors that make justice initiatives effective. At the table (far left to right): **Lance Liebman** (Columbia Law School), **Vikrant Reddy** (Stand Together), **Diane Wood** (American Law Institute), **Christine Fecko** (IOLA Fund of the State of New York), and **Keegan Warren** (Texas A&M University Institute for Healthcare Access).

Making Justice Accessible Summit

By **Eduardo Gonzalez**, *Program Officer for American Institutions, Society, and the Public Good*, and **Betsy Super**, *Program Director for American Institutions, Society, and the Public Good*

In a single year, 55 million Americans might face 260 million legal problems, such as fighting eviction threats from landlords, dealing with overwhelming medical bills from an unexpected illness that could lead to bankruptcy, or seeking assistance to escape abusive domestic situations. Yet only some Americans recognize that these problems are matters of civil justice. And even fewer have access to available, affordable, and quality legal support needed to resolve these problems. This is the civil justice gap: the disparity between the legal needs

of Americans and the resources available to meet those needs.

For the past ten years, the Academy’s Making Justice Accessible project has worked to understand, measure, and highlight innovative solutions to the civil justice gap. In March 2024, over sixty leaders in law, health care, philanthropy, corporate social responsibility, non-profit organizations, and advocacy met at the House of the Academy to reimagine the delivery of legal assistance. The Summit was the capstone event for the Expanding Access to Justice initiative, the final

phase of the Making Justice Accessible project.

The sessions and workshops at the Summit showcased innovative models, projects, and developments that are making significant strides in addressing the civil justice gap. The convening deepened understanding of how civil justice efforts intersect with broader public interest endeavors, including in civics, arts, humanities, housing, criminal justice, and corporate social responsibility.

In his opening remarks, project cochair John Levi (Legal Services

Corporation; Sidley Austin LLP) emphasized the urgent need to address the civil justice gap in the United States, described progress made over the past decade, and underscored the value of interdisciplinary collaboration to reimagine and improve the civil justice system. He called for ongoing coordination of national efforts to ensure equal access to justice for all Americans.

The first session featured a discussion on people-centered justice in the civil legal system to illuminate what it means to experience legal problems in the United States. Moderated by Advisory Committee member **Rebecca Sandefur** (Arizona State University), the panelists discussed insights on practices and approaches that empower individuals and communities to better understand and resolve their

justice issues. The examples highlighted during the session included innovative people-centered strategies in settings from rural Alaska to North Carolina and even internationally. Panelists explained how initiatives can bring in professionals beyond lawyers – that is, people already in communities trained and authorized to provide specific legal support.

The second session highlighted the critical role of civil justice networks in fostering innovation, promoting best practices, and driving systemic change within the civil justice sector. Panelists discussed the importance of strategic investments and collaborative efforts in building and sustaining these networks, which serve as foundational pillars for advancing justice solutions at national, state, and local levels.

One of the challenges to improve access to civil justice systematically is navigating diverse state and federal court procedures and forms. With each of the fifty-six state and state equivalents having its own set of rules, and often individual courts within states adopting unique approaches, developing scalable solutions is difficult. The Summit's third panel explored ways technology can help address these and other challenges that impede broad-scale improvements. Panelists elaborated on emerging trends, new tools, and initiatives designed to bridge justice gaps and improve access to legal assistance through simplification and technology. Discussions centered on leveraging technology like generative AI, improving data collection and analysis, and implementing user-centered service models to create



Participants at the Making Justice Accessible Summit held at the House of the Academy in March 2024.

Cochair Martha Minow (Harvard Law School) summarized key themes from the Summit: the power of common narratives and language to bring diverse fields together; that people should be empowered to know, use, and shape the law; and the role of technology as a catalyst for transformative change.

more responsive and equitable civil justice systems.

But technology cannot solve all problems, especially when they might be framed not as problems of law but as problems of health, housing, or more complex social issues. To close out the first day, **Bethany Hamilton**, Co-Director of the National Center for Medical-Legal Partnerships, delivered a keynote lecture, followed by a conversation with **Keegan Warren**, Executive Director of the Texas A&M University Institute for Healthcare Access. Hamilton emphasized the transformative potential of Medical-Legal Partnerships (MLPs) in addressing health disparities and promoting social justice. The conversation between Hamilton and Warren highlighted practical strategies and pathways for advancing the MLP movement and fostering collaboration between health care and legal professionals.

At the closing plenary, **Allie Yang-Green**, Executive Director of the Legal Aid Interagency Roundtable at the Department of Justice (DOJ), outlined the steps DOJ is taking to address the civil justice gap. She emphasized the resources, and need, for cross-field partnerships, including resources to simplify the search for federal funding for legal aid, resources to support language access, and reports on the use of nonlawyer assistance and other strategies.

The last session explored how philanthropic and corporate initiatives can advance justice by leveraging resources, fostering policy reform, and improving internal practices. Panelists shared key outcomes from justice programs in workforce development, health equity initiatives, and community well-being. They reflected on common factors driving their impact and discussed ways to foster collaboration between public and private sectors, and that cut across criminal and civil matters.

Throughout the program, the participants actively engaged in session topics across three workshops, which were led by legal design experts from some of the nation's legal innovation hubs focused on civil justice issues. **Margaret Hagan** (Stanford Legal Design Lab, Stanford University), **Stacy Jane** (Innovation for Justice, The University of Arizona College of Law and The University of Utah School of Business), **Dan Jackson** (NuLawLab, Northeastern University School of Law), and **David Colarusso** (Suffolk Legal Innovation & Technology Lab, Suffolk University Law School) moderated group discussions that fostered discourse about the connections between civil justice and other public good sectors and encouraged participants to surface new thinking and deeper connections.

In her closing remarks, project cochair **Martha Minow** (Harvard Law School) summarized key themes from the Summit: the power of common narratives and language to bring diverse fields together; that people should be empowered to know, use, and shape the law; and the role of technology as a catalyst for transformative change.

In the fall, the Academy will release a new national strategy roadmap that will outline how promising developments in the civil justice field can be further supported, scaled, and sustained to ensure equal access to justice for all Americans.



To learn more about the Making Justice Accessible project, please visit www.amacad.org/project/making-justice-accessible.



Conflict and Collaboration: Security Challenges in the Era of Climate Change

By **Michelle Poulin**, *Program Associate for Global Security and International Affairs*

As global temperatures rise and extreme weather events become more common, nations face unprecedented safety and security challenges. While communities strive to protect themselves from the harmful impacts of climate change, each measure taken to increase perceived safety can have unintended consequences. As we surpass the 1.5°C threshold outlined in the 2015 Paris Agreement, the question remains: how can we ensure that our short-term security goals are aligned with climate scientists' mitigation recommendations?¹

On May 15, 2024, the Academy's Global Security and International Affairs program area held an exploratory meeting at the House of the Academy in Cambridge to address this question. Led by **Tanisha Fazal** (University of Minnesota) and **Neta Crawford** (University of Oxford), both members of the Academy's Committee on International Security Studies, the meeting "Climate Conundrum: Bridging the Gap Between Science and Security" brought together climate scientists, global security scholars, and climate policy experts with the goal

of enhancing understanding across disciplines as a way to foster collaborative research on climate and security challenges.

CLIMATE-DRIVEN CONFLICT AND MILITARY EMISSIONS

Militaries engage in warfare to protect the economic and security interests of their nations, often resulting in destroyed infrastructure, devastated ecosystems, and loss of life. Yet, often overlooked is the substantial impact of military activities on global greenhouse gas emissions.

The Conflict and Environment Observatory (CEOBS) estimates that the world's militaries emit 5.5 percent of all global greenhouse gases, and research by Neta Crawford indicates that the U.S. military is the largest single institutional emitter.

The Conflict and Environment Observatory (CEOBS) estimates that the world's militaries emit 5.5 percent of all global greenhouse gases, and research by Neta Crawford indicates that the U.S. military is the largest single institutional emitter.²

Unlike private companies and other government agencies, militaries are exempt from reporting emissions under the Kyoto Protocol and Paris Agreement. This creates what meeting participants described as a security paradox, in which efforts to enhance safety and security can simultaneously introduce instability. Militaries strive to enhance a nation's safety, but their unreported emissions increase global temperatures and extreme weather events. Participants highlighted research suggesting that higher temperatures and worsening extreme weather can intensify conflicts in some situations – conflicts that in turn can lead to increased militarization and emissions.³ As a result, increased short-term securitization can lead to long-term climate instability and greater potential for climate-driven conflict.

Emissions from conflict arise not just from activities directly related to warfare, but also from the adjustments made to civilian life as a result of conflict. In wartime, enemies often target fuel storage depots and transport vehicles. The aftermath of oil fires and spills can have a significant impact on global greenhouse gas emissions. CEOBS estimates that more than 2 percent of global emissions in 1991 resulted from oil fires during the Gulf War;⁴

70 percent of U.S. military operation emissions are from aircraft.⁵ Identifying indirect conflict emissions, which stem from changes in civilian life caused by warfare, is challenging. However, recent research is revealing some troubling findings. During the meeting, participants referenced a 2023 study by Lennard Le Klerk and colleagues, which illustrates how the Russia-Ukraine War has forced passenger airlines to adjust flight routes to avoid conflict zones. This change has led to longer flights and an additional 18 million tons of CO₂ emissions compared to prewar years.⁶

At the 26th United Nations Climate Change Conference (COP) in 2021, NATO Secretary-General Jens Stoltenberg warned that global emissions will never reach net zero until military emissions and mitigation goals are reported and tracked.⁷ Meeting participants discussed various approaches to increase transparency, including local-level advocacy near military installations, combining military and climate funding opportunities, and utilizing electoral power. They also acknowledged the importance of addressing security concerns regarding the military's emission reporting before implementing reporting policies.

SOLAR RADIATION MODIFICATION

The climate scientists who participated in the exploratory meeting shared their insights and analysis on the emerging field of solar radiation

modification (SRM), or solar geo-engineering. SRM technologies seek to reflect a portion of solar radiation back into space, thereby lowering global temperatures. While still in the theoretical and untested stage, the most viable and commonly discussed SRM technology is stratospheric aerosol injection (SAI). This method involves dispersing sulfur dioxide particles into the upper atmosphere to reflect sunlight. Experts estimated that it would take between ten and fifteen years to invent, test, and produce viable SAI technology, suggesting that the first countries to deploy SRM technologies will be those with sufficient funding and motive (for example, soaring temperatures), like Saudi Arabia. There is no evidence to suggest that any country is actively developing operational SRM capabilities at this time.

Several meeting participants expressed concern about the unpredictable effects SRM would have on global and regional temperatures and precipitation. Introducing aerosolized sulfur into the atmosphere could potentially lower average global temperatures, offering a means to mitigate the adverse effects of global warming. However, accurately predicting the regions that would be most affected by this intervention is challenging. Moreover, abruptly discontinuing SAI deployment could pose significant dangers, with temperatures likely to rebound quickly and then increase, particularly if climate mitigation measures are not concurrently

pursued alongside SRM. Acknowledging these risks and uncertainties, participants agreed on the need for more funding for SRM research. They emphasized the importance of utilizing this research to inform national, regional, and global SRM policies prior to any implementation of these technologies.

CHALLENGES TO EQUITABLE GLOBAL GOVERNANCE

Global governance includes measures such as coordinating multilateral efforts, negotiating and enforcing treaties, ensuring leaders are held accountable, settling disputes, and overseeing the regulation of emerging technologies that could have a global impact, like SRM. The United Nations (UN) serves as the primary global governing body, comprising 193 General Assembly member states and a fifteen-member Security Council. The Security Council, consisting of five permanent member states (China, France, Russia, the United Kingdom, and the United States) and ten rotating member states, has significant authority, including approving new General Assembly members, imposing sanctions, and authorizing military intervention. This arrangement gives permanent member states substantial influence over policies, and as all five permanent members states are major emitters, international law often reflects the interests of these polluting nations.

However, the United Nations has shown a commitment to addressing climate change. In 1992, 154 UN member states ratified the United Nations Framework Convention on Climate Change (UNFCCC), the organization's primary climate treaty. Since then, 44 more states have joined. Member states convene annually at COP meetings to review

progress in climate mitigation and propose new initiatives. Significant agreements, such as the Kyoto Protocol and Paris Agreement, have resulted from these COP meetings.

Each COP negotiation revolves around determining responsibility for financing and executing climate mitigation measures. Equitable models demand that the biggest emitters should contribute the most and shoulder the greatest responsibility. But the uneven distribution of global power makes this difficult. The United States, for example, has emitted roughly one-quarter of the world's greenhouse gases, yet expecting the United States to lead 25 percent of global efforts in mitigation and climate reparation is unrealistic.⁸ Mean-

while, the UN's use of inaccurate data in climate projections for the Global South hinders assessments of progress and the formulation of effective policy recommendations.⁹ Meeting participants stressed the importance of centering voices and institutions from the Global South in climate discussions. This would require reconceptualizing global security to be more inclusive of human security and anti-capitalist perspectives.

CLIMATE COMMUNICATION

Participants noted that many global climate policymakers privately acknowledge the improbability of achieving the Paris Agreement's 1.5°C goal, but they are hesitant to express this publicly because of the potential political consequences. They reflected on the shortcomings of the "1.5 to stay alive" campaign and speculated about whether communicating the importance of each 0.1° increase could be more impactful. They discussed the influence that elites have on public opinion, and how public sentiment can sway elites' decisions.¹⁰ One participant shared an example of how military leaders are interested in reducing emissions, citing the climate con-

Meeting participants stressed the importance of centering voices and institutions from the Global South in climate discussions. This would require reconceptualizing global security to be more inclusive of human security and anti-capitalist perspectives.

sciousness among young recruits compared to previous generations. Participants also noted that elites affiliated with polluting industries often use communication strategies that minimize concerns about climate change. They suggested the need for additional research to develop effective methods for countering such messaging.

Another topic discussed at the meeting was how the urgency conveyed in climate messaging

influences its impact. Several participants warned that heightened urgency could increase militarization and nationalism. While climate communication often focuses on the dire consequences of inaction, participants also explored the potential benefits of conveying optimistic visions of a climate-resilient future, particularly through fiction. Some of the examples shared include Matthew Hoffman and Teresa Kramarz's *We Did It?!* magazine, James Burke's *After the Warming* film series, and the University of Delaware's popular course on climate fiction and science communication.¹¹ Another suggestion was to incorporate health-related messaging. Given people's concerns about their own health and that of their children, prioritizing health in climate messaging could highlight the urgency of the issue.

QUESTIONS FOR CONSIDERATION

The participants identified several questions for future research:

- How can we encourage and design a military emissions reporting regime?
- How will climate change impact multilateral power dynamics, conflict risk, and global governance?
- What are the effects of climate change on democratization?
- How can policymakers effectively convey the reality of surpassing the 1.5°C threshold while minimizing the associated costs?
- How might the private sector impact the credibility of climate security research, particularly SRM technology?

- How can we co-create climate scenarios and improve risk models that focus on climate security and conflict?
- How can we better support Global South researchers and diversify climate knowledge?
- How can liability laws and the insurance industry render climate-risky ventures uninsurable, and how might this influence political discussions about climate priorities?



For more information about the Academy's recent work on climate change, please visit www.amacad.org/climate.

ENDNOTES

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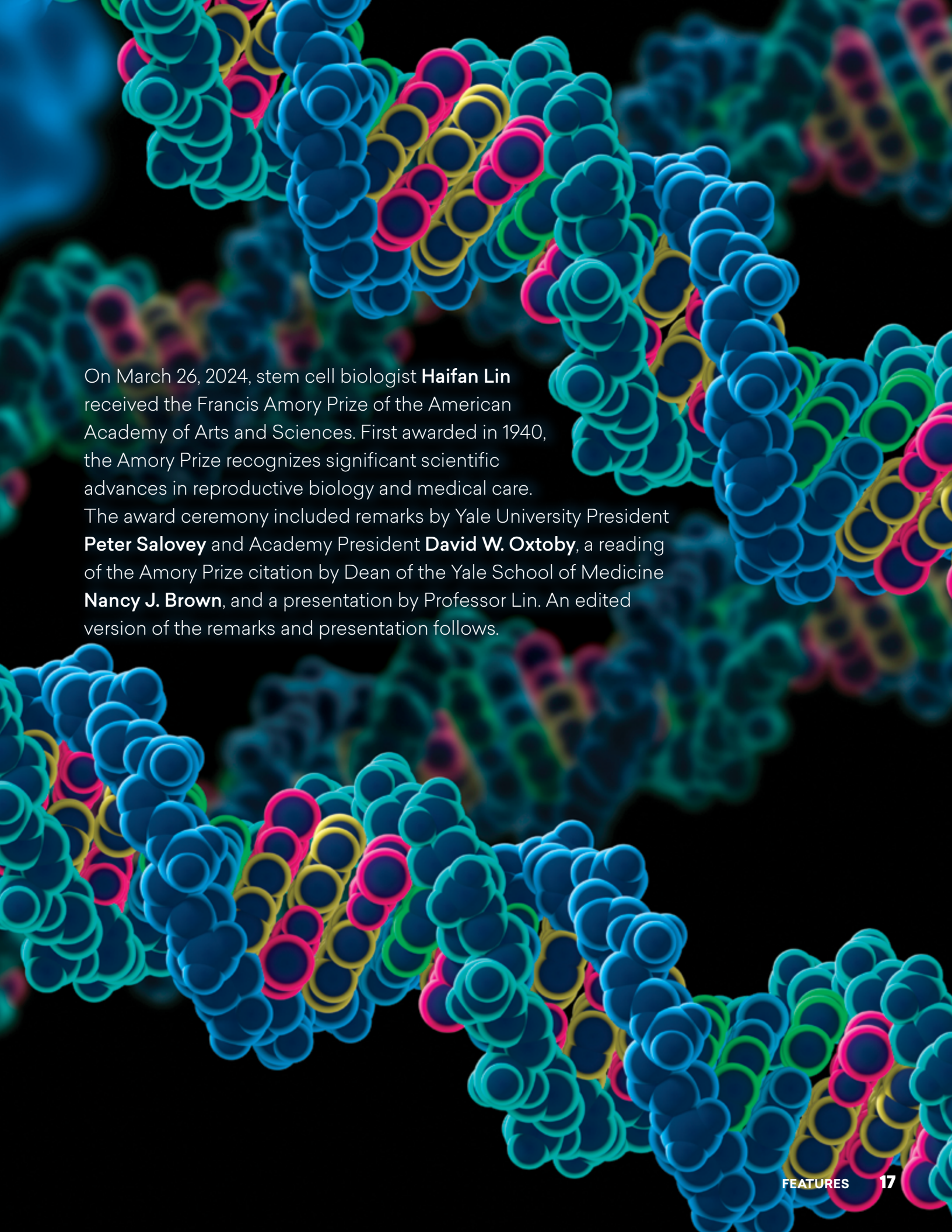


