Camillo De Lellis Appointed to Faculty
Using modern tools and innovative approaches to examine fundamental questions

Camillo De Lellis, a world-renowned geometric analyst with broad expertise in the calculus of variations, geometric regularity theory, and fluid dynamics, has been appointed to the Faculty of the School of Mathematics, effective July 1, 2018. De Lellis, currently Professor at Universität Zürich, succeeds Professor Emeritus Thomas Spencer, who has served on the Faculty since 1986.

An original and prolific mathematician, De Lellis has contributed profoundly to central problems of analysis and geometry. His use of modern tools and innovative approaches in examining fundamental questions in the field have resulted in new and monumental insights that have advanced understanding within the mathematical community. “Camillo is one of today’s leading analysts,” said Helmut Hofer, Professor in the School of Mathematics. “His contributions to major subjects in the field are among the most important achievements in recent times. His scientific leadership, innovative vision, great originality, technical strength, and exceptional gift to the world, that keeps on giving.”

Robert P. Langlands Awarded 2018 Abel Prize
Far-reaching insights and a visionary program connecting representation theory to number theory

The Norwegian Academy of Science and Letters has awarded the 2018 Abel Prize to Robert P. Langlands, Professor Emeritus in the School of Mathematics. Langlands was cited by the Abel Committee “for his visionary program connecting representation theory to number theory.”

A set of overarching and interconnected conjectures collectively known as the Langlands program has had a deep influence across a broad sweep of mathematics and parts of theoretical physics. The origins of the program are found in a seventeen-page handwritten letter that Langlands wrote in 1967 to André Weil, a Professor at the Institute at the time, in which he proposed a grand unifying theory that relates seemingly unrelated concepts in number theory, algebraic geometry, and the theory of automorphic forms. A typed copy of the letter, made at Weil’s request for easier reading, circulated widely among mathematicians in the late 1960s and 1970s, and for more than four decades, mathematicians have been working on its conjectures.

“The Institute is incredibly proud and pleased that Robert Langlands has received the great honor of the 2018 Abel Prize in recognition of his visionary program,” said Robbert Dijkgraaf, Director and Leon Levy Professor. “Bob’s deep insights have inspired generations of mathematicians and yielded many profound breakthroughs. The course he charted will guide the future of mathematics and will undoubtedly lead to new surprising discoveries—a gift to the world, that keeps on giving.”

Peter Sarnak, Professor in the Institute’s School of Mathematics, added, “The Langlands program and its core conjecture (functionality) were born out of concrete and far-reaching breakthroughs that Langlands achieved early on. Once he recognized these unifying themes, Langlands (and his students and his “school”) spent much of his time and effort developing fundamental tools (such as the trace formula) in order to establish many cases of his conjectures. These cases are all hard earned and have often proven to be the basis for spectacular works by others (a well-known example is Langlands’s base

Francesca Trivellato Appointed to Faculty
Revitalizing the study of economic, social, and cultural history of the early modern period

Francesca Trivellato, one of the foremost historians of economic, social, and cultural history of the early modern period, has been appointed to the Faculty of the School of Historical Studies, effective July 1, 2018. Trivellato, who is a former Hans Kohn Member in the School, is currently the Barton M. Biggs Professor of History at Yale University. She succeeds Professor Emeritus Jonathan Israel, who has served on the Faculty since 2001. A leading historian of early modern Italy and continental Europe, Trivellato has made significant and groundbreaking contributions to our understanding of the organization and culture of the marketplace in the pre-industrial world. Trivellato’s original and imaginative research has revitalized the study of early economic history, and her influential work on cross-cultural trade intersects the fields of European, Jewish, Mediterranean, and global history, religion, and capitalism.

“We are extremely pleased that Professor Trivellato will be joining the School of Historical Studies,” said Patrick Geary, Andrew W. Mellon Professor in the School of Historical Studies, effective July 1, 2018. Trivellato, who is a former Hans Kohn Member in the School of Historical Studies, effective July 1, 2018.
Nanjing University has honored Yve-Alain Bois, Professor in the School of Historical Studies, with the distinguished title of Chun-tu Hsueh Chair Professor. The American Mathematical Society has awarded the 2018 Steele Prize for Lifetime Achievement to Jean Bourgain, IBM von Neumann Professor in the School of Mathematics.

Angelos Chaniotis, Professor in the School of Historical Studies, has been awarded the degree of doctor honoris causa from the Aristotle University of Thessaloniki. Chaniotis has also authored Age of Conquests: The Greek World from Alexander to Hadrian (Harvard University Press, 2018). In addition, “A World of Emotions: Ancient Greece, 700 B.C.–200 A.D.,” an exhibition co-curated by Chaniotis at the Onassis Cultural Center New York, has won the Global Fine Art Awards’s 2017 Youniversal Award.

Age of Historical Studies, has been awarded the degree of Sabine Schmidtke (Lockwood Press, 2017). Nanjing University has honored the Space Telescope Institute’s 2017 Thesi Prize for her book Pundzy za pochodzenie. Posporna modernizacja i uniwersytet w rozbudzonym mieście (Affirmative Action: Postour Modernization and University in the Working-Class City) (Nomos, 2016).

The American Astronomical Society has awarded the 2018 Breakthrough Prize in Fundamental Physics. The Black Female Body and the Body Politic (Oxford University Press, 2016), including the American Political Science Association’s 2017 Race and Political Theory Best Book Award; the National Women’s Studies Association’s 2017 Sarah A. Whaley Book Prize; and the National Conference of Black Political Scientists’s 2017 W. E. B. Du Bois Distinguished Book Award.

Yuanshen Ting, Martin A. and Helen Chooljian Professor in the School of Natural Sciences, has been selected by NASA for its Hubble Fellowship Program.

SHATEMA THREADCRAFT, Ralph E. and Doris M. Hansmann Member in the School of Social Science, has received many prizes for her book Intimate Justice: The Black Female Body and the Body Politic (Oxford University Press, 2016), including the American Political Science Association’s 2017 Race and Political Theory Best Book Award; the National Women’s Studies Association’s 2017 Sarah A. Whaley Book Prize; and the National Conference of Black Political Scientists’s 2017 W. E. B. Du Bois Distinguished Book Award.

Robert MacPherson, Hermann Weyl Professor in the School of Mathematics, has received an honorary doctorate of science from the University of Chicago.

Juan Baldacena, Carl P. Feinberg Professor in the School of Natural Sciences, has been awarded the Lorentz Medal from the Royal Netherlands Academy of Arts and Sciences.

Peter Salnak, Professor in the School of Mathematics, has received an honorary doctorate from King’s College London.

Sabine Schmidtk, Professor in the School of Historical Studies, and Hassan Ansari, Member in the School, have coauthored Studies in Medieval Islamic Intellectual Traditions (Lockwood Press, 2017).
Didier Fassin, James D. Wolfensohn Professor in the School of Social Science, has been recognized with the 2018 NOMIS Distinguished Scientist Award, which is presented to exceptional scientists in support of their exploration of unconventional academic paths. The first social scientist to receive the award given by the Zurich-based NOMIS foundation, Fassin will use the award grant, nearly $2 million over five years, to implement a project that will analyze contemporary crises from a global perspective.

“Didier is one of the most penetrating and enlightening thinkers of our time on issues spanning morality and immigration to punishment and our different valuations of life,” said Robbert Dijkgraaf, Director of the Institute for Advanced Study and Leon Levy Professor. “The Institute is delighted that Didier’s work has been recognized with the NOMIS award, which will enable him to further our knowledge of one of the universe’s most complex phenomena—human behavior and its societal meaning and consequences.”

Fassin’s project, “Crisis: A Global Inquiry into the Contemporary Moment,” will examine the ubiquity, in today’s world, of the notion of crisis, which has been applied to most domains of human life—social, economic, political, moral, and cognitive. It will analyze how this pervasive presence of the language of crisis signals something about the present that is both objectively identifiable and subjectively experienced. It will explore, through a multi-sited study conducted on five continents and mobilizing different disciplines, the multiplicity of the forms of, and responses to, crises. The aim of the project is to push further the frontiers of the social sciences, both geographically, through an opening toward a global perspective, and epistemologically, through the encounter with neighboring fields.

Appointed to the Faculty of the School of Social Science in 2009, Fassin is an anthropologist and a sociologist who has conducted fieldwork in Senegal, Ecuador, South Africa, and France. Trained as a physician in internal medicine and public health, he dedicated his early research to medical anthropology, focusing on the AIDS epidemic and global health. He later developed the field of critical moral anthropology, which explores the historical, social, and political signification of moral forms involved in everyday judgment and action as well as in the making of national policies and international relations. He recently conducted an ethnography of the state, through a study of urban policing as well as the justice and prison systems. His current work is on the theory of punishment, the politics of life, and the public presence of the social sciences.

His most recent inquiry is a critical engagement with philosophical approaches to punishment, which was the subject of his Tanner Lectures on Human Values at the University of California, Berkeley, and to life, which was the topic of his Adorno Lectures at the Goethe University of Frankfurt.

Fassin earned his M.D. from Université Pierre et Marie Curie in 1982, completed his Master’s degree at La Sorbonne in 1986, and his Ph.D. at École des Hautes Études en Sciences Sociales in 1988, where he continues to serve as director of studies. He was the founding director of the Interdisciplinary Research Institute in Social Sciences at the National Center for Scientific Research in Paris.


Mark Heising Appointed to Board of Trustees

The Institute for Advanced Study has appointed Mark Heising to its Board of Trustees, effective October 28, 2017. Heising is founder and managing director of Medley Partners, an investment firm established in 2004 and located in San Francisco, California. Previously, Heising worked as a chip design engineer and subsequently founded VLSI Cores, which designed and licensed cryptographic integrated circuits. He holds six U.S. patents in cryptography, compression, and data communications.

Heising serves as director for Lam Aviation, Sion Power, Siva Power, and Nucleus Scientific. He also serves on the Board of Directors of the Bipartisan Policy Center, the Environmental Defense Fund, and the Heising-Simons Foundation. He earned a Bachelor of Science degree in physics and a Master of Science degree in electrical engineering and computer science, both from the University of California, Berkeley.

A Groundbreaking Ceremony for Rubenstein Commons

The Institute for Advanced Study hosted a groundbreaking ceremony on March 14, 2018, for Rubenstein Commons, a new $20 million campus building that will provide a necessary space for enhanced communication and collaboration among Faculty and scholars at one of the world’s leading centers for curiosity-driven basic research.

Rubenstein Commons, which is designed by Steven Holl Architects, is made possible by a gift from Institute Trustee David M. Rubenstein, philanthropist and cofounder and co-executive chairman of the Carlyle Group.

The groundbreaking ceremony was attended by David Rubenstein, architect Steven Holl, Princeton Mayor Liz Lempert, as well as Institute Trustees, Faculty, scholars, and staff.

“The Rubenstein Commons building underscores the importance and relevance of the Institute’s unique, independent, and cross-disciplinary environment for scholars,” stated Robbert Dijkgraaf, Director and Leon Levy Professor. “This building will provide scholars with new opportunities to question fearlessly, collaborate, discover, and create new lines of inquiry and knowledge that change our understanding of the world.”

“The Institute is a true national treasure, bringing together the greatest minds to solve some of the world’s greatest problems,” added David Rubenstein. “I am extremely proud to be associated with the Institute and its quest to make society better.”

Architect Steven Holl (left), Trustee David Rubenstein (center), and Director and Leon Levy Professor Robbert Dijkgraaf (right).

“On this special day, we celebrate the Institute’s rich academic history and its inspiring future, and move one step closer to the realization of this important piece of architecture. We hope the new generation of scholars will enjoy the Rubenstein Commons as it brings the community together with inviting spaces,” said Steven Holl.

The Commons is conceived as a welcoming and flexible environment for interaction among the permanent Faculty and visiting scholars, and will greatly enhance the Institute’s role as a convener of academic thought and activities across the sciences, humanities, and social sciences. The building will be located to the east of Fuld Hall to provide convenient access for resident scholars and short-term visitors, and will feature a conference space, meeting rooms, and a lounge with a cafe. The Commons will also house office space and will be a venue for displaying images and materials that illustrate the Institute’s remarkable history, its extraordinary significance and influence throughout the world, and its exceptional scholarly community through exhibits, images, and archival materials.

Recommended Viewing: Watch the remarks from Robbert Dijkgraaf, Director and Leon Levy Professor, Princeton Mayor Liz Lempert, architect Steven Holl, and Trustee David Rubenstein on the occasion of the groundbreaking ceremony: ow.ly/ub2a30jzWTT.
The Beginnings of Authoritarian Culture in the Arab World
The persistence and resilience of undemocratic government in Syria

By Kevin W. Martin

As recent events have demonstrated, one of the most significant phenomena of the Arab world’s modern history is the persistence and resilience of undemocratic government. Syria has enjoyed the dubious distinction of leadership in this respect, its experience foreshadowing and/or exemplifying that of its neighbors. The pattern was established in 1949, when Syria experienced three coups d’état that installed a succession of military rulers. All of these coups were planned and executed by Army Colonel Adib al-Shishakli, who today is largely forgotten in Syria, and remains an obscure figure to all but a narrow circle of historians and political scientists outside the country. This is a considerable oversight, for after seizing power on his own behalf in December 1949, al-Shishakli effectively ruled Syria for much of the next five years, during which he wrought long-term changes in Syria’s political culture and initiated a host of policies and practices subsequently adopted by Egypt’s Gamal Abdul Nasser, Syria’s Hafez al-Assad, Iraq’s Saddam Hussein, and other authoritarian rulers throughout the region.

Al-Shishakli aggressively pursued an ambitious program of national development that aimed to transform Syria’s political economy, governmental structure, and social relations. The resulting populist, corporatist, and authoritarian institutions and practices provided a legacy of undemocratic precedents as well as the institutional framework for the Ba’ath Party and Hafez al-Assad’s implementation of yet more transformative measures in the 1960s and 1970s.

More significantly, al-Shishakli’s efforts to reorder Syrian political life included the abolition of existing political parties, and their replacement with a Pan-Arabist mass-mobilization organization, the Harakat Tahrir al-‘Arabi (Arab Liberation Movement). Focused on his person, this organization, along with a vastly expanded system of state-supervised print and broadcast media, was instrumental to the articulation of an authoritarian, state-guided public culture that was unprecedented in the Arab world. The most distinctive feature of this new public culture was al-Shishakli’s cult of personality, an innovation that would have dire consequences for the future politics of Syria and the region.

Although this experiment occurred three decades prior to the emergence of Hafez al-Assad’s personality cult, scholars have routinely characterized the latter as an unprecedented phenomenon in Syrian history. The scholarly consensus also presumes that the “leader cults” of post-WWII Marxist dictators—Stalin, Mao, Nicolae Ceauşescu, Enver Hoxha, and Kim Il-Sung—provided the only possible precursors for the elaborate leader cults of Hafez al-Assad and Saddam Hussein. In fact, al-Shishakli’s cult provided the most obvious model for Assad’s, which mimicked its predecessor in a number of significant ways. Furthermore, the genealogy of modern personality cults is more complex and varied than conventionally assumed. The personal histories and interests of al-Shishakli’s advisers and cult architects suggest a source of inspiration remote from the practices of Socialist regimes. All of the available evidence indicates that the cult was informed, at least in part, by the practices of American business and political culture. In keeping with the principles formulated by founding theorist of public relations Edward Bernays, al-Shishakli’s advisers used his expanded apparatus of propaganda and persuasion to identify, exaggerate, or invent threats, enemies, “lacks,” “absences,” or problematic social conditions. Then they presented the “remedies” for these ills: the protection provided by al-Shishakli’s leadership and his command of Syria’s expanded and valorized armed forces, police, and security services.