Honoring Haifan Lin

with the

Francis Amory Prize

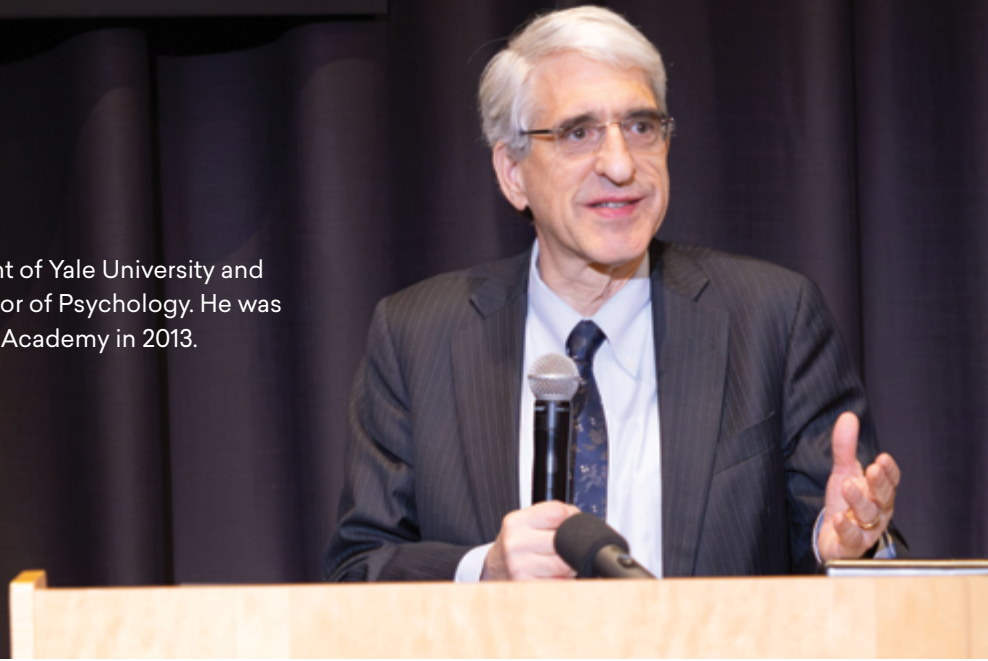
2123rd Stated Meeting | March 26, 2024 | Henry R. Luce Hall, Yale University



On March 26, 2024, stem cell biologist **Haifan Lin** received the Francis Amory Prize of the American Academy of Arts and Sciences. First awarded in 1940, the Amory Prize recognizes significant scientific advances in reproductive biology and medical care. The award ceremony included remarks by Yale University President **Peter Salovey** and Academy President **David W. Oxtoby**, a reading of the Amory Prize citation by Dean of the Yale School of Medicine **Nancy J. Brown**, and a presentation by Professor Lin. An edited version of the remarks and presentation follows.

Peter Salovey

Peter Salovey is President of Yale University and the Chris Argyris Professor of Psychology. He was elected to the American Academy in 2013.



Good afternoon and welcome. It gives me great pleasure to call this meeting to order. This auditorium is filled with Professor Haifan Lin's colleagues and friends from the School of Medicine and from across the university, as well as from the American Academy of Arts and Sciences. Thank you to those of you who came from out of town to be here with us today.

It is wonderful to welcome the American Academy to Yale's campus for this occasion, especially David Oxtoby, president of the Academy, whom we will be hearing from momentarily. I want to thank the Academy for bestowing this award on our colleague. At Yale, we are animated by our mission to improve the world for this and future generations through outstanding research, scholarship, and education. And there can be no doubt that Professor Lin contributes to that mission every day. Over his career, Professor Lin has made seminal advancements in the fields of reproductive biology, developmental biology, and stem cell biology. His achievements range from the demonstration of stem cell asymmetric division, to the proof of the stem cell niche theory, to the discovery of the Argonaute/Piwi protein family and examination of its function in stem cell maintenance, germline development, epigenetic programming, and post-transcriptional regulation.

Professor Lin and others have also discovered millions of small noncoding RNAs that are encoded by junk DNA and partner with Piwi proteins called Piwi-interacting RNA – a discovery hailed by *Science*

magazine as one of the top ten breakthroughs of 2006. Professor Lin has done groundbreaking research on stem cells and their use in the diagnosis and treatment of disease. And the potential applied implications of that work are quite dramatic.

As Yale's president, I would like to convey my gratification and appreciation that under Professor Lin's leadership, the Yale Stem Cell Center has grown into a vast network involving many faculty members from across the university, and spanning several departments and disciplines. What began as a modest undertaking comprised of two founding labs now has over one hundred participating labs. It is one of the largest stem cell research organizations in the world. I was in Hong Kong last week and the president of the Chinese University of Hong Kong was telling me about Professor Lin's Stem Cell Center.

Guided by Professor Lin's curiosity, quest for knowledge, and enthusiasm, the Center aims to advance our understanding of human stem cell biology and to harness its potential to improve health by removing the barriers between the present and the possible.

Professor Lin, all of us at Yale take immense pride in this recognition of your contributions to research, education, and indeed to humanity. Yale University's success in such a vital field of scientific inquiry would not have been possible without your brilliance and energy. I want to thank you for the distinction you bring to this university and for your contributions to the world.

David W. Oxtoby

David W. Oxtoby completed his term as President of the American Academy of Arts and Sciences in June 2024. He was elected a member of the American Academy in 2012.



Thank you, Peter. We are grateful for your hospitality and so glad to be here to celebrate Haifan Lin and to present him with the Academy’s Amory Prize for reproductive biology. Congratulations, Peter, on an incredible decade as president of Yale. As I’m also nearing the end of my presidency, I want to take the opportunity to thank you for your partnership both as an individual Academy member and as the leader of an essential institution in our Affiliate network. As an Affiliate, Yale provides crucial support for the work of the Academy.

I also want to thank the cochairs of the Academy’s New Haven Program Committee – Isabela Mares, professor of political science, and Steven Wilkinson, director of the MacMillan Center – for their work to foster community among Academy members. We are proud to have over 180 Academy members affiliated with Yale University.

Yale members are deeply involved in the work of the Academy, from convening important conversations on topics like the global order to contributing to Academy projects. As a recent example, political scientist Jacob Hacker has been part of our Commission on Reimagining Our Economy (CORE) and was instrumental in designing the CORE Score: a new people-centered indicator of American well-being. Yale members also support one another. We are grateful that so many came here to celebrate a friend and colleague this evening.

In keeping with an Academy tradition that dates back to our founding in 1780, it is now my

pleasure as president to officially open the 2123rd Stated Meeting of the American Academy of Arts and Sciences.

The American Academy was founded by a group of scholar-patriots to guide the new nation with a mission to “cultivate every art and science which may tend to advance the interest, honor, dignity, and happiness of a free, independent, and virtuous people.” For over 240 years the Academy has celebrated excellence in all forms of inquiry by electing members who represent the very best of their fields.

We also celebrate excellence through eleven prizes that are awarded in recognition of remarkable contributions to science, the humanities, and the ideals of the Academy. This year, under the leadership of Prize Committee Chair Pauline Yu, president emerita of the American Council of Learned Societies, the Academy will confer just two prizes: the Don M. Randel Award for Humanistic Studies to Kwame Anthony Appiah, and the Francis Amory Prize to Haifan Lin.

The Francis Amory Prize was first awarded in 1940 to recognize outstanding scientific achievements in the field of reproductive biology. The history of the Amory Prize chronicles the trajectory of the field, which has advanced significantly over the past eighty-four years as scholars continue to build on the discoveries of their colleagues who came before. Modern recipients of this prize include David Page in 1997, Patrick Walsh in 2012, Barbara Jean Meyer in 2017, and, most recently,

HONORING HAIFAN LIN WITH THE FRANCIS AMORY PRIZE

Ruth Lehmann and Gertrud Schüpbach, who were awarded jointly in 2020 for advancements in DNA repair, embryonic development, RNA regulation, and stem cell research.

Tonight we celebrate Haifan Lin for his numerous and essential discoveries in stem cell research. For many of you, Haifan may be a mentor, a source of inspiration, a colleague, or friend. We are proud

to call him a member of the American Academy; he was elected in 2018.

It is now my pleasure to invite fellow Academy member Nancy Brown, the Jean and David W. Wallace Dean of Medicine and the C.N.H. Long Professor of Internal Medicine at Yale School of Medicine, to shed further light on why Haifan is so deserving of this honor.

Nancy J. Brown

Nancy J. Brown is the Jean and David W. Wallace Dean of Medicine and the C.N.H. Long Professor of Internal Medicine at Yale School of Medicine. She was elected to the American Academy in 2021.




Before I read the award citation, let me mention Haifan's many titles and the departments that he is affiliated with. He is the Eugene Higgins Professor of Cell Biology; Professor of Genetics, of Obstetrics, Gynecology & Reproductive Sciences, and of Dermatology at Yale School of Medicine; and Director of the Yale Stem Cell Center. All of that speaks to the fact that, Haifan, you are a leader among other thought leaders, not just in the School of Medicine, but internationally.

You are an incredible mentor and many of your mentees as well as your peers are here today.

I am always grateful for your advice in the School of Medicine. You were recruited to lead the Yale Stem Cell Center in 2006 by Bob Alpern, who is in the audience today. And as President Salovey mentioned, under your leadership the Center has grown to over one hundred faculty and it is continuing to grow.

It is now my pleasure to read the prize citation.



Established in 1940, the Francis Amory Prize is awarded to an individual for their overall contributions to and influence in the area of reproductive medicine and physiology.

For his distinguished achievements, the American Academy confers the Francis Amory Prize on **Haifan Lin**.

Throughout your career, you have been at the forefront of groundbreaking discoveries that have reshaped our understanding of stem cell biology. Your seminal research has unraveled the intricate molecular mechanisms governing stem cell fate determination, providing invaluable insights into the fundamental principles that underlie tissue regeneration and disease pathogenesis. And your relentless pursuit of scientific excellence and unwavering dedication to advancing our understanding of stem cell biology have profoundly impacted both research and clinical practice, inspiring scientists worldwide.

Your pioneering work, which includes the demonstration of stem cell asymmetric division, the proof of the stem cell niche theory, and the discoveries of the Argonaute/Piwi gene family and piRNAs, has illuminated the complex interplay of molecular signals that govern stem cell self-renewal and differentiation. These discoveries have opened, as you have described, a “new world of genes” and new avenues for therapeutic intervention in regenerative medicine.

Beyond your scientific achievements, your visionary leadership and steadfast commitment to mentorship have empowered a new generation of scientists and clinicians, fostering a culture of innovation and collaboration in stem cell research.

Renowned researcher, champion of scientific outreach, and tireless advocate for raising awareness about the transformative potential of stem cell research, you serve as a beacon of inspiration, reaffirming the importance of scientific inquiry in addressing the most pressing challenges facing humanity.

Awarded this 26th day of March, 2024.

Haifan Lin

Haifan Lin is Eugene Higgins Professor of Cell Biology; Professor of Genetics, of Obstetrics, Gynecology & Reproductive Sciences, and of Dermatology at Yale School of Medicine; and Director of the Yale Stem Cell Center. He was elected to the American Academy in 2018.



Thank you, President Oxtoby, for coming all the way to New Haven to bestow this special honor on me on behalf of the American Academy of Arts and Sciences. Thank you also for your many kind remarks. I wish my mother was here to hear these remarks. I also want to thank President Salovey and Dean Brown for hosting this ceremony and celebration. And also for your extremely kind assessment of my work at Yale.

As a faculty member at Yale for over seventeen years, it has been a privilege for me to contribute to this great institution in my own small way. And such contributions are only possible by working closely with many wonderful friends and colleagues, both here at Yale and outside Yale. Having this ceremony in my home institution with dear colleagues and lab members present means so much to me.

I am extremely honored by this prize because it represents a seal of approval of my work from the distinguished American Academy of Arts and Sciences, which was established by the founding fathers of this country. I thank the nominators and the selection committee for their confidence in my work. I feel extremely humbled by this award

because, as President Oxtoby mentioned, the past recipients are all movers and shakers in biomedical research who have not only changed reproductive biology and medicine but also how we live our lives.

On this auspicious occasion, I am reminded of an old Chinese saying: “When you drink the water, do not forget those who dug the well.” I am extremely grateful to everyone who has been part of my journey. First of all, I would like to share this honor with my former and current lab members. It is a truly exciting and rewarding experience to work with these brilliant and dedicated young scientists. I also feel extremely blessed to have so many colleagues and friends both at Yale and outside Yale. All of you have always been there for me, and I am grateful to have such kind support and friendship.

I am very fortunate to have a wonderful family, including my amazing goddaughter Christina and her husband Nathan, who are here today. I especially want to acknowledge my wife Edna, who supported my pursuits over many years. She even bought into my theory that spending quality time together is much better than spending a lot of time together.

I would like to take this opportunity to tell you a little bit about my life, about my journey to become a scientist, and about my research. Some forty years ago, when I was a high school graduate, I never imagined I would be here. I graduated from the only high school on a small island in China, off the coast of mainland China, with a population of about forty thousand people.

As a high school student, I was very interested in engineering, but not so much in biology. My engineering aspiration was to become an electrician. Around the time of my graduation, however, genetic engineering had become a very trendy term in China. Lured by the word *engineering*, I became a biochemistry major at Fudan University in Shanghai. But soon after I entered Fudan, I realized that biochemistry is no engineering – yet it is even more intriguing!

I feel extremely humbled by this award because, as President Oxtoby mentioned, the past recipients are all movers and shakers in biomedical research who have not only changed reproductive biology and medicine but also how we live our lives. ”

To broaden my training in biology, after I graduated from Fudan, I went to Cornell to pursue my PhD training in developmental biology and genetics. Consequently, China lost a potentially talented electrician!

While at Cornell I worked on early embryogenesis guided by Professor Mariana Wolfner. During that period of training, I became interested in many questions in developmental biology. By the time I graduated I was particularly interested in stem cells.

At that time, stem cells were an esoteric field, so I needed to find a lab that could accommodate my interest. I was very lucky to find Dr. Allan Spradling’s lab at Carnegie Institution of Washington, and he took me in. In his lab I started to work on stem cells using fruit fly ovaries as a model. I took this project to Duke, where I started my own lab, and there I also expanded stem cell research to the mammalian side.

I had twelve incredible years at Duke, and I was thinking I would spend the rest of my career in

North Carolina and then retreat to Florida to enjoy my geriatric spring break. However, in 2006 my life took an unexpected turn when Yale called to ask if I would be interested in being a candidate to establish the Yale Stem Cell Center. A call from Yale? I better take it seriously. Once I visited the campus, I fell in love with this place, and I have been here ever since. I also fell in love with New Haven, so much so that I gave up the Florida idea!

The Academy asked me to share some of my research with you. For those of you who are familiar with my work, now is a good time to take a nap.

I work on mechanisms that define stem cell properties. As you may know, metaphorically, stem cells are the mother of all cells. So then what are stem cells? There are two types of stem cells: 1) embryonic stem cells that exist in early embryos; and 2) adult tissue stem cells that exist in most of our adult tissues.

Embryonic stem cells give rise to all cells in our bodies, such as pancreatic cells, bone, and neurons. However, adult stem cells can normally only give rise to cells in their resident tissues. For example, neural stem cells can only give rise to neurons and accessory cells in the nervous system, but not to any cells outside the nervous system.

Despite the big differences between these two classes of stem cells, they share a very important ability, namely the ability to renew themselves. Because of this ability, stem cells become the fountain of youth in their resident tissues. This ability fascinated me and became my career-long pursuit.

When I entered the stem cell field, there were two important hypotheses that became the two pillars of stem cell biology. One is the asymmetric division hypothesis, which was first proposed 140 years ago by German biologist Theodor Boveri. He proposed that when a stem cell divides, it will generate a daughter stem cell identical to itself and another daughter cell that is committed to more specific functions (so-called differentiated cells).

When the daughter stem cell further divides, it will generate another daughter stem cell and another differentiated cell. So when the original stem cell divides three times, it will still maintain a copy of itself, while generating three differentiated cells. This renders the stem cell’s ability to self-renew. This asymmetric division became an earlier part of my research interest.

The second important hypothesis in the stem cell field, called the stem cell niche theory, was first proposed by British scientist Ray Schofield in 1978 when he observed that blood stem cells are not as well supported by the spleen as by bone marrow.

This hypothesis says that stem cells normally reside in an idyllic hideaway in a tissue that is composed of niche cells and their effective niche signaling field. When a stem cell is in this paradise, or Shangri-la if you wish, it self-renews and lives forever. But once a stem cell leaves this paradise, it is doomed to differentiate and die young.

Although these two hypotheses are important and elegant, they had not been proven when I started my work because of two unique challenges then in stem cell research – and to a large degree, these challenges still exist today. The first challenge is what I call identity crisis. Stem cells look no different from their neighboring cells, and they exist in extremely small numbers. Therefore researchers often don't know if what they are working on are true stem cells. This precludes any in-depth analysis of stem cells. The second challenge is that stem cells are the biological equivalent of quantum particles that obey Heisenberg's Uncertainty Principle. Namely, when you touch them, they will change their property. This also precludes any in-depth type of mechanistic studies.

To overcome these two problems, I decided to work on stem cells in little fruit flies because this little organism has been a powerful genetic model for nearly a century, and studying them has led to the discovery of many important medical mechanisms that apply to humans.