Adib al-Shishakli was a veteran of the French Mandate-era gendarmerie, the post-independence Syrian Armed Forces, and the Jaysh al-Inqadh al-‘Arabi (The Arab Salvation Army), a multinational force created to combat Zionist paramilitaries in Palestine. Embittered by this last experience, al-Shishakli became convinced that the Arabs’ humiliating defeat was attributable to the indifference, incompetence, and corruption of the Arab states’ civilian politicians. This explains his role as the key actor in all five of Syria’s post-independence military coups. In 1949, al-Shishakli commanded the forces that overthrew Syria’s civilian government, the regime of General Husni al-Za’im, and that of al-Za’im’s successor, General Sami al-Hinnawi. Al-Shishakli characterized this last intervention as a “correction” of al-Hinnawi’s posture favoring union with the British-allied Hashemite monarchy in Baghdad. Twenty-one years later, Hafez al-Assad would use the same term to describe his coup against his “excessively” Leftist comrades in the Military Committee of the Ba’ath Party.

Upon assuming control of Syria’s government, al-Shishakli proposed a developmental program that encompassed the revision of Syria’s civil and criminal codes, restructuring the system of land tenure, reformulating relationships between capital and labor, the founding of a national bank, expanded access to all levels of education, universal conscription, women’s suffrage, a progressive tax code, the forced settlement of pastoralists, and a host of other measures designed to stimulate agricultural and industrial production, raise the living standards of peasants and workers, and increase state revenue. As many of these initiatives were inimical to the interests of Syria’s entrenched political and economic elites, they could not be realized through conventional modes of politics.

Thus in November 1951, al-Shishakli overthrew the civilian figurehead government he had previously installed, dismissed its cabinet, dissolved parliament, banned most political parties, abolished the Supreme Court, suppressed influential newspapers, prohibited students, teachers, government employees, and trade unionists from engaging in political activity, and compelled schoolmasters, university professors, and the senior ranks of the civil and foreign services to take an oath of loyalty to al-Shishakli as the only person. Many of these measures would be reinstated by the series of Nasserist and Ba’athist regimes that subsequently ruled Syria.

Al-Shishakli then appointed a trusted surrogate as president, prime minister, and army chief of staff, while retaining for himself the office of Deputy Chief of Staff of the Syrian Armed Forces. Freed from civilian interference, al-Shishakli retrained, reequipped, and expanded Syria’s armed forces, police, and security services, and executed politically motivated purges of these institutions, as well as the civil service, the judiciary, and most government ministries.

In addition, he focused considerable energy on the social and cultural spheres, where his regime’s initiatives displayed an equal measure of statist, secularist, and xenophobic tendencies. As al-Shishakli attributed the influence of religious and ethnic minorities to French Mandate policies of “divide and rule,” he now strictly regulated public speaking by leaders of minority sects, required that Muslims have equal representation on all bodies governing non-Muslim organizations, forbade the use of “foreign” names for places of lodging and entertainment, and mandated that all public events be conducted exclusively in Arabic. In July 1952, al-Shishakli ordered instructors at the Hom’s Military Academy to institute a quota system minimizing the number of minorities (i.e., those who were not both Sunni Muslim and Arab) graduating from the institution, and dissolved the Syrian branch of the Muslim Brotherhood. Other decrees targeted practices and privileges long enjoyed by members of all faiths: publicly wearing garments identified with specific religious beliefs and practices was now subject to regulations, and the requirement of religious education was eliminated from the curricula of public schools.

Al-Shishakli displayed comparable ambitions in the economic sphere, pursuing classic “import substitution,” corporatist, and infrastructural expansion policies with vigor. His distrust of Syria’s traditional political elites prompted a turn to Damascus’s emergent industrial bourgeoisie. Al-Shishakli enacted protectionist policies and restrictions on organized labor that encouraged these proto-industrialist entrepreneurs to merge their companies into monopolistic enterprises and invest the accumulated capital in constructing factories in newly established industrial zones, thereby making them partners in his efforts to construct an autarkic economic regime.

In early 1953, al-Shishakli discarded all lingering pretense by dismissing his appointed “President and Prime Minister” Fawzi Selu. He then promulgated a new constitution, which provided for the direct election of a president wielding executive power over a newly constituted Chamber of Deputies and all other state institutions. On July 10, 1953, in an ominous portent of Syria’s subsequent history, a plebiscite approved the new constitution and “elected” sole candidate Adib al-Shishakli as President of the Syrian Republic by a reported 99 percent of the vote. Between 1971 and 2000, Hafez al-Assad was repeatedly “elected” president by identical means and with similar margins.

The primary agent of al-Shishakli’s authoritarian public culture was the new Syrian Broadcasting Service, which supervised the rapid centralization, expansion, and technological enhancement of radio programming and broadcasting. With this instrument, the dictator initiated the region’s era of media wars, castigating domestic opponents and the rulers of neighboring states during live broadcasts. Equally important was an increase in the number and variety of state-owned periodicals echoing the regime’s narrative. Crucial in this regard were the magazines (Continued on page 5)
AL-SHISHAKLI'S ADVISERS USED HIS EXPANDED APPARATUS OF PROPAGANDA AND PERSUASION TO IDENTIFY, EXAGGERATE, OR INVENT THREATS, ENEMIES, "LACKS," "ABSENCES," OR PROBLEMATIC SOCIAL CONDITIONS. THEY THEN PRESENTED "REMEDIES" FOR THESE ILLS: THE PROTECTION PROVIDED BY AL-SHISHAKLI'S LEADERSHIP

Shabat, a renowned scholar and critic of the Assad regime, penned "The Taming of Freedom in Our Times," an essay that highlighted the importance of freedom while cautioning against its misuse. He argued that, while freedom is crucial, it must be regulated to prevent "improper behavior not in keeping with Syria's progress," ensuring its positive impact on society. Shabat's reflections, widely recognized for their depth and insight, asserted that freedom is a powerful force, capable of transforming individual and collective freedom known throughout human history. He concluded that, in the context of modern society, freedom should be regulated to prevent "improper behavior," emphasizing the need for balanced freedom.

Another expert expressing similar views was Fu'ad Shabat, a well-respected journalist and scholar. Shabat noted the crucial early role in raising al-Shishakli's media profile, persuading the dictator to emulate United States President Franklin Roosevelt's practice of making evening radio addresses in an intimate, conversational style. This approach, adopted by the media, played a pivotal role in shaping public opinion, reinforcing the leader's vision of a modern, progressive society.

Prominent among al-Shishakli's advisors was Fu'ad al-Shayeb, an experienced journalist and government bureaucrat. Shayeb underscored the importance of a cohesive strategy, emphasizing the need for a unified approach to media and public relations. He noted the significance of a clear voice in fostering public trust and engagement with the media. Shayeb's insights underscored the strategic use of media to promote the dictator's vision of a united, progressive Syria.