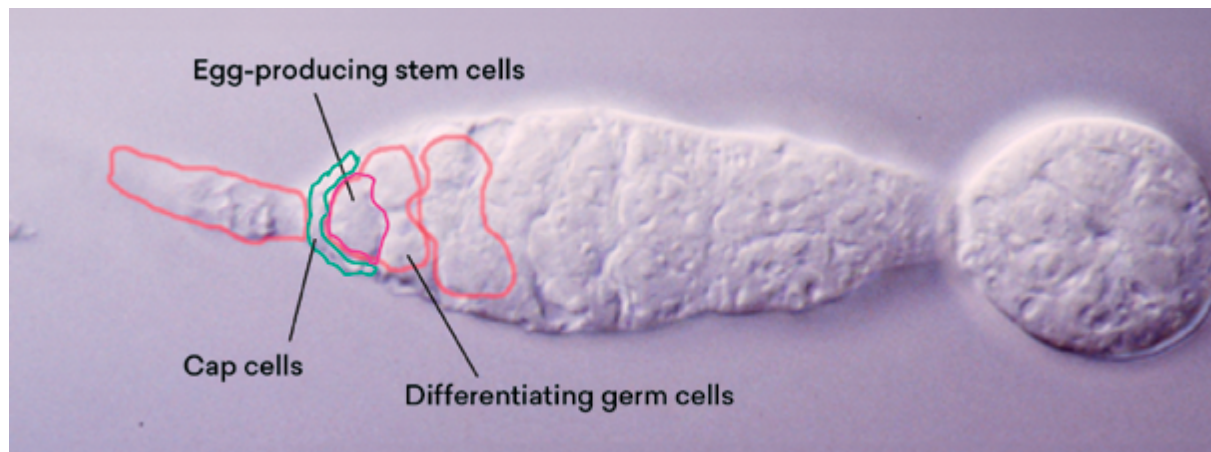
I focused on the fruit fly ovary because it contains strings of developing egg chambers, and they are all produced from the apical tiny tips of the

strings. It had been proposed that egg-producing stem cells reside in these apical tips. However, they have not been directly identified. Given this situation, I decided to study stem cells using the following strategy: First, I wanted to know if stem cells indeed exist in the fruit fly ovary. If so, where? Then, I wanted to know if these stem cells divide asymmetrically. After that, I wanted to know if there is a niche for stem cells. Finally, I wanted to identify genes involved in regulating stem cell function.

With this strategy, I started to address the question of whether stem cells exist in the fruit fly ovary. I devised a method that allows me to isolate that tiny ovarian tip and transplant it into a recipient female whose ovary has been removed. After the transplantation, a complete ovarian unit was generated within three days: In twelve hours, it had created new egg chambers. Another twelve hours and there were new developing eggs. And by day three it had generated the entire ovary.

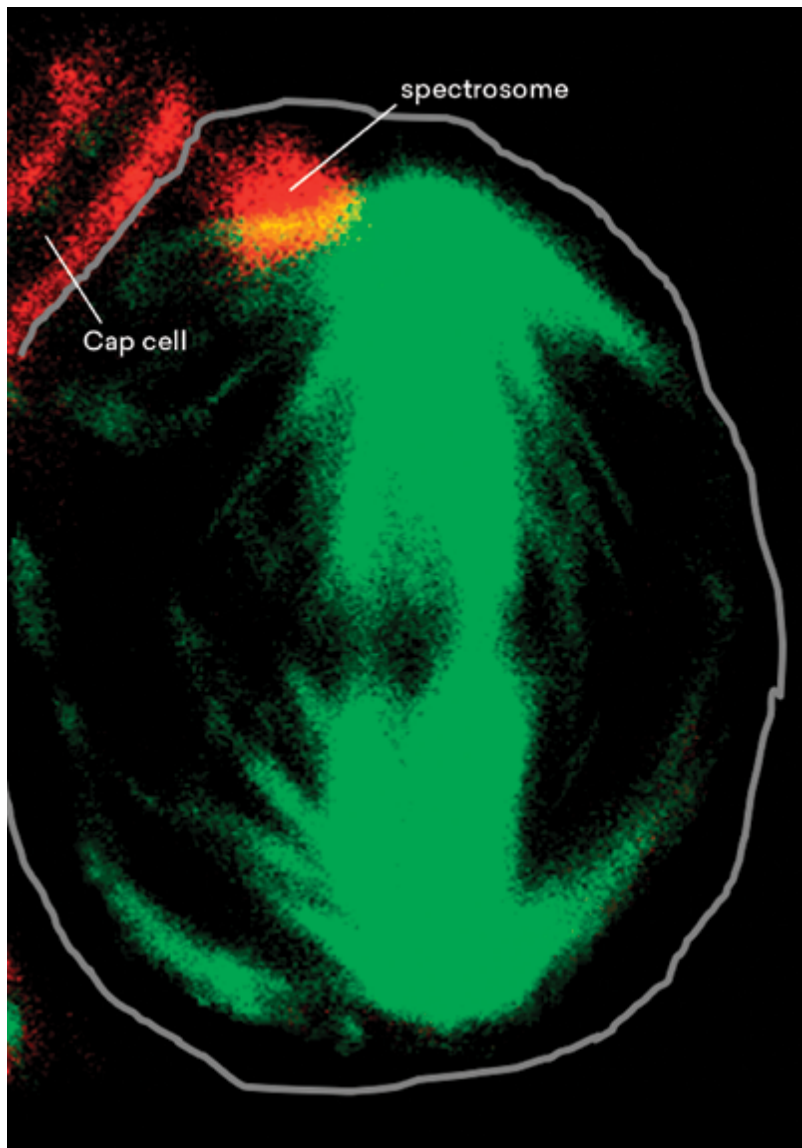
This experiment shows that the tiny tip does indeed contain stem cells. So the next question is, where are these stem cells in the tiny tips? I used laser ablation to kill individual germ cells. And I found that when I killed the two anterior germ cells, the entire egg production process stopped. But when I killed any germ cells next to it, it did not even slow down the rate of egg production. This analysis allowed us to know that these two cells are the egg-producing stem cells, and other cells are the differentiated cells. In the process, I also found the cap cells, which hug the stem cells.

Identification of stem cells in a Tissue by Laser Ablation



Source: Haifan Lin and Allan C. Spradling, "Germline Stem Cell Division and Egg Chamber Development in Transplanted *Drosophila* Germaria," *Developmental Biology* 159 (1) (1993): 140–152.

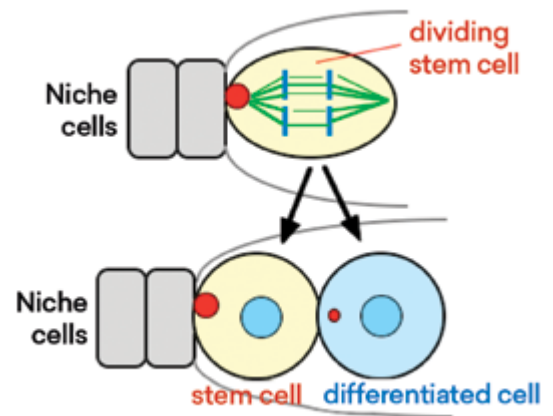
Germline stem cells indeed divide asymmetrically!



Source: Haifan Lin and Allan C. Spradling, "A Novel Group of Pumilio Mutations Affects the Asymmetric Division of Germline Stem Cells in the *Drosophila* Ovary," *Development* 124 (12) (1997): 2463–2476; and Wei Deng and Haifan Lin, "Spectrosomes and Fusomes Anchor Mitotic Spindles during Asymmetric Germ Cell Divisions and Facilitate the Formation of a Polarized Microtubule Array for Oocyte Specification in *Drosophila*," *Developmental Biology* 189 (1) (1997): 79–94, cover story.

Now that we know where the stem cells in the ovary are located, the next question becomes do germline stem cells divide asymmetrically as proposed 140 years ago? The image above shows a stem cell in division caught in action. Biologists in the room know that this green structure inside the stem cell is called the mitotic spindle. It is a structure required for cell division, and the two poles of the structure will define the position of the two daughter cells.

Asymmetric Stem Cell Division within a Niche



Source: Wei Deng and Haifan Lin, "Spectrosomes and Fusomes Anchor Mitotic Spindles during Asymmetric Germ Cell Divisions and Facilitate the Formation of a Polarized Microtubule Array for Oocyte Specification in *Drosophila*," *Developmental Biology* 189 (1) (1997): 79–94, cover story.

As we can see, after the stem cell divides, one daughter cell will still remain in contact with the cap cell shown in red and will still be a stem cell. Whereas the other daughter cell will be one cell away from the cap cell and will become a differentiated daughter cell.

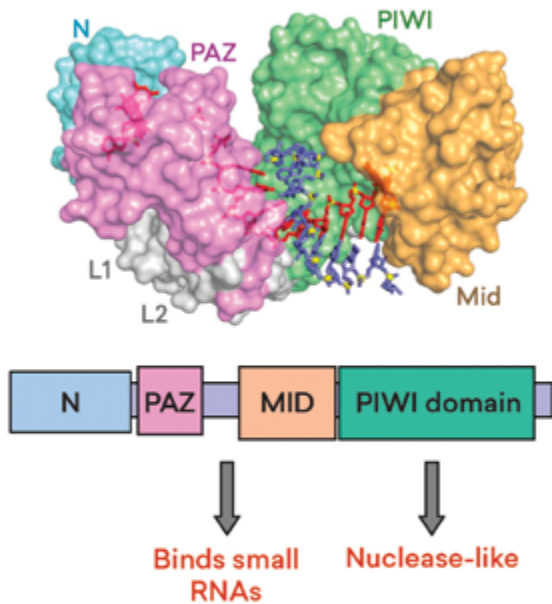
So, we have a clear asymmetry in stem cell division. In the process, we also discovered a new sub-cellular structure that we named the spectrosome, which can anchor one pole of the mitotic spindle. The spectrosome not only marks but also helps establish the asymmetry of the division.

Now that we know where the stem cells are and how they divide, we next want to know if a niche exists for these egg-producing stem cells. We found that when we ablated these anterior somatic cells (namely, ordinary body cells), this partial ablation affected stem cell behavior. This initial observation and subsequent molecular analysis tell us that these cells are actually niche cells for the stem cells.

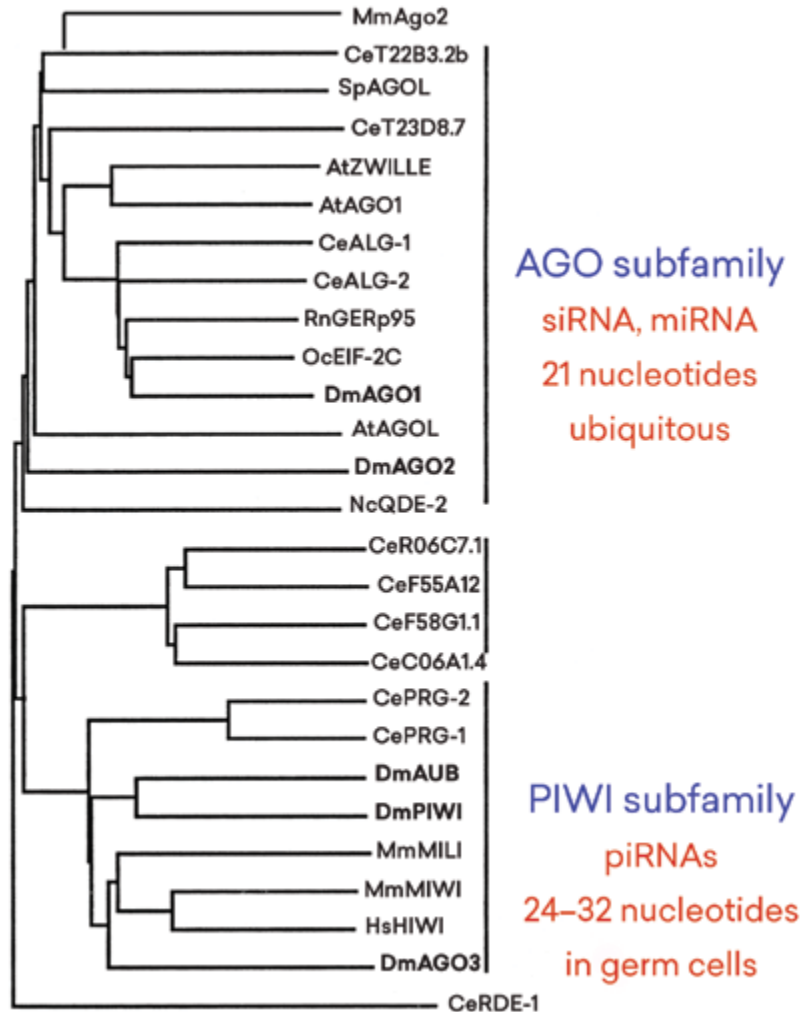
Let me summarize what we have found so far. By using a simple organism as a model, we were able to unambiguously identify stem cells and their niche cells and show the asymmetric division of stem cells and the niche function in this process.

So now the question is, what genes control the asymmetric division and niche function of stem cells?

ARGONAUTE Protein Family



Daniel N. Cox, Anna Chao, Jeff Baker, Lisa Chang, Dan Qiao, and Haifan Lin, "A Novel Class of Evolutionarily Conserved Genes Defined by *piwi* are Essential for Stem Cell Self-Renewal," *Genes & Development* 12 (23) (1998): 3715–3727. 3D structure by Yanli Wang et al., "Structure of an Argonaute Silencing Complex with a Seed-Containing Guide DNA and Target RNA Duplex," *Nature* 456 (2008): 921–926.



As Peter, David, and Nancy alluded to in their remarks, we discovered a number of very important genes. And using a particular gene family, the Argonaute/Piwi gene family, as an example, we found that it encodes proteins that have four localized structures. Leemor Joshua-Tor, Dinshaw Patel, and other researchers resolved these structures at near atomic resolution. These proteins can bind to small RNAs and sometimes can also cleave RNAs. This gene family can be divided into Argonaute and Piwi subfamilies. The Argonaute subfamily of proteins binds to small interfering RNAs and microRNAs, and they play a very important role in regulating gene expression in most cell types.

Andy Fire (Stanford University) and Craig Mello (University of Massachusetts Chan Medical School), both members of the American Academy, discovered the RNA interference mechanism. That discovery had a revolutionary impact not

only on research but also on patient treatment. My lab has been focused on the Piwi subfamily gene because they are mostly expressed in the germline and primitive stem cells. In 2006, my lab and three other labs independently discovered another class of small non-coding RNAs – meaning they don't make proteins – that interact with Piwi proteins. We call them Piwi-interacting RNAs, or piRNAs for short. These piRNAs are mostly 24–32 nucleotides long. They bind to Piwi proteins, and they also exist only in the germline, i.e., reproductive cells, and primitive stem cells.

One amazing thing about these piRNAs is that they are encoded by genes that are hiding in the part of the genome that people used to call "junk" DNA. Many of you may know that the study of molecular biology over the past several decades has been focused on the central dogma, which tells us that genetic information in DNA is transcribed

into mRNAs, which then instruct the production of proteins, and that is how life gets started. The discovery of miRNAs and siRNAs further enriched this dogma.

However, this dogma only pertains to about 1 percent of our human genome. What about the other 99 percent of that genome, the junk DNA? I prefer the term “terra incognita” because we know so little about these junk DNA.

In the past few years, we have found that this new paradigm of gene regulation has important medical implications. We are excited about the possibility of developing new cancer-treatment strategies based on these new mechanisms. ”

To our surprise, we found that these piRNA-encoding genes are actually hiding in these junk DNA regions. Today, my lab has discovered more than 16 million piRNAs even in a simple organism like hydra. This number is at least seven hundred times larger than the total number of known genes in our genome. We were euphoric about this discovery. If you liken the genome to the world, then the traditional protein-coding genes are like the Old World. Suddenly we found ourselves landed ashore in a completely New World with a new type of genes and a new type of gene products. In 2006, *Science* magazine rated this discovery as one of the ten breakthroughs that year.

Hoopla aside, a very important question still remains. Are these piRNAs functional in any way? For the past ten to fifteen years we have been working on that question. Our recent work indicates that Piwi proteins and piRNAs together represent a new paradigm of whole-genome regulation in reproductive cells.

Our genome is very complex. It contains about 23,000 traditional genes. In addition, our genome also contains about 1 million copies of jumping genes called transposons, which are viewed

as the parasites of the genome. Moreover, my lab and others found the piRNA-coding genes. In addition, a number of other labs discovered yet another type of genes, namely genes that make tens of thousands of long RNAs that do not encode protein information, called long noncoding RNAs, or lncRNAs for short. Furthermore, our genome also contains more than 30,000 pseudogenes that look like real genes, but they are nonfunctional and are often viewed as the dead carcass of real genes on their way out during evolution. Lastly, our genome also contains centromeres that are important for chromosome segregation, and telomeres that protect our genome from being shortened.

Our recent studies showed that piRNAs actively regulate gene expression, and that piRNAs also regulate transposon activity and lncRNA expression. In addition, transposons can regulate traditional gene expression. Pseudogenes also actively regulate traditional gene expression, both through the piRNA pathway. Finally, we showed that Piwi and piRNA can also regulate the function of centromeres and telomeres. Thus, the Piwi-piRNA pathway represents a new paradigm that unites the entire genome. This uniting function is indeed much needed in today’s real world.

In the past few years, we have found that this new paradigm of gene regulation has important medical implications. For example, when they become overly active, they promote breast cancer, gastric cancer, seminomas, prostate cancer, liver cancer, and colorectal cancer. We are excited about the possibility of developing new cancer-treatment strategies based on these new mechanisms.

Reflecting on my research, I have been very fortunate to have had the opportunity to work closely with generations of students and postdoctoral fellows at Duke and at Yale. I want to thank all of you for your friendship, for your support, and for being here today with me on this special occasion.

© 2024 by Peter Salovey, Nancy J. Brown, and Haifan Lin, respectively



To view or listen to the presentation, please visit www.amacad.org/events/haifan-lin-amory-prize-presentation.



Honoring Kwame Anthony Appiah

2124th Stated Meeting | April 18, 2024 |
House of the Academy, Cambridge, MA and Virtual

On April 18, 2024, **Kwame Anthony Appiah** received the Academy's Don M. Randel Award for Humanistic Studies. Established in 1975 as the Award for Humanistic Studies and renamed in 2017 in honor of musicologist Don M. Randel, the award recognizes outstanding contributions to humanistic scholarship. The award ceremony included opening remarks from Academy President **David W. Oxtoby**, a reading of the prize citation by **Henry Louis Gates, Jr.**, acceptance remarks from Professor Appiah, and a conversation between Professor Appiah and journalist **Margaret Sullivan**. An edited transcript of the program follows.

David W. Oxtoby

David W. Oxtoby completed his term as President of the American Academy of Arts and Sciences in June 2024. He was elected a Member of the American Academy in 2012.



Good evening and welcome to our program honoring Kwame Anthony Appiah with the American Academy's Don M. Randel Award for Humanistic Studies. As President, it is my privilege to formally call to order the 2124th Stated Meeting of the American Academy of Arts and Sciences.

It is wonderful to see the House of the Academy so full for this very special occasion. I am pleased to welcome many of Anthony's friends and colleagues. We are also joined by Academy members and loved ones from around the world via our virtual audience. Thank you for tuning in. We encourage you to share ideas, questions, and messages of congratulations throughout the program.

The Don M. Randel Prize is named in honor of musicologist and former Chair of the Academy's

Board Don Randel. It is one of eleven prizes awarded by the Academy under the leadership of Prize Committee Chair Pauline Yu. I would like to thank Pauline as well as the other members of the Academy Board, Council, and Trust for their dedication to this organization. Our governance met earlier today under the leadership of Board Chair Goodwin Liu, who will join me in conferring this prize in just a moment.

I am so pleased that my final Cambridge Stated Meeting as President of the Academy is this opportunity to honor Anthony Appiah. Anthony is among the most prolific and influential thinkers of our time. Whether it is in his role as professor of law and philosophy at NYU, through the advice he offers in "The Ethicist" for *The New York Times Magazine*, via his regular book reviews and

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magazine pieces, or as author of major works like *Cosmopolitanism*, *Honor Code*, and *Lies that Bind*, you have almost certainly encountered his writing or his ideas.

It is difficult to capture the depth and breadth of Anthony’s contributions. His scholarly work in African and African American studies helped define the discipline. As “The Ethicist,” he elevates the business of being a friend, neighbor, colleague, and family member to its proper place – taking the concerns of the day-to-day seriously and inviting readers to move beyond abstractions and snap judgments to give deep thought to what we owe one another. And his public writing – on race, on identity, on inheritance, on our global responsibilities – helps us make sense of the world even as it changes under our feet.

The influence of Anthony’s lifelong dedication to humanistic inquiry can be felt across our society, including – and perhaps especially – here at the American Academy, where he has been a member since 1995. Anthony served on the Commission on the Humanities and Social Sciences, which focused on the future of the disciplines in an increasingly interconnected world. He was also a member of Stewarding America, a project that sought to increase public confidence in American leaders and institutions. Other recent Academy initiatives like our commissions on reimagining the economy, accelerating climate action, elevating the arts in American life, and reinventing democracy for the twenty-first century grapple with questions around dignity, ethics, inequality, identity, and community. Throughout these endeavors, Anthony’s work has been there to guide our thinking, reminding us of the human stakes of the decisions we make, both as a society and as individuals.

As a member of the Academy’s Board and Trust, Anthony has been an excellent steward of this institution, encouraging us to live up to our historic mandate while pushing us to consider what exactly that looks like in the twenty-first century. As Chair of the Committee on Anti-Racism, he took

the lead on drafting the Academy’s 2020 Statement on Anti-Racism, which continues to serve as a guiding document as we “seek to undo the wrongs and move us forward in the search for racial justice, advancing the ongoing project of perfecting our Union.”

Reflecting back on the founding of the Academy, and of America itself, the statement is characteristically lucid, clarifying, and motivating. Like all of Anthony’s work, it trusts the reader to embrace complex concepts and competing ideas, exploring how our pride in this organization is real and earned, how that pride must be tempered by shame, and how shame is not the same as guilt.

The statement ends with a call to action: “We accept that the Academy like the nation has much to atone for. A statement, of course, barely atones for anything. Acting on it is what will. We expect the members of the Academy and the wider world to hold us to these commitments.”

Our anti-racism work is ongoing and takes many forms, but one worth highlighting is the Legacy Recognition Program, an initiative that invites Academy members to honor the legacies of individuals from the past whose accomplishments have been overlooked or undervalued due to their race, ethnicity, gender, or sexual orientation. The first cohort of honorees will be announced in September 2024 – a direct result of Anthony’s leadership.

Tonight’s ceremony is designed to provide a taste of what collaborating with Anthony is like: a reflection of his humor, his generosity, and his unparalleled thoughtfulness. I am grateful that Academy member Margaret Sullivan, *Guardian* columnist and Executive Director for the Craig Newmark Center for Journalism Ethics and Security at Columbia Journalism School, is here to lead a conversation with Anthony and invite audience questions.

But first, the award. It is my pleasure to invite the most recent recipient of the Don M. Randel Prize and friend of Anthony’s, Henry Louis Gates, Jr., to read the citation.



Henry Louis Gates, Jr.

Henry Louis Gates, Jr. is Alphonse Fletcher University Professor and Director of the Hutchins Center for African & African American Research at Harvard University. He was elected a Member of the American Academy in 1993.

It is my pleasure to read the award citation.

Established in 1975 to recognize superior humanistic scholarship and renamed in 2017, the Don M. Randel Award for Humanistic Studies is presented to an individual for their overall contributions to and influence on the fields of Humanistic Studies.

For his distinguished achievements, the American Academy confers the Don M. Randel Award for Humanistic Studies on Kwame Anthony Appiah.

Your groundbreaking work spans a diverse array of disciplines, including moral philosophy, political theory, and cultural criticism. Through your prolific scholarship and thought-provoking insights, you have enriched our understanding of identity, morality, and the complexities of multiculturalism in today's globalized world. As a distinguished philosopher, you have explored the fundamental questions of human existence, challenging conventional wisdom, and

offering innovative perspectives that transcend cultural boundaries. Your work has not only advanced philosophical discourse but has also provided invaluable guidance in navigating the ethical dilemmas of our time.

Beyond your academic achievements, your commitment to fostering cross-cultural dialogue and promoting tolerance underscores your dedication to building a more inclusive and harmonious society. Through your advocacy for cultural exchange and understanding, you have inspired countless individuals to embrace diversity and celebrate the richness of the human experience.

Scholar, ethicist, teacher, and global citizen, your enduring legacy will continue to inspire generations to come, reminding us of the transformative power of ideas in shaping our shared humanity. We celebrate not only your intellectual brilliance but also your unwavering dedication to fostering a more just and compassionate world.

Awarded this 18th day of April, 2024.



Kwame Anthony Appiah

Kwame Anthony Appiah is Professor of Philosophy and Law at New York University. He was elected a Member of the American Academy in 1995 and served as a member of the Academy's Board of Directors from 2016 to 2024.

On such occasions, there are two obvious strategies. One, as at the Motion Picture Academy, is to acknowledge a few of the many people who made your work possible – until the play-off music starts. I shall do some of that. The other, which they don't give you time for at the Oscars, is to offer an *apologia*, a formal defense of something you believe in deeply. You honor me now with an award for a life in the humanities. So, I'll try in the few minutes available to say why *my* life has left me believing in the humanities so deeply.

I'll begin, though, with gratitude. My parents were lovers of the arts and letters. Dad, growing up in what was then called the Gold Coast and later training as a lawyer in England, had not only a love of Asante tradition but of the classical Roman one. As a political figure trying to help build a new independent republic, he felt a particular kinship to Cicero and to Ciceronian ideals. “Cuiusvis hominis

est errare; nullius nisi insipientis, in errore perseverare,” he would admonish me. Translation: Any man can make a mistake; only a fool will persist in error. He was a Ghanaian patriot, but his nationalism was cosmopolitan. He loved to listen to Um Khultum and the Ink Spots; Gilbert & Sullivan brought a smile to his face; Sophie Tucker, a tear to his eye.

Mum, who grew up in England, was shaped by her reading of European novels and English romantic poetry, but she also learned Russian when her father was the British ambassador to Moscow during the Second World War. As they made a life together in newly independent Ghana, a rather global library started to fill the house. At the beginning of each summer vacation in my teenage years, she placed a pile of books for me to read by my bedside, fiction and poetry: plenty of Tolstoy, D. H. Lawrence, and Jane Austen. But our home

library also started to fill with a new generation of African novelists and poets, some of whom were my parents' friends. And when my father, who had decried creeping tyranny, became a political prisoner, he asked for a collected Shakespeare to read in his cell. The warden refused; he had heard Shakespeare was a "well-known British subversive." So, my father craftily asked the prison doctor to write a prescription of Shakespeare for his mental health. That prescription was filled. My father is the only person I know who got his Shakespeare on prescription.

In the meantime, my mother became a writer. Her first public literary act was a children's book of Asante folktales, called (since this was how she knew them) *Tales of an Ashanti Father*. The book was meant for children everywhere: it was an act of translation, a sharing across cultures of something valued in one but valuable for them all. Later I worked with her on a volume of more than seven thousand proverbs in my father's language, translating and explaining them; again, something valued in Asante but valuable, my mother and I judged, for all.

I think of translation as a central humanistic metaphor: we take artifacts from a place and time that may not be our own and interpret them for an audience here and now. Since every culture is constantly in motion, the work of the humanities is never done. Even if a play by Shakespeare has been read and re-read over centuries, the humanist who reads it *now* is engaging it for a reader *now*, in the age of Lynn Nottage, elected to this Academy in 2017. For cultural innovation has always emerged in dialogue with the past. As the Asante say, *Obadwemma hwe adedada so ye foforɔ, na onto adedada ntwe ne nye foforɔ*. Translation: A wise person looks at an old thing in order to make a new one, and does not throw away the old before making the new.

There are, of course, many kinds of humanists, some dry-as-dust pedants like Casaubon; some with slashing wit and deep minds, like Nietzsche; some gently liberal-minded like Montaigne; some visionary, like Margaret Cavendish. Because of my father's Ciceronian predilections, when I think about the meaning of the humanities, I begin with Cicero's regular repetition of the word *humanitas* in his *Pro Archia*, his defense of poetry and of the poet Archias. The relevant passages actually live in my memory, thanks to one of my high-school teachers, a classicist who encouraged me to learn

Latin prose and verse by heart to take part in Latin oratory competitions.

I have explained my thinking about these matters in *Dædalus*, so I won't repeat that here. Yet *our* conception of humanistic knowledge owes much to the German notion of the *Geisteswissenschaften*, scholarship about, or pursued through, the *Geist* – that encompassing word that has the sense of mind and spirit. Wilhelm Dilthey brought the word into wide circulation, but he seems to have encountered it first as a translation of John Stuart Mill's expression "moral sciences," by which Mill meant the scientific study of society and human behavior. Mill thought that, while the laws of the moral sciences might be inexact, these disciplines were still aimed at the discovery of general laws derived from reflection on historical evidence. Dilthey rejected what he saw as Mill's positivism. Instead, he argued that the *Geisteswissenschaften* – belonging to the realm of meaning, experience, and cultural context – had to be understood through the sort

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of empathetic engagement he called *Verstehen*, the German word for understanding.

But it was another nineteenth-century philosopher, considerably less well known than either Mill or Dilthey, namely, Wilhelm Windelband, who pushed the argument in another direction. Windelband invented the word "idiographic" to describe the way in which humanists pay attention to *particular* past artifacts. Where natural scientists are mainly interested in what he called the "nomothetic," the lawlike, as in laws of nature, a humanist might attend to an artifact for precisely what's singular about it. When I teach Aristotle's *Nicomachean Ethics* or ideas from Mencius or Al-Ghazali or

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Mill's *On Liberty*, as I do most years, it isn't because they develop or defend general laws of human nature or society; it's because they reward the careful attention of modern people in their peculiarity, even though grasping their peculiarities requires grasping context and commonalities. For humanists, the rewards of learning to pay disciplined attention are not exhausted by what some artifact teaches us, where what it "teaches" means some general truth. You cannot tell in advance what a poem or painting will mean to you in some particular moment.

I was lucky – I am coming to the end of my too-few expressions of gratitude – that, when I was

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still an undergraduate, I met Dorothy Emmet, a philosopher who felt that academic philosophy had become overly narrow, and that it should help us navigate complex social realities and see the interconnectedness of our individual actions. Then I encountered Skip Gates, who was studying literature at my college in England for a PhD. I was a medical student who had switched to philosophy; my doctoral work would be on probabilistic semantics. My orientation, then, was toward the nomothetic. But Skip had an electric sense of mission. He wanted to expand the humanities beyond the curtailments of their past. In particular, he wanted to bring scholars of every relevant discipline to the study of the African diaspora, and he persuaded me to come to this country and see what a philosopher could contribute. He prescribed a diet of

cosmopolitan engagement in service to a particular cultural mission. And always, in our many joint projects, he exemplified the ideal of humanistic collaboration. I'm delighted to follow Skip in receiving this award.

We needn't choose between the idiographic and the nomothetic. Because of my work in African American studies, I was in daily interaction with colleagues in art history, literature, economics, history, and sociology, who kept me in touch with the full range of the *Geisteswissenschaften*, including the more nomothetic ones like economics and sociology, without scanting the *Naturwissenschaften*, where they were helpful. These many conversations led me to reflect more deeply on theoretical questions in ethics and political philosophy and the role in ethical life of identities, like racial identities, which became a central theme of my later work.

Ah. But I think I hear the play-off music starting up. So let me remind you, returning from gratitude to *apologia*, that humanistic knowledge is knowledge about ways of being human. These ways stretch across the globe, and across time, from the classics of the Axial Age to an Asante Father's tales . . . to creations that will be forged by those yet unborn. We have a vested interest in treasuring the past, of course, because we will very soon join it. But those voices from history prompt us to care about the future. To expand the reach of the humanities is the work of the mind; to expand our responsiveness to the human is the work of the heart.

And speaking of the heart. Just thirty seconds more. I am conscious that the work for which I am honored this evening was made possible only by a life of immense privilege: beginning with being born into the bosom of a nurturing family, spread over many religions and nations. That privilege has been deepened by the companionship over nearly four decades of my husband, Henry. All I have done since I have known him was better because I knew him and would have been better still if I had been wise enough to take more of what he has to give. And so, like everything good in my life, I'd like to share this honor with him.

A portrait of Margaret Sullivan, a woman with shoulder-length blonde hair, smiling. She is wearing a blue top and a black scarf with a floral pattern in red, white, and blue. She is also wearing large hoop earrings.

Margaret Sullivan

Margaret Sullivan is Executive Director of the Craig Newmark Center for Journalism Ethics and Security at Columbia Journalism School. She was elected a Member of the American Academy in 2023.

Congratulations, Anthony, on this wonderful award. We are thrilled to be here and to celebrate with you.

As a lifelong journalist, I can't help but bring something of a ripped-from-the-headlines feeling to some of my questions. There's a lot going on today at Columbia University, the place where I work every day. Yesterday, after the president

of the university testified before Congress, students who were demonstrating on campus were cleared out of an encampment. Some of them were arrested. There's a lot of turmoil on campus. How do you look at the questions that are arising at this very fraught time? And how do you put them in the context of a larger ethical framework?

KWAME ANTHONY APPIAH: One of the larger themes of my column, “The Ethicist,” is to encourage people to feel that we must continue to talk to one another across the vast partisan and other differences that are currently dividing not just our society, but our world. And the worthwhileness of talking to people who, in your mind, are wrong about everything.

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When my English grandmother grew older, I spent a lot of time in England. She sold her house to a very right-wing member of the English Parliament and moved into the cottage next door. So my home in England was from then on next to a very right-wing member of the English Parliament, a person named Knox Cunningham. And he became a friend. Back then I had a subscription to the *Soviet News*, the little red book in my pocket. I was a leader in my high school, participating in student protests and so on. And Knox was introducing Enoch Powell to a constituency in Ireland. But he and his wife were very nice to me and my grandma. So I spent a fair amount of my childhood in conversation with a much older, very reactionary person whom I liked. And just to be clear, Gordon Brown once said to me, “You are Labor Party aristocracy.” My family helped found the Labor Party. My great-grandfather was the first Labor leader of the House of Lords. So we were on the other side. And this friendship with Knox was incredibly good for me, because I couldn’t help but like him. He taught me trout fishing. He took me to boxing matches, which I didn’t enjoy so much, but he had boxed for Cambridge. And it was because of him that I went to Clare College because he was a Clare College alumnus. And that’s where I met Skip.

So I had this useful experience of liking and spending time with someone who I just thought was wrong about absolutely everything. When I went to Cambridge for the first time for a college visit, he took me because my parents were in Africa. That trip was the weekend before a vote to

reintroduce capital punishment in England. I spent that whole trip trying to persuade him not to vote for the reintroduction of capital punishment. Sadly, he was the first person who spoke in the debate in favor of the reintroduction.

SULLIVAN: So you did a good job.

APPIAH: I did a terrific job. And it didn’t console me very much that what he said to me as I was getting out of the car was, “You won all the arguments, Anthony, but I’m still going to vote for the reintroduction of capital punishment.” I grew up thinking that it is okay to hang out with people who are just wrong.

SULLIVAN: But don’t expect to change their mind.

APPIAH: The point of conversation is not to change minds. That’s advocacy and preaching, which both have their place. When you’re in conversation with people, you may or may not change their views, but that’s not the point. Knox could have been racist. His party was. I think one of the reasons he wasn’t was because he knew me. And even though he worked with politicians who were explicitly racist, like Enoch Powell, he himself never was. The point of our conversations wasn’t to change him, but he certainly changed me. He made me realize that a person could be a nice person and just wrong about everything. My mother used to say, “Like your grandfather, you think that if you win arguments, you change people’s minds.” Knox taught me that wasn’t so, but nevertheless, I could be in conversation with him. So that was a life lesson. Turning to what’s happening on college and university campuses, it is absolutely crucial that we listen to people who we think are wrong.

SULLIVAN: And are we doing that? Or are we doing it less?