In February 1954, an army rebellion led by newly promoted officers, who had served under al-Shishakli's favor, compelled the dictator to flee Syria. The rebels were a fierce group, determined to challenge and replace the authoritarian regime. They sought to dismantle the existing political structure, advocating for a new era of democratic governance. This rebellion marked a significant turning point, leading to rapid changes within the government and society. The rebels, in cooperation with the military, implemented a series of measures to ensure a smoother transition and establish a more democratic framework.

Following al-Shishakli's departure, his former advisor, the renowned jurist Dr. Fu'ad Shabat, stepped forward to advise and support the new administration. Shabat's guidance was instrumental in shaping the policy agenda, ensuring a smooth transition and maintaining public support. His insights and recommendations played a crucial role in the new government's efforts to establish a stable and democratic regime.

Shabat's contributions were widely recognized, earning him a prominent position in the new administration. His expertise in law and political science enabled him to provide insightful advice, guiding the new government in the right direction. His guidance was instrumental in the successful transition of power, ensuring a smooth shift from authoritarian rule to a more democratic governance.
On April 13, the Institute for Advanced Study celebrated the publication of Freeman Dyson’s *Maker of Patterns: An Autobiography Through Letters* (Liveright, 2018), a collection of letters he wrote to relatives between 1940 and the late 1970s. Throughout his seventy-year association with the Institute, sixty-five of them as a Professor, Dyson has embodied the Institute’s purpose and mission, following his curiosity wherever it has led him and resulting in highly original and important contributions to an astonishing range of topics, from quantum electrodynamics and number theory to adaptive optics. Dyson read several of his letters at the public event, followed by a discussion with Robbert Dijkgraaf, Director and Leon Levy Professor, the video of which may be viewed at ow.ly/HUBa30jzWYj. The following letter was the first reading by Dyson.

**Recommended Viewing:**
Watch Freeman Dyson discuss his new book with physicist and author Lisa Randall at the New York Public Library: ow.ly/SFsA30jEM1m.

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**AUTHORITARIAN CULTURE (Continued from page 5)**

changed to *Sawt Suriya* (*The Voice of Syria*). Yet, al-Qawwas’s editorial emphasized continuity rather than change. *The Voice of Syria* would, he pledged, “continue to fulfill the magazine’s mission, achieve its objectives ... proclaim Syria’s true message to the outside world, and combat the propaganda organized by its enemies in foreign countries.” Thus, he expressed the hope that readers would “continue to think of this as their magazine, and feel that it was and will continue to be the voice of Syria, beloved Syria, emerging republic, and the true homeland of the Arabs, Arabism, and of the most glorious renaissance recorded in history.”[viii]

In fact, other than the glaring absence of al-Shishakli, the journal’s content displayed no discernable change. The same sports, entertainment, and *Police Gazette*-style crime features continued to appear, as did pictorials commemorating the sacrifice of police and security service personnel and warnings about the ever-present threat of Zionism and other sinister, “alien” forces. In fact, in this and other venues, the use of Madison Avenue-style techniques to stimulate anxiety, deployed so ably by al-Shishakli’s team of media experts, continued unabated. Furthermore, a flaming torch, the symbol of al-Shishakli’s Arab Liberation Movement, and a constant feature of his regime’s iconography and discourse, was now adopted as the journal’s logo. This symbolic appropriation, along with the Orwellian choice of title to designate a journal published by the security services, signifies the ironic nature of Adib al-Shishakli’s legacy: Syria, long deprived of the capacity to “speak” in international affairs, would now be “heard” through the pronouncements of its Public Security Police. And despite Syria’s immediate nominal return to the status quo ante al-Shishakli, the dictator’s regime had wrought seemingly irreversible changes in the country’s political culture. The armed forces and security services refused to relinquish their influence on successive governments. And the army’s execution of al-Shishakli’s coup, enabling his dictatorship, and then overthrowing him in collusion with his enemies, transformed the institution into an inherently political entity that would, largely through its own internecine conflicts, perpetuate and exacerbate Syria’s instability over the following decade.

After a failed attempt (with U.S. assistance) to return to power in 1957, Adib al-Shishakli receded into obscurity in Brazil, where he was assassinated in September 1964. Yet, the most distinctive element of al-Shishakli’s system, the leader cult, would linger in official memory, only to reappear in grotesquely exaggerated form decades later.  

Kevin W. Martin is Willis F. Doney Member in the School of Historical Studies. He is exploring the reach of American “soft power” by analyzing Syrians’ exposure to and perceptions of public diplomacy, propaganda, films, advertising, and new modes of urban leisure. Drawing upon an array of Syrian and American sources, he is also analyzing Cold War cultural exchange.

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i Majallat al-Shurta wa al-Amn al-‘Amm 7(July 1953), 2.
ii Majallat al-Shurta wa al-Amn al-‘Amm 7(July 1953), 3.
iii Al-Idha’a al-Suriyya 1 (September 1, 1953), 6–7, 27.
iv Majallat al-Shurta wa al-Amn al-‘Amm 1 (January 1953), 1.
v Majallat al-Shurta wa al-Amn al-‘Amm 7 (July 1953), 1.
vi Majallat al-Shurta wa al-Amn al-‘Amm 7 (July 1953), 20, 24.
vii Majallat al-Shurta wa al-Amn al-‘Amm 7 (July 1953), 10–11.
viii Sawt Suriya 16 (April 1954), 2.
Dark Matter: Discerning What We Cannot See
What keeps together all the stars and galaxies with its gravity, but does little else?

BY VERA GLUSCEVIC

The field of cosmology has come a long way toward understanding the universe as a physical system: we’ve mapped its history and structure in great detail, we know what it went through since a few seconds after its birth until today, we understand what sources its light, and we have a grasp on the math describing the laws of gravity that govern the cosmic structures we observe. Yet, most of its content is locked up within the “dark sector” we cannot see and do not yet understand.

When I was a graduate student at Caltech, Annika Peter, a senior postdoc at the time, made a descriptive comparison between the universe and a cupcake: “The dough that makes up most of it, that’s the dark energy [the stuff that causes it to expand at an accelerating pace]. The icing is dark matter. And the sprinkles on top—that’s all the ordinary matter that we know and love.” At the Institute, I study the dark matter “icing” that keeps together all the stars and galaxies with its gravity, but does little else—it does not seem to emit or absorb light, nor do its constituents seem to collide much with ordinary particles. Specifically, I design and apply new ways to probe this mysterious substance, using a combination of theoretical and analysis tools, and data from a variety of observations and measurements. Here, I will give a brief summary of the status of the field and explain some of my most recent work.

We know that dark matter makes up about 80 percent of the total matter content of the universe because we observe how its gravitational pull affects normal matter (“baryons”) in a wide range of astrophysical systems. In the local universe, we see nearby galaxies (and our own) spinning at a far faster rate than if only stars and gas held them together, implying the presence of an additional unseen source of gravity. More distantly, we observe that clusters of galaxies bend the trajectories of light coming from even more distant objects (the effect known as gravitational lensing), far more prominently than their luminous matter alone could. And from the very dawn of the cosmos, the cosmic microwave background (CMB) radiation—a relic light emitted when the universe was only 400,000 years old—would have far more directional irregularity, or anisotropy, if dark matter were absent or made up of ordinary baryons. Most importantly, these different pieces of observational evidence give a precise quantitative picture of how much dark matter there is, and how it is distributed—and all of them agree. Dark matter has been around since before the CMB was emitted, and today every galaxy lives within a heavy dark matter blob we call its “halo.”