APPIAH: I’m not sure. I find it difficult to interpret the evidence about that. The people I know are not doing it less, though some say they feel more at risk now than before when they say certain kinds of things. I don’t feel that. But if it is true that we are not listening to people whom we disagree with, if we are not explaining our views and giving them an opportunity to explain theirs, then we are not doing what we should be doing, especially in a university, where young people don’t know where they stand. They need to hear all of the arguments.

SULLIVAN: One of the things that I think about a lot is the idea that there is a value to objectivity. And that is a concept that's under siege now. We see it in journalism and in our newsrooms today. The public tends to think it's a very good thing, but many journalists, particularly women, people of color, and those who stray outside the traditional norm, think that it needs to change because whose objectivity are we talking about? You have defended neutrality and objectivity, not because people don't have a point of view, but because there's a value in presenting things from a neutral or objective perspective. Could you talk about that and address, in particular, the deep concern that the groups that I've mentioned have about this.

APPIAH: Everybody has a point of view, not just in the sense that they have views that are theirs, but in the sense that they see the world from a particular place. I see the world from the place of a person who grew up between Africa and England, who is gay, who was raised a Christian but isn't a Christian anymore. Everybody comes from somewhere. But it's really important to hold onto the idea that when you are discussing something, you are taking an angle on what's there. And when you make a claim about what's there, if it's clear enough, it is either right or wrong. And if it's wrong, anybody who says it's right is wrong. And if it's right, anybody who says it's right is right. So part of the struggle of living with our complex epistemic situation is to get hold of the truths that you can. Objectivity is best thought of not so much as a feature of people, but of institutions. Institutions generate objectivity by having rules about how you test claims.

SULLIVAN: How do you know that?

APPIAH: If the journalist's interpretation of what they've heard is too far away from what the editor thinks is a reasonable interpretation of those words, the editor will say, "I can't publish that." Our paradigm institutions of objectivity are obviously academic and scientific, and include institutions like peer review. Their function is to say, though you may have a Nobel Prize in physics, we are going to test your claims against the standards that the profession has developed over time. Now that doesn't mean that physicists will agree about everything. They don't. But it does mean that any

claim you make as a physicist should be tested against those standards.

I remember reading in the 1970s about debates in the late 1960s between people who were moving toward the now standard view of plate tectonics and those who held onto the earlier views. This didn't mean that the geosciences weren't objective. Particular people had their own subjective investments, but the institution tested the new theories against the old ones and the new ones won. So what objectivity means depends on what it is you're doing. We have institutions whose objectivity – to the extent that it exists – consists in their having standards for assessing judgments and mechanisms for critique and ways of making an argument against a position if you think it's wrong. And journalism is one of those institutions. There's nothing wrong with a journalist having a point of view. Everybody has a point of view. But the institutions are supposed to do some work to constrain that.

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SULLIVAN: Is it important to give those who are not very closely tethered to the facts their moment in the sun? Is it important to listen to all sides, even if one of the sides is false? Is that objectivity?

APPIAH: People say that everybody is entitled to their point of view. That's not true. Some people have points of view that they're not entitled to because they haven't spent two minutes thinking about it. But everybody is entitled to express their point of view. And if somebody says something that you think you can show is wrong, then the honorable and decent thing to do is to say to them that it is wrong, and here's why. As I learned with Knox Cunningham, this doesn't work very often, and so sometimes you just give up. But it's worth trying. I think everybody in this room will admit that they have changed their minds about some things, and sometimes it's because somebody

made a persuasive argument. So even if we're not as responsive to reasons as we'd like to be, we're not totally non-responsive either.

To return to objectivity, one reason why the skepticism about objectivity often lies with the dispossessed, as it were, is because the institutions that were supposed to be testing when they were run by one lot of people didn't run the full range of tests. Of the late-nineteenth-century brain scientists, 99.3 percent were men and they said all kinds of weird stuff about women's brains. If there had been more women, they would at least have tested those claims. Lots of people in African American communities knew that Thomas Jefferson had Black descendants. That was part of the common sense of the African American community. White people, on the other hand, including some historians, thought it was preposterous slander. And it took a long time, hard work, and studying the evidence, including the availability of new kinds of evidence, to show that some of the Black descendants are genetically related to some of the White descendants.

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The point is that these mechanisms of objectivity produced the wrong theory in geology until the late 1960s, and they produced the wrong picture of what happened in the Jefferson household until relatively recently. But I don't mean to imply that objectivity is the same as truth. Lots of these institutions have failed to find the truth. And one of the reasons why they failed is that they didn't carry out the full apparatus of objectivity, which is to attend to how it looks from everywhere.

SULLIVAN: You mentioned that it is difficult to change people's minds, that you've encountered situations in which you would have liked to have changed someone's mind, but were unable to. In your experience and in your work, what is it that allows people to change their minds?

APPIAH: To the extent that Knox and I changed each other's minds, it wasn't because we immediately began our conversations about the things we most disagreed about. We first built a relationship of trust, both personal and intellectual trust, and then we approached the hard questions. And by that point, it was possible to talk about them.

Let's say I show up in a town in West Virginia, near where Skip grew up, and I stand on the street and offer to explain to people passing by why Donald Trump is wrong. Those people don't know me from Adam. So why on earth should they take any notice? Now, if I lived there and got to know some of them, then I might be able to have conversations with them. A lot of our actual practices of attention to argument and evidence presuppose relationships of a certain sort. And one of the difficulties we face in our society now is that trust is absolutely essential. Why are we a successful species? Every human being knows things that they got from long ago, from far away, as well as nearby from other people.

I have a flock of sheep that I love. They each know some things, but there's hardly anything they can tell each other. So each group of sheep has to figure out the world for itself. We don't do that. We have to be able to trust each other, which is our distinctive achievement as a species. When you get to the point where there are people who think that just because it's in *The New York Times*, it must be false or just because it's on MSNBC, it must be true, and they don't do any checking on any of that, then those people are fools. MSNBC can tell them anything. Suppose people could fool you by saying not P when they believe P in order to get you to believe P. But we can't use this beautiful mechanism of exchange and sharing, which is our epistemic distinction. We desperately need not to respond in that way. And the fact is that on many topics, the people whom we disagree with about vaccines or global warming are as reliable as anybody else. If you ask them where is the supermarket? they'll tell you, and you can go there and there will be a supermarket. So I suppose it's important to remember that even the people we trust the least, we use them as reliable sources of information about lots of things. We need to figure out how to build the trust that makes this mechanism work as well as it can. And we don't have that right now.

SULLIVAN: It seems as though we're so separated from other people's points of view because of the kinds of bubbles that we live in. And some of that

comes from with whom you identify. And I know you've thought a lot about the question of identity, how prevalent it is, and how important it is, especially to young people today. Why is that? And is it a good or bad thing?

APPIAH: Margaret Fuller used to say, "I accept the universe." And Thomas Carlyle's famous reply was, "Gad! She'd better!"

SULLIVAN: Because there's no choice?

APPIAH: I accept identity, but we know that both terrible things and good things can happen in the name of identity. It's like being against nationalism on the grounds that it led to Nazism. Yes, it did. But nationalism also produced the welfare state, and the willingness of citizens to pay the cost of helping other citizens depends upon a sense of national identification. In places where national identification disappears, it's really hard to do politics. So I think we need identities. And, of course, at the moment, people are very conscious of how identities get in the way of things. But think of all the things in our lives that are made possible and simple by our identifications, ranging from small-scale things like knowing what section in the Gap store I can find jeans that will fit me.

My point is that there are lots of little things in which identity helps, and there are also the big things in which identity helps. Being an evangelical Christian helps you to support missionary work in Tanzania and maybe sends you to Tanzania to build cross-cultural relations. Being a philosopher allows me to talk to people in Brazil, Shanghai, and India – and a few in the United States too. There's lots of stuff that comes from this that is good.

One of the things that happens with identities is that they depend upon our capacity to signal our identity to one another. One of the ways in which we signal our identities is by the propositions we utter. And right now, for example, you can signal a conservative identity by expressing skepticism about vaccines. And you can signal a liberal identity by expressing friendliness to masks. Now, neither of those is a left wing or a right wing thing. Masks are a good idea in pandemics and vaccines are a good idea too when they work. But once these things get associated with identities, something happens. If you are of a certain identity

and you don't believe that thing, then you have to be quiet about it, because people will take you to be betraying the identity. And this is true on the left and right. It is not a conservative thing. So we should try not to let too many important things become signals of identity in that way. Because once they are, the capacity for a shared conversation about them diminishes very fast. One of the striking things about religious identities, for example, is that you signal religious identities by saying things that people of other religious identities think are obviously false.

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SULLIVAN: Like what?

APPIAH: "I believe in one God, the Father Almighty, maker of heaven and earth. And in one Lord, Jesus Christ, the only begotten son of God. Begotten of his father before all worlds." What does that mean, and how could it be true? Creeds are often about signaling that you are so serious about this identity, that you'll say things that sound crazy to people of other identities. "This is bread and this is wine; this is the body of Christ and this is blood." Well, that takes commitment to say things like that in a world where most people don't think that bread can be the body of any mammal. I don't mean that the people who say these things are insincere; that's not my point. My point is that they're willing to bear the cost of saying things that seem crazy to people in order to secure their identity, to be in solidarity with the people who are saying these crazy things.

SULLIVAN: I have to ask about the column that you write in *The New York Times Magazine*, "The Ethicist." Would you talk a little bit about how this came about and how you approach the challenges of this work?

APPIAH: My involvement with the column started when I joined a podcast, a conversation among three people. And then someone at the *Times* would listen to the podcast and write the column. But the column wasn't working well because it didn't have a point of view.

SULLIVAN: It's one thing to have a conversation. It's another thing to write a column.

APPIAH: We were about to ask the editor of the magazine if he would allow us to continue to do the podcast, to have the conversation, but every third week each one of us would write the column. And we were just about to send one of us off to do that and I got a call from the editor, who said, "This isn't working. I've decided to ask if you would consider writing the column. I am going to give you some past questions. And I would like you to write some columns this weekend. If I like them, I'll hire you." And I did just that. After sending the columns to him, he called again. "I like what you did. I'm giving the column to you." My only stipulation was that he had to talk to the other two guys before I next saw them.

I started out as a young analytic philosopher. I thought that if you win the argument, you've won the day. If you just told the world the truth about Black people, racism would go away. But I changed my mind. ”

SULLIVAN: And did he?

APPIAH: Yes, he did. And the other guys were very generous about it. So, that's how my stint as "The Ethicist" came about.

SULLIVAN: How does the process work? Do you choose the questions that you respond to?

APPIAH: The editor of the column reads the letters and sends me the ones that are answerable. By that I mean answerable in the sense that they are about a problem someone is facing. I don't answer questions like, "Do you favor deontology or consequentialism?" I don't answer theoretical questions about the shape of ethics. If you have a problem that seems to have an ethical dimension, the

editor will pass it on me. Some of the questions I don't get are about tax law, even though tax law raises many ethical questions. But straight tax law questions should be sent to a tax lawyer.

So the editor takes the first pass. I used to answer all the ones I was sent, but I can't do that anymore because there are simply too many. I've written 403 columns now, and I have said what I want to say on a bunch of topics. If a question is too close to one that I have already answered, there doesn't seem to be much point in my answering it again. But amazingly, people keep coming up with new ways to screw things up.

SULLIVAN: It's encouraging in a way, isn't it?

APPIAH: It's encouraging. It's the crooked timber of humanity.

SULLIVAN: Let's now turn to some questions from the audience.

AUDIENCE MEMBER: Could you give us an example of when you changed your mind?

APPIAH: I started out as a young analytic philosopher. I thought that if you win the argument, you've won the day. If you just told the world the truth about Black people, racism would go away. But I changed my mind. I used to think that it was a plausible view that the correct account of the semantics of indicative conditionals was that "if A then C" is assertible if and only if the probability of C given A is greater than one minus E for some small E. I don't think that anymore.

SULLIVAN: And neither do I.

APPIAH: I should say that not many people ever believed that. But I was one of them. And I was persuaded that that was wrong, not by very complicated arguments, but just by convincing examples, which is one way to be persuaded of something. I was a very devout evangelical Christian until a certain age, and I changed my mind about that.

SULLIVAN: That's a big change.

APPIAH: It was. And I have to say that that change was like the breaking of a piece of glass. It was flexed and flexed and flexed. And then there was a moment when it went. I spent a lot of my late teens reading theology and philosophers, thinking about God and questions that you might think couldn't

change your faith, like whether existence is a predicate – which philosophers think about. And it wasn't that any one of those arguments was the cause. I just felt that the whole structure of thought fell apart. Also, it was becoming clear that I was gay, and I didn't like the attitude of the church about that. So that probably played a role. While that isn't an argument for the existence or non-existence of anything, it shaped my attitudes. And then one day, I was playing a hymn I was composing, and a close friend said, "I don't think I believe that anymore."

APPIAH: I don't think we need to choose between the nomothetic and the idiographic. There's plenty of scope in the humanities for the nomothetic, especially if by the humanities, you mean the *Geisteswissenschaften*, which includes economics and sociology. But I think that an important part of understanding the human is scientific. It's knowing how our brains work, knowing how cultures work, knowing how economies work. And all of those are nomothetic-type explorations. And they're absolutely part of understanding.

“ I don't think we need to choose between the nomothetic and the idiographic. There's plenty of scope in the humanities for the nomothetic, especially if by the humanities, you mean the *Geisteswissenschaften*, which includes economics and sociology. But I think that an important part of understanding the human is scientific. It's knowing how our brains work, knowing how cultures work, knowing how economies work. And all of those are nomothetic-type explorations.

SULLIVAN: The words in the hymn?

APPIAH: Yes, the godly words. And I thought for two seconds and said, "Nor do I." It took me some time to figure out what that meant in my life, because my life had been organized around prayer and communion with other members of my religious group. I changed my mind about that. When people say they were born again, I know exactly what they mean. There was this moment when I suddenly saw the world in a new light; it was like a Gestalt switch – the duck became a rabbit.

SULLIVAN: And did you then become an atheist?

APPIAH: Yes. I am willing to listen to arguments, but right now, that's my view.

AUDIENCE MEMBER: Anthony, your talk was a very powerful discussion of what the humanities mean. And I've been pondering it, and I wonder when we juxtapose the humanities and the sciences as we often do, are we saying that the sciences are less of a humanist activity? What does it mean to have that stark juxtaposition?

There's a way in which the natural sciences contribute to the human, which is that we are enriched by understanding the universe we live in. And that's a service that the natural sciences provide for us, especially when they're willing to communicate with us about scientific understandings of things. I'm on the promotion and tenure committee at my university, and I do not understand everything I read in the science dossiers, but I don't understand everything I read in the humanities dossiers either. But I am very grateful to the scientists and to the humanists who are willing to talk to non-experts and enrich us by sharing with us what they know.

I do not mean to imply that the more nomothetic of the *Geisteswissenschaften* do not contribute; they absolutely do. And it's not that I'm against them, but there's a thing that we do in the humanities, which I describe in my *Daedalus* essay: we pay attention to a particular thing, say an ode by Horace or a poem by Keats, which might be about a Grecian urn. And the point of that attention is not to produce some general statement. It's hard to know in advance what the point of that attention will be. What will we learn by studying Keats's

The promise I'm making to my students when I force them to read a bit of *Nicomachean Ethics* is not that they're going to learn some general truth from it. Maybe I think that the passages that we're reading in Aristotle are wrong. It is more that it will reward their intelligent attention. ”

ode on a Grecian urn? What can we find in it? We need people who know enough about the language of the time and the poetic forms available – and not everybody agrees with this – but also the biographies of the creators so that we can look for the interesting things.

The promise I'm making to my students when I force them to read a bit of *Nicomachean Ethics* is not that they're going to learn some general truth from it. Maybe I think that the passages that we're reading in Aristotle are wrong. It is more that it will reward their intelligent attention. When scientists think that studying something will reward their intelligent attention, they're thinking that they'll learn some general truth: some fact about chemical bonds or some general fact about the evolution of ants. And that's just a different reason for paying attention. I think that was Wilhelm Windelband's point in talking about the ideographic. And the thought that it's worth paying attention to these things without any promise that you'll get any general discovery out of it – that's the humanists' bet.

But, of course, it may turn out that you do discover something general, and that's fine. It's not that you're against finding general things, but that is not the point of that form of attention. People who look at the way English prose develops discover that there are in fact general principles for the general drift of a language. And that allows people to predict in advance some of the vowel shifts that are currently going on in English. There's a piece of nomothetic stuff that might come out of the study of English prose. But that isn't why we're doing it. And if the thought is that there are rewards to be had from paying disciplined attention to these particular things, then one of the things we're doing as teachers is trying to persuade our students that that's true and picking for them things that

do reward that kind of attention, so that they can then apply their habits of disciplined attention to other things that we haven't shown to them, and which they can choose for themselves. We don't have to give them a list of the objects to which they must apply this attention.

So the thought is absolutely not that we don't learn something very important about the human from the normal nomothetic stuff. Absolutely, I think we do. But there's a thing that humanists are committed to, which is that it can be worth doing that even if there's no nomothetic payoff.

SULLIVAN: Thank you, Anthony. We have focused on some important topics in our conversation. I appreciate the questions and very much appreciate Anthony's thoughtfulness and his work. Congratulations again on this richly deserved honor.

APPIAH: Thank you.

OXTOBY: What a wonderful conversation! Thank you, Margaret, for your moderation. Thank you to our virtual audience for joining from around the world. Thank you, Skip, for reading the citation, from one Randel award recipient to another. And thank you, Anthony, for your remarkable contributions to our society and to this organization. Congratulations again. I hereby adjourn the 2124th Stated Meeting of the American Academy of Arts and Sciences.

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To view or listen to the presentation, please visit www.amacad.org/events/anthony-appiah-humanities-award-margaret-sullivan.





Understanding Implicit Bias and How to Combat It

2125th Stated Meeting | April 30, 2024 | Virtual Event
A Morton L. Mandel Conversation

Implicit bias is the residue of stereotyped associations and social patterns that exist outside our conscious awareness but reinforce inequality in the world. The implications of implicit bias are present in every field, from law enforcement to courts, education, medicine, and employment.