Leading theories of dark matter involve a new kind of fundamental particle, or particles (though there are more exotic proposals, for example, involving dark matter made out of “primordial black holes”... but I will only discuss particle physics models here). Many theories predict some amount of interaction between dark matter and the known particles. Mapping out the basic properties of dark matter constituents—their mass, charge, spin—and understanding how they interact (between each other and with baryons) is one of the main open quests in modern physics. Many avenues of probing dark matter have been explored to date. Some attempt to detect photons or electrons that would be produced if dark matter particles collide and annihilate in centers of galaxies, such as our own. Others search for traces of dark matter particle production in collider experiments (like the Large Hadron Collider). Traditionally, the most sensitive searches for dark matter particles have been so-called direct detection experiments.

Direct detection experiments look for rare collisions of dark matter with nuclei in experimental targets (large chambers with xenon, germanium crystals, etc.) in underground detectors. They rely on the idea that, as the Sun rotates around the galactic center, it sweeps its way through the sea of dark matter that is our own dark matter halo, subjecting the Earth—and the detectors in its underground labs—to a “dark matter wind.” As dark matter appears very small to baryons (in the case, the baryons compress and rarify in a cyclic way.

Once the universe expanded and cooled enough (to a temperature near that of a star’s surface), the photons were set free to travel all the way to our present-day observatories—these are the CMB photons. And the image they depict in the sky—the tiny differences in their temperatures in different directions—reflect the processes that were happening in this early universe.

Now, if dark matter scatters off protons today, it was doing so even more often at early times, when the universe was tightly packed with fast-moving particles. As a result of these collisions, dark matter clumps collapsing under gravity would exert a friction force on the oscillating baryons—imagine dunking our ball on a spring into a bucket of water. The friction damps the oscillations, especially the high-frequency waves. The damping effect would be captured by the CMB light as an unusual lack of small irregularities—“smoothing”—in its temperature in the sky. In technical terms, the power spectrum of the CMB temperature (and polarization) would show a suppression on small angular scales.

While studying this effect, dark matter physicist Kimberly Boddy from Johns Hopkins University and I have very recently performed the first full cosmological search for evidence of dark matter particle collisions in the early universe, using data from the Planck satellite. In a series of studies, we probed particles as light as one thousandth of an electron mass (a million times lighter than the typical sensitivity threshold of direct detection experiments). We also used the so-called “effective theory of dark matter interactions” to systematically categorize all possible interaction theories and constrain them. We are now preparing to apply this analysis to state-of-the-art CMB measurements made by the Atacama Cosmology Telescope collaboration (based at Princeton), in order to further push the bounds on dark matter interaction physics.

So far, we haven’t found the signal we are looking for. But a tremendous amount of data is continuously flowing in from galaxy surveys and from the next-generation CMB measurements that will make cosmological observations one of the main avenues for testing fundamental physics. With my recent work at the Institute, we were able to peer back at what fundamental particles were doing when the universe was only two years old... we can now dare to imagine what happened even before.

Vera Gluscevic is a Member and Schmidt Fellow in the School of Natural Sciences whose research focuses on using cosmological and astrophysical observations in combination with other data sets to study new fundamental physics. In particular, she focuses on dark matter and dark energy, theory and analysis of the cosmic microwave background, dark matter direct detection, cosmic reionization, and 21-cm cosmology. She is a theorist-in-residence for the Atacama Cosmology Telescope and the Simons Observatory collaborations.
Half a century ago a French historian of rural Languedoc published a history of climate and people: climate changes, is subject to fluctuations, and (since history is about change) climate is the object of history. Le Roy Ladurie implied (if imperfectly) a syllogism captures perfectly the essence of the relationship between climate and history, natural and human systems, laboratory data and written sources.

To be clear, climate is neither nature nor environment. Climate is not even the weather. Climate is connected with and produced by the Earth’s system, affected by the solar system, and its variations transform ecologies: dry to wet, cold to warm, and vice versa, in different degrees of intensity and duration. Until recently, climate variability was caused only by a series of interacting natural forces that determined the length of seasons, the amount of humidity and the temperature of the atmosphere at different latitudes. Human beings had to face the consequences of this variability, enjoying balmy days while preparing for poor ones, feasts and famines punctuating the life cycles of humanity. How could this constant interaction between humans and nature not be part of history? And yet, until the publication of Ladurie’s _Histoire du climat depuis l’Antiquité_, historians paid scarcely any attention to climate variability. The past was confined largely to its human dimensions: social, economic, political, cultural, and intellectual. Even environmental history, coming of age in the 1980s, has been coy about climate. In a seminal article, Richard White, discussing the development of environmental history as a new historical field, mentioned climate only twice, both in relation to environmental determinism. Determinism and reductionism, meaning the belief that natural forces are the ultimate cause of much of history, and that historical explanation can be reduced to such forces, have been at once bête noire and whipping boy of historians at least since the early twentieth century, when Vidal de la Blache and Lucien Febvre criticized geographical and climatic determinism à la Blache and Lucien Febvre criticized geographical and climatic determinism à la Ellsworth Huntington in favor of human choice and social response vis-à-vis environmental constraints. The debate goes on to this day. Historians are often accused of blindness to the vital connections between societies and natural resources, while scientists of various disciplines (from geography to the life sciences) are blamed for giving too much weight to non-human forces. Renowned biologists and economists such as Jared Diamond and Jeffrey Sachs have been entangled in similar controversies.

However, the persuasion that geography (topography, natural resources, and climate) led to the rise and collapse of complex societies and civilizations seems too often based on a smorgasbord of presumed advantages that are weighted differently in favor of the end result: a teleological view of which historians are keenly conscious.

In actual historical research, such lionization of nature has been partly validated and partly corrected by the rise of “big history.” It is not surprising that within a history spanning a geological scale, from the Big Bang to the present, the greater story of Earth as a life-giving system dwarfs the total human past, even when such past remains a central concern. Most historians, working at a finer level of detail, and concerned with questions such as the rise of monasticism, the evolution of imperial bureaucracies, or the role of women in the industrial revolution, regard the reduction of causation to rainfall and temperature as irredeemably flat. Today the resurgence of historical determinism (or “neo-determinism”) is notable not just in the popular press, but also in some areas of the natural sciences, especially climatology. Hong Kong climate scientist David Zhang has recently made the explicit claim that the whole of history can be arranged in a succession of “dark” and “golden” ages determined uniquely by climatic change. New data and methodologies are brought to bear to support a vision of the human past that can be interpreted in light of chains of causation ultimately triggered by natural forces. This theoretical orientation, no matter how impossibly naive, is indicative of science’s ability today to produce information about the past that is unprecedented in terms of quality and quantity, that captures environmental stressors at every latitude and at scales (annual and decadal) that are familiar to historians. Should historians take note?

With a wink and a nod to C. P. Snow, veteran environmental historian Donald Worster discussed already in 1996 the “two cultures” of environmental science and environmental history. Speaking of the growth of environmental science, he prophetically stated: “[A] new door has begun to open, but where does it lead? It leads, I think, to a new picture of the human past that is unlike anything that you will find in the standard history books. It leads to a past wider in scope than any of our national territories […] as we have a world over. The climatic cooling of the seventeenth century—the coldest of the “Little Ice Age”—studied by Geoffrey Parker on a global scale, seems responsible for so much human misery, captured in records from China to England and from Japan to Mexico. But how would we know how bad it truly was, if not for climatic reconstructions?

A popular word in historical writing today is “nuance.” Nuance is very much in the eye of the beholder, but if by a “more nuanced history” we mean a more detailed context, one that places the open stark contours of war, politics, and religion against a chorioscuro backdrop of variable climate and changing ecology, we might obtain a “nuance” that actually helps us penetrate more deeply into the meandering tangles of historical currents. This consideration is immediately redolent of Fernand Braudel’s _temps de l’histoire_, whereby the jittery concatenation of events is cast, interpreted, and narrated against the slower flow of social and environmental changes. Is that imagined relationship about differential-speed temporalities still tenable when science graphs show equally jittery time-lines tracing climatic changes on a yearly basis?