Scientific inquiry has advanced our understanding of implicit bias in recent decades. It has also illuminated the limitations of certain cognitive measures and commonplace interventions, including some forms of diversity or implicit bias training used by corporations, universities, and other organizations. How can we improve our knowledge base on effective strategies to counteract bias and its negative impacts on our nation? What changes to organizational policies, procedures, and decision-making structures have shown promise?

On April 30, 2024, the Academy hosted a virtual event that featured four contributors to the *Dædalus* volume on “Understanding Implicit Bias: Insights & Innovations” – guest editors **Goodwin Liu** (California Supreme Court) and **Camara Phyllis Jones** (King’s College London) and authors **Jennifer Eberhardt** (Stanford University) and **Frank Dobbin** (Harvard University) – who discussed some of the strategies and solutions to understand and combat implicit bias. The program included welcoming remarks from Academy President **David W. Oxtoby**. An edited transcript of the event follows.



When I say the word *racism*, I am clear that I am talking about a system, not an individual character flaw, or a personal moral failing, or even a psychiatric illness as some people have suggested. Yes, racism does manifest in all of those ways, but in its essence, racism is a system of power that structures opportunity and assigns value based on the social interpretation of how one looks (which is what we call “race”). ”

Camara Phyllis Jones

Camara Phyllis Jones is a Commissioner on the three-year O’Neill Lancet Commission on Racism, Structural Discrimination, and Global Health and a Visiting Professor in Global Health and Social Medicine at King’s College London. Elected to the American Academy in 2022, she is the guest editor (with Goodwin Liu) of the *Dædalus* volume on “Understanding Implicit Bias: Insights & Innovations.”

I am delighted to be invited to share some framing comments. Today’s conversation is the evolution of a workshop convened by the Committee on Science, Technology, and Law of the National Academies of Sciences, Engineering, and Medicine (NASEM) three years ago that focused on the science of implicit bias and the implications of that science for law and policy. Goodwin Liu and I cochaired that workshop.

I was initially surprised when the organizers reached out to me to be involved in an effort focused on the science of implicit bias. I have always characterized my work as focusing on naming, measuring, and addressing the impacts of *racism* on the health and well-being of our nation. And it has been my observation that when people talk about implicit bias, they sometimes use that term to *avoid* saying the word “racism.” To my delight, many of the participants in that initial NASEM workshop explicitly contextualized their work on implicit bias within the broader context of the reality of structural racism in our country today.

Fast-forward three years. Many of the papers that were presented at that NASEM workshop, as well as several new ones that we commissioned, have been published in the Winter 2024 issue of

Dædalus. It’s an amazing volume. I do hope that you will access the essays online.

To frame today’s conversation about implicit bias, I would like to talk about racism. That is because implicit bias is both a reflection of and a contributor to racism.

When I say the word *racism*, I am clear that I am talking about a system, not an individual character flaw, or a personal moral failing, or even a psychiatric illness as some people have suggested. Yes, racism does manifest in all of those ways, but in its essence, racism is a system of power that structures opportunity and assigns value based on the social interpretation of how one looks (which is what we call “race”).

The impacts of this system are threefold. It unfairly disadvantages some individuals and communities. But every unfair disadvantage has its reciprocal unfair advantage, so it also unfairly advantages other individuals and communities. And whether an individual or community is unfairly disadvantaged or unfairly advantaged, racism is sapping the strength of the whole society through the waste of human resources.

But where is implicit bias in that? As Keith Payne and others have said, implicit bias is just the

manifestation in the mind of what’s going on in the environment. Implicit bias contributes to, and is a reflection of, structural racism. More on that in a minute. Many people have trouble saying the word “racism” and find it easier to say the words “implicit bias.” But we must name racism because we must name any problem in order to get started on the solution.

There are four key messages that we need to communicate when naming racism: 1) racism exists; 2) racism is a system; 3) racism saps the strength of the whole society; and 4) we can act to dismantle racism. In my teaching on issues of race and racism, I share many allegories to communicate these four key messages. Today I want to share the allegory that I call “Cement Dust in Our Lungs” to help us understand that racism is a system.

Recognizing that racism is a system helps us understand how to move forward and address implicit bias and all of the other manifestations of racism, which occur at structural, interpersonal, and internalized levels. As I talk about cement dust in this allegory, I want you to think cement dust, but I also want you to think racism.

Imagine that there’s a cement factory and it is spewing cement dust. The cement dust fills the air, and for any of us who are near that factory for any amount of time, we are going to develop cement dust in our lungs. Having cement dust in our lungs is problematic for all of us, even though it might affect different ones of us differently. Cement dust in my lungs might make me feel “less than” (internalized racism), while cement dust in somebody else’s lungs might make him feel that he can, with equanimity, crush the life out of another human being with his knee for 9 minutes and 29 seconds.

Cement dust in our lungs is bad for all of us, even for people who don’t recognize or acknowledge that they have cement dust in their lungs. So if it’s a problem, what should we do? Should we focus on the individual because there’s cement dust in our individual lungs? I’m going to share two ideas of interventions that focus on the individual.

The first one is a screening program. We can screen and see how much cement dust different people have in their lungs and if somebody has too much dust in their lungs, an alarm goes off.

That is a very good strategy for people who don’t believe they have cement dust in their lungs. But how much is too much dust? And what do you

do with the people when the alarm goes off? We can’t vote them off the planet.

One of the byproducts of this kind of approach is that it makes people not want to talk about or think about cement dust. (Indeed, people do not want to talk about racism because they think that if they say the word, other people are going to be peering deeply into their souls to figure out “Exactly how racist are you?”) But it is a useful strategy because it enables us to at least acknowledge that we do indeed have cement dust in our lungs.

The second intervention that focuses on the individual is to set up a cleansing spa. People who know that they have cement dust in their lungs and want it out could volunteer to go into the cleansing spa, while others might go into the cleansing spa because it is important to their employers. Inside, maybe they will start reading widely and especially reading history. Maybe they will start talking to strangers or venturing across town to experience our common humanity in very different contexts. And maybe after these and other experiences they will come back out as good as new. But if they come back out into that cloud of cement dust, the cement dust will just reaccumulate in their lungs. So it’s not a very permanent solution unless they spend their whole lives inside the cleansing spa rather than out in the world.

“ There are four key messages that we need to communicate when naming racism: 1) racism exists; 2) racism is a system; 3) racism saps the strength of the whole society; and 4) we can act to dismantle racism.

Aha! That gives us an insight. Since the cleansing from our short-term efforts gets undone when people come back out into the cloud, maybe our intervention should be about acknowledging the cloud. What does that look like? Well, if I acknowledge the cloud, then at least I know that I wasn’t *born* with cement dust in my lungs. I also recognize that I need to do something to stop accumulating more and more cement dust in my

Recognizing that racism is a system helps us understand how to move forward and address implicit bias and all of the other manifestations of racism, which occur at structural, interpersonal, and internalized levels. ”

lungs. So maybe I put on a gas mask. I start my own individual anti-cement dust journey, recognizing that the gas mask won't in and of itself extract the dust already lodged in my lungs, but praying that it will at least protect me from more dust accumulating there.

In fact, I understand that my individual anti-cement dust journey is a 24/7 commitment. I walk around wearing my gas mask without embarrassment, even proudly, understanding that if I take it off for even a moment, more harmful dust will accumulate in my lungs. When I see myself reflected in a glass window or a mirror, I am reassured to see that the mask is still in place, understanding the importance of remaining steadfast in my individual anti-cement dust journey.

And when you see me, you may ask me, “Dr. Jones, why are you wearing a gas mask?” This is my opportunity to describe the cloud of harmful cement dust that we're in, one that most of us do not even see. I can name the cloud and point out its dangers to all of us. And then I can then ask, “Do you want to keep breathing cement dust?” And more and more people will say “No!” and will put on their own gas masks, start their own individual anti-cement dust journeys. So is that the answer? Maybe what we need to do in this country is just have 330 million gas masks? Little baby gas masks, old people gas masks, all kinds of gas masks?

Well, it's a start, but it is insufficient because if at any minute we take off our gas masks, all bets are off.

What we really need to do is dismantle the factory!

Many people will ask, “What factory?” Indeed, the cement factory has been so obscured from view by all of the cement dust that it has been spewing into the air that many people, even those who are aware of the dust in the air, don't realize that a factory is operating in the middle of it all. Those of us who recognize that we're living in a cloud of harmful cement dust have to not only call out the dust in the air (White supremacist culture) but also call out the factory (systemic/structural racism).

We who can see more clearly and breathe more easily through our gas masks need to resolutely approach the factory. Next, we need to ask “How is this factory operating here?”, examining structures, policies, practices, norms, and values. And finally, we need to organize and strategize to act, working collectively to dismantle the factory and put in its place a system in which all people can know and develop to their full potentials.

In this allegory, we have considered interventions at different levels of focus to address implicit bias as the cement dust in our lungs. At the level of the individual, a screening program like the implicit association test or a cleansing spa like DEI trainings are good interventions, but they can backfire or have only short-term impacts. At the level of acknowledging the cloud, naming racism in our history and in our culture, we are motivated to start our own individual antiracism journeys, which can include studying history, talking to strangers, going across town to experience our common humanity. But if we really want to set things right, then we must address the existence and operation of the factory itself – the structures, policies, practices, norms, and values that are the mechanisms of systemic racism.

We need to understand that yes, there is harmful cement dust in our lungs, but we were not born that way. We need to recognize that the dust in our lungs comes from the dust in the air, and that the dust in the air comes from the cement factory. When we are willing to name the cement factory, examine how it is operating, and organize to dismantle it, we will improve the health and well-being of all of us for generations to come.

Let me now turn things over to my wonderful colleague, Goodwin Liu, who will start our conversation about understanding implicit bias and how to combat it. I hope that my “Cement Dust in Our Lungs” allegory has given us some intuition about the extent to which we have to move if we want to combat implicit bias as well as all the other manifestations of racism.



This project was originally conceived by the Committee on Science, Technology, and Law at the National Academies of Sciences, Engineering, and Medicine. The *Dædalus* volume is one of the most up-to-date and comprehensive reviews of the state of knowledge about implicit bias and some of the interventions that are emerging. ”

Goodwin Liu

Goodwin Liu is an Associate Justice of the California Supreme Court. A member of the American Academy since 2019, he serves as the Chair of the Board of Directors at the Academy. He is the guest editor, with Camara Phyllis Jones, of the *Dædalus* volume on “Understanding Implicit Bias: Insights & Innovations.”

Thank you, Camara, and thank you all for joining this webinar. It is a pleasure to be with all of you today. I want to begin by acknowledging what an honor and privilege it has been to work with Camara on the *Dædalus* volume. Let me also note that this project was originally conceived by the Committee on Science, Technology, and Law at the National Academies of Sciences, Engineering, and Medicine. I want to acknowledge our collaborators at the National Academies, including Anne-Marie Mazza and others there who have been so dedicated in supporting this work, intellectually and otherwise, over the years.

Also, tremendous kudos to Phyllis Bendell and the team at the Academy plus all the authors in the *Dædalus* volume for pulling together what we hope is one of the most up-to-date and comprehensive reviews of the state of knowledge about implicit bias and some of the interventions that are emerging.

In addition to Camara, we have two wonderful experts to help us understand these issues: Frank Dobbin and Jennifer Eberhardt, both of whom are authors in our volume.

I am going to start with Jennifer and pick up right where I think Camara took us. I think many in the audience probably have a fair intuition about what implicit bias is and have seen some of the evidence behind it. Jennifer, a lot of the evidence has been gathered through your own work over the last few decades. Your early work in behavioral and social psychology unlocked some of

the interesting cognitive aspects of how people can be primed with images and how that affects their behaviors with regard to bias. In recent years, you have been thinking more about structures and practices.

I want to read an interesting quote from your *Dædalus* essay. You and your coauthors say:

Conceptualizing implicit racial bias as merely a byproduct of human cognition overlooks the critical scientific insight that racial bias exists not only in the head, but also in the world. Implicit bias is the residue that an unequal world leaves on an individual’s mind and brain, residue that has been created and built into institutional policies and practices and socialized into patterns of behavior over hundreds of years through the workings of culture.¹

You go on to describe what you call a “socio-cultural approach to racial bias.” Could you elaborate on the evolution from a purely cognitive understanding of implicit bias to this sociocultural approach, which is an interesting development in the scientific study of this field.

1. Rebecca C. Hetey, MarYam G. Hamedani, Hazel Rose Markus, and Jennifer L. Eberhardt, “‘When the Cruiser Lights Come On’: Using the Science of Bias & Culture to Combat Racial Disparities in Policing,” *Dædalus* 153 (1) (Winter 2024): 124–125.



There is now an understanding that there are multiple levels at which bias can function. In the model of the culture cycle, which we highlight in our *Dædalus* essay, we discuss bias as operating at four different levels: at the level of the individual, at the level of interactions between individuals and groups, at the level of institutions, and at the level of ideas that we pass on across generations. ”

Jennifer Eberhardt

Jennifer Eberhardt is the William R. Kimball Professor of Organizational Behavior at the Stanford Graduate School of Business, Professor of Psychology, and Cofounder and Codirector of Stanford SPARQ at Stanford University. She was elected a member of the American Academy in 2016.

Thank you, Goodwin. Yes, I can elaborate on the evolution of the field. Let me start with Gordon Allport. This sociocultural approach to bias is something that he wrote about in the 1950s in his landmark book, *The Nature of Prejudice*. It is an approach that James Jones later highlighted with a particular focus on institutional racism. Yet from the 1980s until very recently, the dominant model of bias has been one that has focused on individual cognition.

Bias has been treated as an offshoot of this basic categorization process that our brains rely on to function, so for the past several decades there's been little focus on history. There's been little focus on the broader cultural environment. The thinking has been that much of what we need to understand about bias could be found in the head by simply studying the basic mechanics of cognition. But recently, that has all begun to change. There's been a rebirth, not only of this sociocultural approach to bias, but there is now an understanding that there are multiple levels at which bias can function.

In the model of the culture cycle, which we highlight in our *Dædalus* essay, we discuss bias as operating at four different levels: at the level of the individual, at the level of interactions between individuals and groups, at the level of institutions, and at the level of ideas that we pass on across generations. We believe that rather than studying bias one level at a time or from one perspective at a

time, we should examine multiple levels at once. We need to better understand how these levels affect one another.

LIU: I want to ask you about your work with the Oakland Police Department. I am a resident of Oakland, so I'm particularly interested in what you are doing there. You have been working with the Oakland Police for a number of years now to help mitigate racial bias in policing. I think many members of our audience are interested in effective interventions in their own institutional settings, so let's choose this one as a starting point. How did you get involved with the Oakland Police, and how are you using science and data to help spur change?

EBERHARDT: To answer that question we need to go back over twenty years. There was a gang within the Oakland Police Department, and they called themselves "the Riders." They harassed community members. They assaulted, planted evidence on, and filed false reports against their victims, who collectively served over forty years behind bars for crimes they did not commit.

There were two civil rights lawyers in Oakland who filed a class action lawsuit on behalf of 119 people, 118 of whom were African American, who claimed to suffer harm at the hands of members of the Oakland Police Department. The city and the department entered into a negotiated settlement agreement that outlined over fifty steps the

Oakland Police Department would need to take to reform itself. One of those steps required the department to begin to track all of their pedestrian and car stops by race. I was brought on as a subject matter expert to analyze those stop data, and I enlisted a whole team of researchers from Stanford in this work.

Many people in the Oakland community suspected that there were huge racial disparities in who police officers stopped, who they searched, and who they arrested, but for a long time, the department hadn't kept data on any of those actions as a function of race. My team and I were the first to rigorously analyze their police stops in this way. And it was the first time the department had the opportunity to have an independent assessment of their data to answer allegations about racial profiling. There was a lot of interest in our work and in the findings from the community members in Oakland and from the police department, the mayor, the city council, the plaintiffs' attorneys, and the federal monitor, who is still in place today.

I think everyone saw the possibility that data could be used to spur change. We thought we would be working with the Oakland Police Department for a couple of years, but ten years later we are still there.

LIU: What did you learn from the data?

EBERHARDT: We analyzed the data and produced a report, which found that Black people were significantly more likely to be stopped, they were more likely to be searched and handcuffed, and they were more likely to be arrested than White people. Just to provide a little texture here: at the time we analyzed the data, only 28 percent of the Oakland population was Black, but roughly 60 percent of the stops that officers made were of Black people. Black people were disproportionately stopped even when we controlled for over two dozen variables that could have explained those disparities.

I think perhaps the most jaw-dropping finding we uncovered was related to handcuffing. Nearly one in four Black men were handcuffed in the course of vehicle stops, even though the vast majority of those stops were for minor infractions. It's jaw-dropping not just because of the numbers, but also because at the time it wasn't a standard variable that analysts examined. They would focus primarily on stops, searches, and arrests.

When we first went to Oakland we held focus groups to try to understand from the community members' perspective what was going on and what they cared about the most. Handcuffing was one of the things Black men in particular talked about. They would be stopped for these minor infractions and then pulled out of the car and handcuffed, which they found humiliating. They felt like they were being treated as criminals from the start.

On the form that police officers completed during a stop, there was a checkbox for handcuffing, but our team didn't focus on it because it was not the standard variable at the time that analysts were using. Talking to community members opened our eyes to this other variable, which ended up playing a huge role in terms of the experiences that people were having in Oakland, and it was indeed the experience that had the most dramatic outcomes for people – where the racial disparities were greatest.

LIU: How do you use this information to make improvements? And could you describe one of your other findings, which concerned the words used at the beginning of a stop. How does the predictive nature of the words used by police officers lead to escalation or not?

EBERHARDT: Yes. However, we have to fast forward ten years. We have worked with a number of police departments since then. For the data set you are describing, we were looking at Black drivers only. That is because they were the drivers who experienced the most escalated stops. Using large language models, we were trying to predict which stops would end with the driver being handcuffed, searched, or arrested. We found that there was a linguistic signature to these escalated stops.

We could tell by the first forty-five words that an officer uttered during a stop, roughly the first twenty-seven seconds of a stop, how that stop would end. There were two elements to that linguistic signature. One was that the officer started the stop with an order, and the second was that they did not explain the reason for the stop. If you had both of those, then that predicted whether the stop was going to end with an escalated outcome.

LIU: These are striking findings. How do you work with police departments, in general, to use data to make improvements in their practices?

EBERHARDT: Let's take the Oakland Police Department as an example. When we released our report in 2016, many members of the department didn't like anything about the report. They didn't even like the title of the report, which was *Data for Change*, because they did not believe there was a need for change. They felt that the racial disparities we found could be explained by the simple fact that Black people just commit more crime than other people.

The deputy chief at the time, however, did see the need for change, and he organized a small task force of about fifteen people in the department to discuss the findings with us. He was careful to choose people who were critical of the report and others who were not so we had both groups sitting at the table. He also chose people who played different roles, from line officers to sergeants to the assistant chief of the department. Some had recently arrived in the department; others were veterans. It was a real mix of people sitting around the table.

For those who were most critical of our report and the findings, they claimed that a lot of the Black people they chose to stop were already on their radar. In other words, they had intelligence on these people. They were upset that we didn't take this into account and because of this, our analysis of the racial disparities made it look like they were simply profiling while they claimed they were making reasoned decisions – based on prior information – about who to stop.

At the time, the department did not keep track of intelligence-led vehicle stops. So there wasn't any data to analyze. Our first task therefore was to decide on what counted as an intelligence-led stop. We ended up defining it as a stop in which the officer has prior evidence to tie the person in the car to a specific crime. We asked the people sitting around the table to tell us how many of the stops that officers are making in the department are intel-based stops.

We heard numbers like 85 percent, 90 percent, even 99 percent of the stops are intelligence-led. We decided as a group to begin to track these kinds of stops for the first time. And we did this by simply adding a question to the form officers complete during a stop: Is this stop intelligence-led, yes or no? If the officers decided that the stop was intel-led, they had to state the source of that intelligence. So that was the intervention.

It sounds pretty simple to just add a question to the form, but there are a lot of social psychological principles baked into it. We know that the potential for bias increases as people make quick

decisions. So we were intentionally slowing officers down with this new checkbox. We were pushing them to use concrete information in place of their intuition about who to stop. We also know that the potential for bias increases when there's a lack of accountability. This new metric served as an accountability tool.

We got everyone in the department to agree on the same definition for an intel-led stop. And the police leadership then trained officers on how to spot it. The leadership also encouraged these kinds of stops because they were more evidence-based. In fact, the leadership changed the norms for what good policing looked like. We know that norms can also influence the probability that our biases will be triggered. When we first added the intel-led question to the form, we found that about 20 percent of their stops were intel-led, not 99 percent, as they initially reported.

We also found that as the number of intel-led stops rose, the total number of drivers stopped decreased because they were now just stopping drivers when they had evidence of wrongdoing. There was less stopping based on intuition. In fact, the stops of African Americans dropped by over 43 percent in that first year alone when we began tracking the data. This drop occurred even when the crime rate was going down, so stopping fewer Black people did not make the city any more dangerous, as many people feared it would.

We accomplished a number of things during this process and with this task force. We looked at practices, we changed policies, and we got the police department to appreciate the act of data collection – the idea that you can develop a metric, analyze it, and use it to bring about change. It started with a simple checkbox, but then that checkbox led people in the department to have open conversations about the potential for racial bias in their decision-making for the very first time since we arrived.

LIU: Thank you, Jennifer. I hope your comments stimulate some thoughts in our audience about their own organizational settings and how simple interventions can convey some very powerful signals.

Let me now turn to Frank Dobbin. Frank, your essay in *Daedalus* with your coauthor, Alexandra Kalev, focuses on different organizational settings, namely, corporations and firms. You describe your work studying antibias or diversity trainings in these organizational contexts. Could you tell us a little bit about your data set and about some of your findings about diversity trainings?



It's very discouraging that corporations, universities, nonprofits, and governments spend so much of their money trying to reduce bias at the individual level through training when there is really no good evidence that it works either to reduce cognitive bias or to change what goes on in the workplace. ”

Frank Dobbin

Frank Dobbin is the Henry Ford II Professor of the Social Sciences and Chair of the Sociology Department at Harvard University.

First, let me thank you and Camara for the invitation to contribute to this issue of *Daedalus*. It is a fantastic collection of essays, with the latest thinking and research on implicit bias.

Sandra and I, with our research teams, have been looking at data from over eight hundred companies across more than forty years. These companies have over eight million workers. The bigger data set comes from the Equal Employment Opportunity Commission's workplace census of private sector employers, which covers all employers with at least one hundred workers. That census goes back to 1966. We used a sample of eight hundred employers to look at the adoption of a range of different diversity programs over time. We are looking at diversity training in the context of lots of other diversity programming and other changes that companies have been making to their hiring and promotion processes.

One advantage of our data set is that we can look over time and take a snapshot each year to see the effects on a company's management diversity when they introduce diversity training. We can compare the effects of particular practices or particular changes on the actual workforce in the years after companies adopt these changes, such as trainings. We are looking at a very long period of time, 1971 to 2015.

The question for us is which things should we be working on? Within an organization, it's hard to think about changing societal ideas, or the dust cloud that Camara talked about, but we can certainly change the institutions that careers are organized through. What we find when we look at

antibias training should not come as a surprise to anybody who has been following social science research for any time. There have been hundreds of studies showing that antibias training doesn't permanently and significantly reduce bias.

The first review of these studies was by Cornell sociologist Robin Williams in 1947. We knew in 1947 that training exercises couldn't really change individual-level bias, certainly not significantly and permanently. Recent meta analyses that look at hundreds of studies at once show the same thing. There can be small positive effects of anti-bias training; that is, antibias training can reduce bias, but very briefly and the sizes of the effects are very small.

As Jennifer was saying, biases are based on stereotypes and experience with the world. These things are built up over decades and they are very hard to change. As Camara described, if you go to a cleansing spa and then come back, you are still going to be exposed to the same stereotypes at a societal level, so it would be very difficult to produce sustained change even if you could brain-wash everybody.

So why isn't training promising? I think the best evidence that it isn't promising as a strategy doesn't just come from the fact that it's hard to change what's in people's brains. You could in principle – and this is sometimes the argument that trainers make – make people aware that they are biased and then cause them to intervene in their own decision processes.

I think that may be the basis of Jennifer's amazing intervention with the Oakland police. They are

aware of what is going on. But when we look at the workplace, we see that the most common kinds of trainings, which are legalistic, actually lead to reductions in workforce diversity because they spark backlash against the training itself. People leave trainings feeling angry; they feel they have been blamed for something that they think is not their fault. They think inequality is an institutional problem or a problem of ideas at the societal level. To me, it's very discouraging that corporations, universities, nonprofits, and governments spend so much of their money trying to reduce bias at the individual level through training when there is really no good evidence that it works either to reduce cognitive bias or to change what goes on in the workplace.

LIU: That is a very sobering conclusion, backed by social science. You draw a distinction between what you call “legal-compliance trainings” – and we have all done a lot of these – which you say are less effective, and “cultural-inclusion” models of training, which can be effective. Would you elaborate on the differences between these trainings and what people should be focusing on for trainings that are more promising?

DOBBIN: For trainings that are legalistic in orientation, people get an implicit bias component so that they understand that bias is widespread, and then the rest of the training has to do with what the law specifically forbids in the workplace. Managers are trained in what they shouldn't be doing and what they shouldn't be saying, and they come away feeling that they've been accused of being racist. Nobody thinks they're racist. So it is not very useful to try to convince people that they are racist. The threat that “the law” will sanction their company for their own behavior often leaves them angry.

Training focused on cultural inclusion, rather than the law, can be effective. But if we look at all of the trainings done in corporations and by other employers, we see that a very small minority of training sessions take this form, and eschew discussion of the law or potential penalties. What works is training that focuses on cultural-inclusion skills, like how to listen to other people, how to take the position of another person, and how to negotiate between people who are having problems with one another in the workplace. In

our studies, we look at how these trainings affect the diversity of the management workforce, because that is the part of the workforce that is the hardest to change.

We see some positive effects on the diversity of the management workforce, and no negative effects on historically underrepresented groups. I find that extremely promising, but the problem remains that companies want to put almost all of their eggs in the basket of diversity training. While cultural-inclusion training can have some positive effects, other simple structural or institutional changes in the career system can have much larger effects. Most companies aren't adopting those, in part because they are being told that training will really move the needle, and in part because at some companies, leaders are happy to go along with legalistic training because they don't really want to see the workforce change.

“ What works is training that focuses on cultural-inclusion skills, like how to listen to other people, how to take the position of another person, and how to negotiate between people who are having problems with one another in the workplace.

LIU: What are some examples of structural changes that have yielded dividends?

DOBBIN: Based on the work of Gordon Allport, we know that a better way to reduce bias is by asking groups that are normally isolated from one another at work, and that hold racial animus, to work together. Some of the first studies of this were done in the European theater during World War II by Allport's colleague at Harvard, sociologist Samuel Stouffer and his team.

We see that changes to career systems that are easy to implement, but not as common as diversity training, can have quite rapid and significant effects on what the workforce looks like. For example, sending a company's managers to historically Black colleges and universities, Hispanic-serving institutions, women's colleges, as well as

the usual historically White colleges, like Stanford and Harvard where Jennifer and I teach, democratizes the recruitment process so that people from schools where there's a big concentration of people from underrepresented groups are more likely to be interviewed.

It also exposes managers to new pools of potential recruits. If you're going to historically White colleges, why wouldn't you go to historically Black colleges? The effects of doing that are much bigger than the effects of the best of diversity trainings.

Our work using body-camera footage is very promising. The footage from these cameras allows us to look for patterns across many interactions at once. For the first time, we have been able to test the extent to which there are differences in the respect that officers communicate to Black and White drivers. ”

The second thing that we find to be very effective is formal mentoring programs. Though many organizations have a lot of mentoring going on, we found that when mentoring is left to informal processes, Black, Hispanic, Asian American, and women workers are often left out because the potential mentors in most organizations are White men. And they choose to mentor people like themselves. So a formal program can ensure that people from these other groups get mentors.

These rarely come under the rubric of DEI programs, but they have very strong positive effects because mentors are key to retention. If you have a mentor, you know somebody is looking out for you. While these formal mentoring programs are open to everybody, they are disproportionately used by women and by Black, Asian American, and Hispanic workers.

Cross-training programs are another way to put people into contact with people unlike themselves, and that's because departments in organizations are often segregated by race and gender.

Moving people around to different departments increases contact among people from different groups and can help break down siloes that may

cluster women in HR and White and Asian American men in finance. In our analyses, we found that cross-training programs reduce inequality between groups in management.

And then self-managed teams, which eliminate the supervisor and have people from different departments work together to manage their projects themselves, also have positive effects, particularly on the representation of women in management. That's partly because women are often in "un-promotable" departments, and on these self-managed teams they show they can be leaders. These are just four of the institutional and systemic changes that can really move the needle in terms of changing what the managerial workforce looks like. And collectively they have a larger impact than even the best kind of diversity training.

LIU: Thank you, Frank. Before we turn to audience questions, let me ask each of you about your future directions for research. You both have done amazing work that has helped us understand more about interventions. Jennifer, you are now involved in studying body-camera footage. Could you describe that work for us?

EBERHARDT: Our work using body-camera footage is very promising. The footage from these cameras allows us to look for patterns across many interactions at once. For the first time, we have been able to test the extent to which there are differences in the respect that officers communicate to Black and White drivers. Through SPARQ, the center that I codirect at Stanford, we put together an interdisciplinary group of researchers (which includes computer scientists and computational linguists) to systematically examine this footage at scale.

We conducted an initial study in Oakland, where we examined nearly one thousand traffic stops. We used machine-learning techniques to comb through the words officers used during those stops. We found that even when officers were behaving professionally, they demonstrated less respect toward Black drivers compared to White drivers. They expressed more concern for the safety of White drivers. They apologized more and offered more reassurance to White drivers. In fact, using large language models, we could predict whether an officer was talking to a Black person or a White person. We published a paper on these findings in 2017.

When members of the Oakland community became aware of the findings, they pushed the police department to address the findings in some

way. The department came to us and asked us to develop a training module, and we helped them to do that. They wanted us not only to describe our findings, but to offer clear takeaways on what officers could do to communicate in a respectful manner. We developed that training module, the department used it, but we didn't stop there. We decided to look at officers' camera footage weeks before they were trained and weeks after they were trained to evaluate whether the training was effective.

This is significant because most trainings like this, at least in the policing industry, are not evaluated. Trainings on procedural justice and implicit bias that were happening all over the country were rarely evaluated. For the first time, we used footage as a way to understand whether this kind of training was effective. We found that after the training, officers were more likely to explicitly state the reason for the stop. They were more likely to express concern for the safety of Black drivers. They were more likely to offer reassurance to Black drivers. We found even when there's a long history of distrust, even in places where people feel like they can have their dignity taken from them, especially during these police stops, that change is possible. There's a lot we can do with the footage, but unfortunately the vast majority of the footage is just never examined. This is something that our group at SPARQ aims to change. It's an industry-wide change, not just in Oakland, that we feel is badly needed.

The federal government has incentivized the use of these cameras for years, and they've done that because of the potential for them to be used as an accountability tool. But to really get the full benefit of these cameras, we feel that the federal government should also consider incentivizing footage analysis. So that is where we are on body-cam footage.

LIU: Thank you, Jennifer. Frank, I want to ask you about the future directions of your research, but I am going to add in some questions from the audience. Several people are wondering if you have done any work in the university setting, and if there are things in an academic setting that can be implemented along the same lines as in the corporate world to improve upon DEI trainings as they exist today?

DOBBIN: We are now doing research with a similar data set on universities, using data from 1993

to 2016, and we are looking at the introduction of all kinds of programs to diversify the faculty, although we are seeing some spillover effects for graduate students as well.

The pattern that I have described for corporations is very similar to what we see as being effective in universities. That is, individual-level bias training has become very popular in universities in the last two decades. It's not very effective, and there are conditions under which it can backfire. Unfortunately, it is not really moving the needle in a positive way. But special recruitment programs to try to find Black and brown faculty, and women faculty in the sciences, are having solid positive effects on women and faculty of color. So are formal mentoring programs that make sure that everybody gets a mentor. Also very effective are work-life support programs, which have been particularly effective for women, but which can also be effective for non-White men. This is partly because work-life support programs, such as family and medical leaves, tenure-clock extensions, dual-career programs, and childcare supports, signal that the university is accepting of people who have work-life challenges, and that the university is open to trying to work out solutions with them.

“ Special recruitment programs to try to find Black and brown faculty, and women faculty in the sciences, are having solid positive effects on women and faculty of color. So are formal mentoring programs that make sure that everybody gets a mentor.

When we talk to people about how the tenure clock extension helped them, or how the parental leave program helped them, or how the special childcare programs for parents who are at a conference or who have a child who's home sick helped them, they say it is partly for the substantive help they provide but it is also about changing the idea of what a professor is. These programs send the signal that it's OK to be a professor and have a busy family life.

LIU: Let me pose a question to Camara, Jennifer, and Frank that has been bubbling through several of the questions and comments from the audience. I think it is fair to say that we have seen a backlash to DEI efforts building over the last few years. Some people might say, as Frank has detailed, that some of these programs have been ineffective: They have cost a lot in terms of resources and people's time, and they haven't moved the needle on the outcomes that we desire.

There are four things that an antiracism or antibias approach needs to have. We need to address the differential opportunity structures and we need to address the differential value assignments. We need to recognize our current context and confront racism denial. We need to anticipate and prepare for pushback. ”

How has the change in context in terms of people's attitudes about DEI affected the direction of your work? You can answer that at whatever level you think appropriate. You are all amazingly articulate experts who have done a lot of scientific research on this. Many people in organizations would love to have you work with them. What should people do in their own organizational context? How can this data-driven approach be generalized and adapted?

JONES: The anti-DEI sentiment, the anti-critical race theory vitriol, the laws that say you can't talk about DEI or racism or history, the Supreme Court decision banning affirmative action in higher education, the book bans spreading across the nation are all signals of massive racism denial. And they help us to realize what antiracism interventions we need.

Because racism is a system of structuring opportunity and assigning value, we need to dismantle the oppressive opportunity structures and we need to nullify the dehumanizing values. But I have come to recognize that even if we had successful interventions on those fronts, if we were doing reparations, if we had massive Marshall Plan investments in communities of color, if we were supporting all children and their families, the racism denial that has characterized our society for

a long time and that seems to be amplifying right now would stand in our way.

I understand now that there are four things that an antiracism or antibias approach needs to have. I have already described the first two: We need to address the differential opportunity structures and we need to address the differential value assignments. The third: we need to recognize our current context and confront racism denial.

How do you confront racism denial? I guess the first thing would be to have people read history, or have people go across town, break through their bubbles of experience to recognize that just across town there are people who are just as kind, funny, generous, hardworking, and smart as they are who are living in very different circumstances. Frank, it is an expansion of what you were talking about in terms of group contact within the work experience. We need group contact in the whole of society.

The fourth thing we need to do is anticipate and prepare for pushback. We shouldn't be surprised that after the election of a Black president, there would be the election of a Make America White Again president. These experiences have expanded my understanding of the barriers, the context in which we are operating, and the future preparation that is necessary. We can't simply address what racism does and try to undo that. We need to deal with bigger contextual factors.

LIU: Frank, would you like to comment on that?

DOBBIN: I agree with everything you say, Camara. I think we are at a time when there is virulent opposition that is well organized. It's not a new thing. The anti-DEI forces have been working behind the scenes for years. What I find particularly discouraging is the number of people who are trying to hide what they are doing on the DEI front. They are trying to keep it quiet. I don't know what the solution is.

Where I see a ray of hope, and where we have been successful, is in the workplace where we can create group contact that undermines racism. Despite efforts at desegregation in housing and in schools, those areas still remain highly segregated. Most workplaces are much more integrated now than they were ten, thirty, or fifty years ago. That's not really true of schools and neighborhoods. But we're still fighting segregation by department within the workplace, and the programs that are most effective help to break down that segregation by creating contact across groups and departments.

“ We tend to think of DEI as one thing and then work-life as another, but language and categories matter. If we think more flexibly, we might be able to go farther from an evidence-based standpoint.

In the current moment, there's a real backlash against diversity programming. But there is a silver lining to this cloudy day. The things that are most high profile as DEI efforts – like grievance procedures and diversity trainings in the workplace – don't work anyway, and they annoy many people.