It was over a hundred years ago that weather measurements through instrumental means became common in various parts of the globe, and weather stations began tracing climatic variations. In order to extend climatic reconstructions to the remote past, scientists have developed a variety of techniques that capture atmospheric changes. Paleoclimatologists mine ice cores, tree rings, speleothems (cave formations), lake sediments, paleosols, and other “natural archives” for proxies that yield clues about climatic changes. Spatially specific and chronologically accurate drought and temperature indices can provide a degree of precision that ideally will allow historians to compose an accurate climatic picture of the region and period of their concern. It is not uncommon today to read in history books how climate reconstructions are influencing

(Continued on page 9)
historical interpretations, down to the recent *The Fate of Rome: Climate, Disease, and the End of Empire* by Kyle Harper.

That historians are learning more about climate science, and are willing to labor their way through a maze of unfamiliar scientific journals, could be taken as either humility or hubris. Be that as it may, the transfer of knowledge from one epistemological community to another, while a welcome development, should come with a thick “user’s manual.” Science-inclusive narratives may offer an important dimension to historical knowledge and allow reinterpretations in light of better and denser data, but deterministic temptations still lurk in the background for a simple yet insidious reason: how much weight should be attributed to environmental data in historical explanations? Given that non-scientists’ uses of laboratory data are inevitably detached from both theoretical knowledge and technical means of production, it is questionable whether historians can eventually control the scientific narrative to the full satisfaction of readers and colleagues, not to mention the scientists.

Let us pause for a moment to consider another period in which the historical profession underwent a transformation that presents an uncanny resemblance to our “scientific turn.” In the seventeenth and eighteenth centuries the rise of antiquarian knowledge—from archaeological relics to genealogical, epigraphic evidence, and numismatics, among others—ushered in a new type of history. As Arnaldo Momigliano put it, “the antiquaries, by collecting much of their evidence outside of the literary sources, helped to make the need for new histories apparent.”9 The search for truth and authenticity in history could make use of a vast array of nonliterary evidence, drawn from “charts, inscriptions, coins, and statues”; such a knowledge allowed the antiquarian to “venture into old and new fields with a confidence that his predecessors lacked.”10 By the same token, might we not say that the twenty-first-century historian, armed with scientific data, can also produce new histories and venture to answer old and new questions with unprecedented assurance? It is a tempting analogy. Like antiquarian inquiry, the paleosciences offer specialized knowledge applicable to historical questions, expand the range of evidence, and provide new interpretative tools. Moreover, while both the paleosciences of today and the antiquaries of old construct(ed) their versions of the past, neither writes/wrote history. The point of antiquarian and scientific research, and their game-changing force, is that they provide knowledge that can be used as building blocks of the historical narrative, anchoring it to a materiality and a process of critical appraisal that constantly supplements, interrogates, and redefines the literary sources.

Seen in the light of the antiquarian precedent, there is reason to believe that the contribution of the sciences of the past to historical research can help produce new histories. Yet, a word of caution is required. Scientific knowledge and antiquarian knowledge are different in fundamental ways. It is true that the antiquarians were often engaged in science, and that their methods, especially in terms of observation, collection, and classification of evidence, were not too far removed from those of the astronomer or entomologist. But science today, in its highly professionalized, highly competitive, and epistemologically dominant position, produces a quantity of data that historians, even if they acquired a general understanding of it, cannot easily control, and therefore cannot easily use. Science data are scattered across hundreds of publications, expressed in an unfamiliar language, and in constant and often controversial flux. How is the historian going to chart a path in such a jungle of scientific papers? Moreover, historians cannot produce data on their own, and therefore depend on figures and facts produced by scientists for very different purposes. Even though, like antiquarian research, science can assist historians with new and better evidence, chances are that historians can only use a tiny fraction of the available information, possibly not entirely relevant nor fully understood. Confidence is further eroded by instances in which science data are collected selectively by historians to provide a veneer of “hard evidence” to hypotheses founded entirely on different grounds.

Given these shortcomings, it is not surprising that the deployment of climate science for the study of the human past is often the result of collaborative research, whereby scientists, historians, and archaeologists join forces.

Experiments in this direction have been mushrooming for a while and present distinct advantages. First and foremost, scientists keep historians honest and informed about what science can and cannot do. Secondly, the data are checked professionally with regard to both the methods and the reasoning behind them. Moreover, collaboration between scientists and historians can produce data specifically designed to address questions asked by historians.

Surely many narratives can be enriched and transformed by science, but it is probably those corners of the human past least illuminated by troves of archival documents that will benefit most from the sustained exploration of paleoclimatic data. With difficulty, and only recently, the study of pre-literate societies has begun to move from the realm of ethnography, archaeology, and anthropology to that of history thanks largely to the development of world and global history. Approaches to world history in which interpretation hinges on concepts such as connectivity, exchange, and transcultural communication—along with more traditional ones such as migration, crisis, and conquest—may be especially receptive to new evidence that might shed light on the historical role played by peoples who have otherwise left few traces. Central Asian nomads, such as Scythians, Huns, and Mongols, figure prominently in this history, given their continent-wide migrations, participation in “Silk Road” exchanges across Eurasia, and conquests of other peoples and regions.

Of late, the Institute has facilitated collaborative research among historians, archaeologists, and scientists on various projects that combine climatic, material, and textual evidence. Through relatively limited case studies—for instance, involving the Mongol and Turkic empires—rather than expansive narratives, collaborative research has yielded results that inspire a degree of faith that scientific evidence may illuminate still obscure yet consequential areas of human history. Even more intriguing are cases involving catastrophic events about which climatic reconstruction offers undeniable proof while the written sources are silent. Data that show the exact degree of severity of an extended drought in medieval Mongolia, otherwise invisible in the literary sources, raise the question, for instance, of what the affected people might have done to counter the ill effects of the drought.8

As new data emerge, new conjectures can be explored, formulated, and verified, and it is exciting to see how the discovery of the paleosciences by historians evokes the experience, centuries ago, of those who used antiquarian knowledge to change our perception and understanding of the past. ■

Nicolà Di Cosmo joined the Institute as Lucie Foundation Professor in East Asian Studies in the School of Historical Studies in 2003. His main field of research is the history of the relations between China and Inner Asia from prehistory to the modern period. His most recent works explore the use of proxy data from climatology and other palaeosciences in the study of the history of China and Central Asia, with special reference to early Eurasian nomads, the Mongol empire, and the Qing dynasty.

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1. (i) Ice core–derived hemispheric (light gray) and global (dark gray) estimates of volcanic aerosol forcing (Sigl et al. 2015). (ii) Reconstructed June–August temperature means from the Russian Altai (Büntgen et al. 2016), with the smoothed curve referring to twenty-year low-pass filtering (dark red). The blue boxes indicate 68% C.E. and the colored background shadings suggest the intra centennial climatic extremes during the last two millennia. (c) Spatial field correlations (1950–2011) of the Altai summer temperature reconstruction against the global “Berkeley” dataset (Rohde et al. 2013) of gridded 1° latitude/longitude June–August temperature means from the National Centers for Environmental Information, C. E., “Climate Change, 1450 to Present,” (1984–2012), 383–395.

2. “Le climat en une fonction du Temps; il varie; il est sujet à des fluctuations; il est objet d’histoire.”


We Have to Go Beyond Identifying and Punishing Individual Men

The intertwining of power and gender in our culture and our psyches

BY JOAN WALLACH SCOTT

As controversy swirls in the wake of the revelations about the abuses of women by powerful men in the arts, politics, media, academia, restaurants, and elsewhere come to light, it is important to remember that we are dealing not with exceptional cases, but—with #MeToo demonstrates—with an enduring culture of masculinity. Women have the vote, but they are under-represented in legislatures; they have access to contraception and abortion, but those rights are under attack; they have been admitted to universities and to various professions, but they are consistently paid less than their male counterparts; even when they climb the ladders of corporate management, they hit glass ceilings again and again. Domestic violence plagues wives and mothers; impoverished single parents are most often female. And now we learn that workplace sexual harassment is a condition of employment for more women than we had ever imagined, women across the class and race divides.

How can we reconcile this sorry state of affairs with the deeply held belief that women in the United States and Europe—the secular West—are the most emancipated of women? How can we reconcile it with the polemic we often hear that it is the women of the non-Western world, particularly Muslim women, who are in need of liberation? “They,” we are told, are sexually repressed and so lack equality, whereas “gender equality,” and so sexual liberation, is a primordial value of the (Christian) secular West.

In Sex and Secularism I argue that, in fact, gender inequality is the story of modern Western nation states. It is an inequality that has persisted, despite genuine reforms and real improvements in the situation and status of women. As Vivian Gornick writes in the New York Times Magazine (December 17, 2017), there has been “insufficient progress on the question of gender equality.” As the decades wore on, I began to feel on my skin the shock of realizing how slowly—how grudgingly!—American culture had actually moved, over these past hundred years to include us in the much-vaunted devotion to egalitarianism.” In conversation with me, Gornick attributed this delay to the hold of religion on our society, but I think that is to misunderstand the ways in which power and gender have been associated in our democratic, secular worlds.

The intertwining of power and gender is the product of history, but they are so deeply naturalized that it has been hard to disentangle. Religious justifications for the inequality of women and men gave way from the eighteenth century on to natural justifications; increasingly biology explained why women couldn’t be citizens. When women were barred from attending political meetings during the French Revolution in 1793, the reason given had nothing to do with God. Asked one legislator rhetorically: “Has Nature given us breasts to feed our children?” In a similar but kinder vein, Thomas Jefferson found that “our good ladies … have been too wise to wrinkle their heads with politics. They are content to soothe and calm the minds of their husbands returning from political debate.”

These ideas have continued to the present day, albeit in new forms. Women have the vote, but as the testimony of the #MeToo victims makes clear, there is a psychological level that still underwrites inequality. Men assume that their masculinity is about the assertion of power (in politics, at work, in relationships), while women have internalized the sense that they can exercise only diminished agency, that their femininity is defined by their passivity. If second wave feminism sought to change that outlook, it seems not to have entirely succeeded.

That is because in our culture masculinity is synonymous at least symbolically with power; femininity with its lack. The source of that symbolic association is an old one—the body and the office of the king were one; his masculinity was at once assumed and confirmed by his possession of the phallus (the symbol of power). The advent of democracy dispersed political power, creating great uncertainty about who could claim legitimacy. Men claimed it on the basis of the association of their masculinity with the king’s. In their thinking the phallus and the penis became one—a male body (however socially, economically, or politically deprived of real agency) became the sign of a certain power—power signified by the domination of women. Indeed, in some cases—as described in the New York Times by Shanita Hubbard, an aggressive masculinity compensates for social and economic deprivation.

The so-called natural differences between women and men (those declared immutable by scientists and social scientists in the nineteenth century and that are once again being insisted upon by evolutionary psychologists) underwrite this kind of thinking. So it was that the Scottish biologist Patrick Geddes opposing giving women the vote on the grounds of their physical difference: “The hungry, active cell becomes flagellate sperm, while the quiescent well-fed one becomes an ovum.” It followed that women belonged in the private, domestic sphere, men in the public/political realm. “What was decided among the primitive protozoa,” he concluded, “can not be annulled by an act of parliament.” According to this logic, if the differences are natural, then the inequalities that follow from them cannot be rectified; indeed they are not inequalities at all.

The arguments have changed since the nineteenth century and today sexual emancipation is often heralded as a sign of equality. But, as the unfolding revelations have shown us, this is not at all the case. The myth of women’s sexual liberation is denied by the demeaning treatment they receive in the workplace, but also in sexual encounters (as reports from college campuses demonstrate). There seems to be a persistent belief—deeply rooted in our psyches—that men achieve recognition of their masculinity, and so of their political and social power, by exercising domination over women.

If we are to seriously address the current crisis beyond identifying and punishing individual men as bad actors, we have to attend to this history and make apparent how deeply rooted it is in our culture and our psyches.

Recommended Reading:
Sara Farris, Visitor in the School of Social Science, examines the #MeToo movement in relation to notions of masculinity, violence, and race: ow.ly/7owe30jzX3w.

This article by Joan Wallach Scott, Professor Emerita in the School of Social Science, was first published by the History News Network. Scott joined the Institute Faculty in 1985, and has challenged the foundations of conventional historical practice, including the nature of historical evidence and historical experience and the role of narrative in the writing of history, from gender and questions of difference to underlying ideological systems. Her most recent book is Sex and Secularism (Princeton University Press, 2017).
The men and women of the left—socialists, social-democrats, and left-leaning liberals, all of us—are most at home in the homeland; our politics is focused on the character of domestic society. Though we claim to be internationalists—and we are, some of the time—we have never gotten a good grip on foreign policy or on security policy. This is, I want to argue, a highly principled failure. We do best with global issues when they are most like domestic issues, as when we oppose inequality, sweat labor, and anti-union practices abroad or work across borders against environmental degradation. Our record is not so good when the issue is the possible use of force. That is something most of us don’t want to think about—or we just want to say no. Bernie Sanders’s Democratic primary campaign of 2016 provides a near-perfect illustration of this position, though not the only one. Like it or not, however, we live together with our fellow citizens in an anarchic society of states where the ability to make wise decisions about the use of force is essential to the safety of our own state, of states with which we have close relations, and sometimes of people far away who are in desperate trouble and need our help. Wise decision-makers opt for peace whenever they can, but sometimes for a cold war, sometimes for the use of force short of war, sometimes for the threat of war, and sometimes for the agony of war itself. Political wisdom isn’t essentially militarist or pacifist (or anything in between). It requires a steady commitment to conciliation and compromise so long as these are possible, and a readiness to fight when fighting is necessary. The two are equally required. That combination has always been a problem for the left. . . .

There is a lot to be said for the default position. We should work in the place we know best to make things better. The improvement of humanity begins at home. This argument has special force for Americans, who live in an increasingly unequal society that is also a near-hegemonic world power. We need to be wary of adventures abroad that make our work at home more difficult.

Still, good leftists can’t avoid internationalism. We will be engaged again and again in arguments about what we should do or what we should urge the United States to do to help people in trouble or comrades abroad. Sometimes there is nothing that the United States can do, at least nothing it is likely to do right. But even when we oppose American action in other countries, we can be active ourselves—providing moral, political, and financial support to men and women fighting in self-defense or in defense of others. There is no magic answer to the question, What should we do? But the ideological shortcuts I’ve just described, lazily adopted and rigidly held, have served us badly in the past and are almost certain to serve us badly in the future. Sticking with them means that we will get things right only by accident.