But there are things that work well without eliciting backlash: mentoring programs, self-managed teams, job rotation, and recruiting at all kinds of colleges and universities. It's also important to keep in mind that work-life programs are DEI programs, but under the cover of night. People consider them to be programs that White women fought for and that benefit White women. But in the corporate world, work-life programs are very helpful to men of color for the simple reason that those men tend to be in two-parent households where both parents have to work full-time. Anything that can help them keep their job so they can move up is good for their careers. The silver lining of the cloud is that we can do a lot of positive work in this interregnum where we're stuck with a pretty unpleasant political situation.

LIU: Before I turn to Jennifer, who will have the last word here, I want to make two quick observations. First, Frank, many of the things that you have mentioned are not implicated by the Supreme Court's ruling on affirmative action. And second, you helpfully pointed out some of the ways in which these programs are labeled. We tend to think of DEI as one thing and then work-life as another, but language and categories matter. If we think more flexibly, we might be able to go farther from an evidence-based standpoint. Jennifer, would you like to add anything?

EBERHARDT: Among trainings, I think we need more information about which specific aspects work and which don't work. Unfortunately, many organizations, such as workplaces, schools, and police departments, haven't rigorously evaluated the trainings – perhaps because you can't get

credit for a training that you're delivering or paying for if you have evidence that it doesn't work.

It feels like we are in this perverse system in some way, but Frank is right that there is a silver lining. The problem is that everything is being thrown out – the good with the bad. There is this feeling that focusing on racial bias and inequality isn't important, that it doesn't matter, that it simply aggravates things. Talking about race makes people uncomfortable, and so it's a way to go back to not having to do that, to not talking about race anymore.

When I think about the moment that we're in now and what it means for me personally and for my work, as a social psychologist I'm focused always on the social environment. Now we're faced with a different environment from what existed two years ago. To have the opportunity to understand that environment is really important because, in all likelihood, it's going to come back again. We want to have tools ready to be able to understand it, address it, and find ways to keep moving forward across these differing and challenging spaces and environments.

LIU: Thank you. That's a great place to end. I want to thank all of you for being on this panel today and for giving us a sense of what it means to really engage in a disciplined study of these questions. They are not easy questions, and part of what we try to do in the *Daedalus* volume is to bring the benefit of science and rigorous study to bear on separating the effective from the ineffective and to illuminate a path forward that is based on evidence.

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To view or listen to the presentation, please visit www.amacad.org/events/understanding-addressing-implicit-bias.

Select Prizes and Awards to Members

MEMBERS ELECTED TO THE AMERICAN PHILOSOPHICAL SOCIETY

Michael M. Crow
(Arizona State University)

Gerald Early (Washington University in St. Louis)

John E. Echohawk (Native American Rights Fund)

Daniel T. Gilbert
(Harvard University)

Sharon Hammes-Schiffer
(Princeton University)

Wick C. Haxton (University of California, Berkeley)

William G. Kaelin (Dana-Farber Cancer Institute; Harvard Medical School)

Katalin Karikó (Perelman School of Medicine at the University of Pennsylvania)

Jon Kleinberg
(Cornell University)

Michèle Lamont
(Harvard University)

Jonathan B. Losos
(Washington University in St. Louis)

Eve Marder
(Brandeis University)

David Nirenberg (Institute for Advanced Study)

Carol J. Oja
(Harvard University)

Fintan O'Toole
(*The Irish Times*)

Dolph Schluter (University of British Columbia)

Ruth Scodel (University of Michigan)

Christine Edry Seidman
(Harvard Medical School; Brigham & Women's Hospital)

G. Gabrielle Starr
(Pomona College)

Bryan Stevenson
(Equal Justice Initiative)

Jill Cornell Tarter
(SETI Institute)

Drew Weissman (Perelman School of Medicine at the University of Pennsylvania)

Deborah Willis
(New York University)

MEMBERS ELECTED TO THE ROYAL SOCIETY

Kwame Anthony Appiah
(New York University)

Adriaan Bax (National Institutes of Health)

Rene Bernards
(The Netherlands Cancer Institute)

Donna Blackmond
(Scripps Research)

Helen Blau (Stanford University School of Medicine)

Emily A. Carter
(Princeton University)

Emmanuelle Charpentier
(Max Planck Unit for the Science of Pathogens)

Ingrid Daubechies
(Duke University)

Anthony Fauci
(Georgetown University School of Medicine)

Nigel Goldenfeld (University of California, San Diego)

Thomas Henzinger
(Institute of Science and Technology Austria)

Ruth Lehmann
(Whitehead Institute for Biomedical Research)

Susana A. Magallón Puebla
(Universidad Nacional Autónoma de México)

J. Anthony Movshon
(New York University)

William Nix
(Stanford University)

Kyoko Nozaki
(University of Tokyo)

Sarah Otto (University of British Columbia)

Ares Rosakis (California Institute of Technology)

Erin Schuman (Max Planck Institute for Brain Research)

Yang Shi
(University of Oxford)

Lorraine Symington
(Columbia University)

Mark Thiemens (University of California, San Diego)

OTHER PRIZES AND AWARDS

Armand Paul Alivisatos (University of Chicago) was awarded the 2024 Kavli Prize in Nanoscience. President Alivisatos shares the prize with **Robert S. Langer** (Massachusetts Institute of Technology) and **Chad A. Mirkin** (Northwestern University).

Danielle Allen (Harvard University) was awarded the Joseph B. and Toby Gittler Prize by Brandeis University.

José E. Alvarez (New York University School of Law) was awarded the Manley Hudson Medal by the American Society of International Law.

Carol Anderson (Emory University) received the Freedom Summer of '64 Award from Miami University.

Moungi Bawendi (Massachusetts Institute of Technology) received the Nano Research Award from the journal *Nano Research*, Tsinghua University Press, and Springer Nature. Professor Bawendi shares the award with **Louis E. Brus** (Columbia University).

P. Dee Boersma (University of Washington) received the 2024 Godman-Salvin Prize from the British Ornithological Union.

Steven Boxer (Stanford University) received the Ellis R. Lippincott Award, given by Optica, Advancing Optics and Photonics Worldwide; the Coblenz Society; and the Society for Applied Spectroscopy.

Louis E. Brus (Columbia University) received the Nano Research Award from the journal *Nano Research*, Tsinghua University Press, and Springer Nature. Professor Brus shares the award with **Moungi Bawendi** (Massachusetts Institute of Technology).

David Charbonneau (Harvard University) was awarded the 2024 Kavli Prize in Astrophysics. Professor Charbonneau shares the prize with **Sara Seager** (Massachusetts Institute of Technology).

Patricia Hill Collins (University of Maryland) is the 2023 recipient of the Berggruen Prize in Philosophy and Culture.

Jeffrey M. Friedman (Rockefeller University) received the 2024 Princess of Asturias Award for Technical and Scientific Research.

Naomi Halas (Rice University) received the C.E.K. Mees Medal from Optica, Advancing Optics and Photonics Worldwide. Professor Halas was also elected a Fellow of the Royal Danish Academy of Sciences and Letters.

Peter Hotez (Baylor College of Medicine) was named to *Time's* Inaugural TIME100 Health List of the 100 Most Influential People in Global Health.

Akiko Iwasaki (Yale School of Medicine) received the 2024 Nakaakira Tsukahara Memorial Award from the Brain Science Foundation of Japan. Dr. Iwasaki was also named to *Time's* Inaugural TIME100 Health List of the 100 Most Influential People in Global Health.

John Joannopoulos (Massachusetts Institute of Technology) received the 2024–2025 James R. Killian Jr. Faculty Achievement Award from the Massachusetts Institute of Technology.

Jacqueline Jones (University of Texas at Austin) was awarded a 2024 Pulitzer Prize in History for *No Right to an Honest Living: The Struggles of Boston's Black Workers in the Civil War Era*.

Johan Anthony Willem Kamp (University of Stuttgart) was awarded the Rolf Schock Prize by the Royal Swedish Academy of Sciences. Professor Kamp shares the prize with Irene Heim (Massachusetts Institute of Technology).

Nancy Kanwisher (Massachusetts Institute of Technology) was awarded the 2024 Kavli Prize in Neuroscience. Professor Kanwisher shares the prize with Winrich Freiwald (Rockefeller University) and Doris Ying Tsao (University of California, Berkeley).

Jamaica Kincaid (Harvard University) received the 2024 St. Louis Literary Award.

Shinobu Kitayama (University of Michigan) received the William James Award from the Association for Psychological Science.

Michèle Lamont (Harvard University) was awarded the 2024 Kohli Prize for Sociology by the Kohli Foundation for Sociology.

Robert Landick (University of Wisconsin–Madison) received the Hilldale Award from the University of Wisconsin–Madison.

Robert S. Langer (Massachusetts Institute of Technology) was awarded the 2024 Kavli Prize in Nanoscience. Professor Langer shares the prize with **Armand Paul Alivisatos** (University of Chicago) and **Chad A. Mirkin** (Northwestern University).

Robert Levin (Harvard University) received the Golden Mozart Medal from the International Mozarteum Foundation.

Maja J. Mataric (University of Southern California) received the ACM Athena Lecturer Award.

Chad A. Mirkin (Northwestern University) was awarded the 2024 Kavli Prize in Nanoscience. Professor Mirkin shares the prize with **Armand Paul Alivisatos** (University of Chicago) and **Robert S. Langer** (Massachusetts Institute of Technology).

Julie Packard (Monterey Bay Aquarium) received the Robert R. Hermann World Ecology Award from the Whitney R. Harris World Ecology Center at the University of Missouri–St. Louis.

Peter Sarnak (Princeton University) was awarded the 2024 Shaw Prize in Mathematical Sciences.

Helmut Schwarz (Technische Universität Berlin) was elected an Honorary Member of the Berlin-Brandenburg Academy of Sciences.

Sara Seager (Massachusetts Institute of Technology) was awarded the 2024 Kavli Prize in Astrophysics. Professor Seager shares the prize with **David Charbonneau** (Harvard University).

Sonia M. Sotomayor (Supreme Court of the United States) was awarded the 2024 Radcliffe Medal by the Radcliffe Institute for Advanced Study at Harvard University.

Pol Spanos (Rice University) was awarded the 2024 Blaise Pascal Medal in Engineering by the European Academy of Sciences.

Sarah Stillman (*The New Yorker*) was awarded a 2024 Pulitzer Prize in Explanatory Reporting.

Frederick William Studier (Brookhaven National Laboratory) received the 2024 Richard N. Merkin Prize in Biomedical Technology.

Lisa Su (Advanced Micro Devices) was named 2024 Chief Executive of the Year by *Chief Executive* magazine.

Henry Wellman (University of Michigan) received the William James Award from the Association for Psychological Science. Professor Wellman was also elected to the National Academy of Sciences.

Michael Woodford (Columbia University) received the 2024 Erwin Plein Nemmers Prize in Economics.

New Appointments

Benjamin F. Cravatt (Scripps Research) was appointed to the Board of Directors of Actio Biosciences.

Mariano-Florentino Cuéllar (Carnegie Endowment for International Peace) was appointed to President Biden's Intelligence Advisory Board.

Nicholas Donofrio (IBM) was appointed to the Board of Trustees of Natcast.

Tyler Jacks (Massachusetts Institute of Technology) was elected Vice Chair of the Harvard University Board of Overseers' Executive Committee.

Michael I. Jordan (University of California, Berkeley) was appointed to the Advisory Board of Jibo Inc.

Santa J. Ono (University of Michigan) was appointed to the Board of Trustees of the United States–Japan Foundation.

Sonya T. Smith (Howard University) was appointed Executive Director of Howard University's Research Institute for Tactical Autonomy.

Subra Suresh (Brown University) was appointed to the Board of Trustees of the California Institute of Technology.

Jennifer M. Welsh (McGill University) was named Director of McGill University's Max Bell School of Public Policy.

Bruce Western (Columbia University) was named President of the Russell Sage Foundation.

Select Publications

POETRY

Percival Everett (University of Southern California). *Sonnets for a Missing Key*. Red Hen Press, August 2024

FICTION

Walter Mosley (New York, NY). *Farewell, Amethystine*. Mulholland Books, June 2024

NONFICTION

José E. Alvarez (NYU School of Law) and Judith Bauder (European University Institute). *Women's Property Rights Under CEDAW*. Oxford University Press, March 2024

Thomas R. Cech (University of Colorado Boulder). *The Catalyst: RNA and the Quest to Unlock Life's Deepest Secrets*. W.W. Norton, June 2024

Jonathan R. Cole (Columbia University). *Smoother Pebbles: Essays in the Sociology of Science*. Columbia University Press, April 2024

Nicholas Donofrio (IBM). *If Nothing Changes, Nothing Changes*. Houndstooth Publishing, Scribe Media, May 2022

B. Rosemary Grant (Princeton University). *One Step Sideways, Three Steps Forward: One Woman's Path to Becoming a Biologist*. Princeton University Press, June 2024

Phillip Lopate (Columbia University). *My Affair with Art House Cinema: Essays and Reviews*. Columbia University Press, July 2024

Glenn C. Loury (Brown University). *Late Admissions: Confessions of a Black Conservative*. W.W. Norton, May 2024

Francine Prose (Bard College). *1974: A Personal History*. Harper, June 2024

Laurence Ralph (Princeton University). *Sito: An American Teenager and the City that Failed Him*. Grand Central Publishing, February 2024

Salman Rushdie (New York, NY). *Knife: Mediations After an Attempted Murder*. Random House, April 2024

Colm Tóibín (Columbia University). *On James Baldwin*. Brandeis University Press, August 2024

We invite all Fellows and International Honorary Members to send notices about their recent and forthcoming publications, new appointments, exhibitions and performances, films and documentaries, and honors and prizes to bulletin@amacad.org.

MEMBER EVENTS



Patti Saris (U.S. District Court, District of Massachusetts), **Martha Minow** (Harvard Law School), and **Henry Louis Gates, Jr.** (Harvard University) at the House of the Academy on April 18, 2024, for an event honoring Kwame Anthony Appiah with the Don M. Randel Award for Humanistic Studies.



University of Michigan President **Santa Ono**, Kresge Foundation President **Rip Rapson**, Academy Secretary **Earl Lewis** (University of Michigan), and Academy President **David Oxtoby** pose at a reception for Michigan area members on April 3, 2024.

Olufunmilayo Olopade (University of Chicago) and **Geoffrey Stone** (University of Chicago Law School) at a reception following *Anti-Globalism's Past and Present*, a Jonathan F. Fanton Lecture on March 19, 2024.



Jack Snyder (Columbia University), newly elected member **Fredrick Cornelius Harris** (Columbia University), **Marty Fridson** (Lehmann, Livian, Fridson Advisors LLC), and **Elaine Sisman** (Columbia University) enjoy the New York Reception for Newly Elected Members, held at the American Museum of Natural History on June 3, 2024.



Chap: VIII Of Fellows.

Repealed
 Jan 31
 1781
 No person shall be elected a Fellow of the Academy, unless
 proposed and recommended by one or more of the Members,
 and the name, place of abode, and addition of the person
 recommended, shall be delivered in signed by the proposer
 and read by one of the Secretaries. A fair copy of such
 paper with the date when delivered shall be hung up
 in the room, when the Academy shall from time to time
 meet. On which the candidate may be balloted for at
 the next or some succeeding meeting. And if two thirds
 of the Fellows then present shall ballot in his favor,
 he shall be a member.
 2. Each Fellow residing in the State of Massachusetts shall
 be subject to an annual payment of _____
 milled dollars in specie or an equivalent in ^{spanish} bills at
 the current exchange. Fellows without the State shall be
 subject to no other annual payment than they voluntarily
 consent to.

The Academy and Pieces of Eight

By **Michele Lavoie**, Director of Archives

Among the founding documents in the Academy Archives is a large bound volume, in three parts, of manuscript minutes, dating back to the Academy's first meeting in May 1780. In addition to attendance rolls and descriptions of business transacted at these meetings, the volume contains other documents that chronicle the establishment of the organization's rules, regulations, and practices.

Among these are the earliest statutes that were debated and adopted by the founding members. Early drafts of these rules sometimes included blank spaces to be filled in at a later date, when all of the details had been confirmed. One such instance relates to membership dues.

In the handwritten copy of the statutes from 1780 that appears in part 1 of the volume, the scribe left a blank space for the actual amount of "spanish [sic] milled dollars" to be assessed to members who resided in the state of Massachusetts.¹

1. Minutes of Stated Meetings and Related Documents, Volume 1, 1780–1821: Part 1, pp. 19, 101.

Detail of the draft statutes appearing in the first volume of Academy minutes, denoting payment in Spanish milled dollars but of an indeterminate amount.

Why did the *American Academy* originally stipulate that its membership dues should be paid in "spanish milled dollars"? According to the U.S. Mint, Spanish milled dollars were popular in the colonies prior to the establishment of official U.S. currency because the silver content tended to be consistent throughout the coins in circulation. Based on the 8-reale Spanish dollar, the currency was popularly referred to as "pieces of eight" because the coins could be cut down into smaller portions to denote lower levels of value. The coins were "milled," or ridged along the edges, to discourage counterfeiting.

The statute for paying annually in pieces of eight was repealed in January 1781, less than a year after it was originally adopted. By May 1787, an annual dues assessment of "Two Dollars" (referring to U.S. dollars) was to be paid to the Academy by each member who resided in the Commonwealth of Massachusetts. In addition, an initial fee of five dollars was due upon election, "if belonging to the State of Massachusetts . . . ; and no one shall be considered a Member, till he has made such payment, unless the Academy should think proper for special reasons to remit it. . . ."

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The views expressed in the *Bulletin* are those held by each contributor and are not necessarily those of the Board of Directors and Members of the American Academy of Arts & Sciences.

ONLINE



Information Infrastructure

The Academy shared a link to an opinion piece coauthored by **James Fallows** (Our Towns Civic Foundation), which highlights recommendations from the Academy's Commission on Reimagining Our Economy that recognize the media as essential information infrastructure for a robust and resilient democracy.

Links to this article and others, as well as to all the Commission's recommendations, are on the Academy's website at amacad.org/economy

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