Political intelligence and moral sensitivity work much better than ideology, and they are what should guide our choice of comrades and our decisions about when and how to act abroad. Dictators and terrorists are never our comrades. We should embrace only those men and women who really believe in and practice democracy and equality. We should act abroad only with those who share our commitments and then, only in ways consistent with those commitments. This is the politics that I want to call left internationalism. —Michael Walzer, Professor Emeritus in the School of Social Science, in A Foreign Policy for the Left (Yale University Press, 2018)

The American Revolution created a new form of republic explicitly built on the principle of “liberty.” Yet the United States that emerged in 1787 was predominantly undemocratic and by and large not geared to promoting the welfare of society as a whole. The Revolution contained two divergent tendencies within it, rooted respectively in moderate and radical Enlightenment, and this inevitably generated a conflict of attitudes, values, and institutions that could not easily be resolved. On the one hand there was the powerful Lockean legacy. But Locke had justified a revolution, the Glorious Revolution of 1688, led by an aristocracy on the basis of everyone’s right to the pursuit of “life, liberty and property,” assigning property a decisive role in the possession and organization of power and authority. For Locke, the prime reason men enter into commonwealths placing themselves under government is for the “preservation of their property.” Substituting the “pursuit of happiness” for “property” in the Declaration of Independence consequently had far-reaching implications regarding the purposes of the state and the scope of its responsibilities. Where in Locke’s property is the basis of social division into classes, Jefferson’s formulation marginalized the principle of social class. The landless could no longer be regarded as either so marginal or so subordinate as in Locke. Where Locke nurtured a negative conception of liberty, centered on protection of property, for Jeffersonians liberty was a positive, developmental concept to be upheld and advanced by the state and its agencies. Where in Locke, education is essentially a private matter geared to issues of property without any public role, in radical Enlightenment education is a public matter and something to which everyone has a right. Whereas in Locke, popular sovereignty extends only so far as the “compact” between people and the executive power, in the political philosophy of Franklin, Jefferson, Paine, and Price, the people share continuously in the exercise of government through elections, representation, and the right to free expression of opinion. In the constitution for the colony of Carolina that Locke drew up for the Lords proprietors of Carolina in 1669, and helped revise in 1682, for example, he took care to avoid erecting a “numerous democracy,” slavery was retained, the Indians had few rights, and most colonists were left firmly subordinate to the great landowners, or “landgraves” as Locke termed them. Finally, Locke’s toleration ruled out seculatism, excluding atheists from toleration by the state and placing Catholics and Jews in a subordinate position in relation to the theologically tinted responsibilities of the sovereign. —Jonathan Israel, Professor Emeritus in School of Historical Studies, in The Expanding Blaze: How the American Revolution Ignited the World, 1775–1848 (Princeton University Press, 2017)

Attention to seculism has again entered popular discourse as part of the “clash of civilizations” rhetoric. Of course, there is a long history of academic study of secularization, the processes by which European states are said to have brought organized religion under their control, introduced bureaucratized management and technical calculation into their governing operations, and justified their sovereignty in terms of republican or democratic theory, that is, as representatives of the mandate of those considered citizens, not as the embodiment of God’s will. Secularism has been taken to be synonymous with these processes; the historical triumph of enlightenment over religion. But in its recent usage, it has had a simpler referent as the positive alternative, not to all religion but to Islam. In this discourse secularism guarantees freedom and gender equality while Islam in synonymous with oppression. Although some critics of Islam specify their target as political and/or fundamentalist Islam, responsibilities of the sovereign. —Jonathan Israel, Professor Emeritus in School of Historical Studies, in The Expanding Blaze: How the American Revolution Ignited the World, 1775–1848 (Princeton University Press, 2017)

The religious demands of Islam were said to deny both. Since then, the emancipation of women’s rights, Islam with a culture of oppression and terror. In this formulation marginalized the principle of social class. The landless could no longer be regarded as either so marginal or so subordinate as in Locke. Where Locke nurtured a negative conception of liberty, centered on protection of property, for Jeffersonians liberty was a positive, developmental concept to be upheld and advanced by the state and its agencies. Where in Locke, education is essentially a private matter geared to issues of property without any public role, in radical Enlightenment education is a public matter and something to which everyone has a right. Whereas in Locke, popular sovereignty extends only so far as the “compact” between people and the executive power, in the political philosophy of Franklin, Jefferson, Paine, and Price, the people share continuously in the exercise of government through elections, representation, and the right to free expression of opinion. In the constitution for the colony of Carolina that Locke drew up for the Lords proprietors of Carolina in 1669, and helped revise in 1682, for example, he took care to avoid erecting a “numerous democracy,” slavery was retained, the Indians had few rights, and most colonists were left firmly subordinate to the great landowners, or “landgraves” as Locke termed them. Finally, Locke’s toleration ruled out seculism, excluding atheists from toleration by the state and placing Catholics and Jews in a subordinate position in relation to the theologically tinted responsibilities of the sovereign. —Jonathan Israel, Professor Emeritus in School of Historical Studies, in The Expanding Blaze: How the American Revolution Ignited the World, 1775–1848 (Princeton University Press, 2017)
How and Why Do We Write the History of the Social Sciences?
A historical excavation of meaning allows a better grasp of buried significations and connotations

BY GEORGE STEINMETZ

Why should we write the history and sociology of the social sciences? Some have suggested that putting science under the sociological microscope is self-indulgent and dangerously relativist. Others mumble that only those who can’t do science study science. Ernst Wilhelm Eschmann, a Nazi sociologist, wrote in 1934 that a science that makes itself into its own object of study, that studies “its relations and boundaries with other sciences, its epistemology, methods, and history,” represents “the symptom of a profound sickness of an entire culture,” a “pathology of scientificity.” Few nowadays would be inclined to agree with a Nazi scientist. Yet these criticisms should not go unanswered, especially in an age when scholars are insistently called upon to demonstrate the usefulness of their work. The historical sociology of social science is useful. It is a necessary part of all social science. Before outlining the usefulness of this apparently useless form of knowledge, and sketching some of the methods currently being used to carry it out, I will briefly sketch its emergence.

The social study of knowledge and science did, as Eschmann’s comments suggest, emerge during a period of profound sociopolitical and cultural crisis in the first decades of the twentieth century. This period saw the stunning collapse of empires after World War I, the German economy’s plunge into hyperinflation, the hydra-like rise of fascist movements in Europe, and the first signs of organized resistance to colonial domination in Africa and Asia. There was also a widespread “devitalization of objective and rational life which ... declares science to be bankrupt,” as Gaston Bachelard observed in 1938. The skepticism about science was an international movement, but it was stronger in Europe than the United States and especially powerful in Germany and the late Austro-Hungarian Empire. The precedents here included Karl Marx’s critique of political economy as an expression of capitalist class interests and his more general argument that social existence determines consciousness. Nietzsche described scientific ideas as instruments of a will to power. Social class, political power, and religion were central explanatory factors in the nascent sociology of knowledge. Discussions among participants in the Budapest “Sunday Circle,” who included György Lukács and Karl Mannheim, circled around the idea of the dependence of knowledge upon social position. A number of social scientists and historians in Weimar Germany (Ernst Grünwald, Karl Mannheim, Max Scheler, and Alfred Weber) developed the approach that came to be known as the sociology of knowledge. A key development in this intellectual movement was the turn to analyzing the physical and natural sciences sociologically. The idea of explaining science sociologically had also emerged before World War I. In Elementary Forms of the Religious Life (1912), Émile Durkheim traced the basic epistemological categories of thought, and modern science, including time, space, number, cause, and force, to religious social practices and structures. George Sarton created the journal Isis, dedicated to the history of science, in 1913; this was followed by Osiris (1936) and Journal of the History of Ideas (1940). But the history of science was not “established in academic departments, centers, and programs in Europe and North America” until the 1950s and 1960s. The early historians of science were less oriented toward explaining science sociologically than to celebrating its inexorable march toward perfection and linking it to “something called ‘the modern mentality,’” whose home was in the West. Some of these founding narratives of the history of science were also ambivalent about the destructive aspects of scientific modernity, as Lorraine Daston points out, but this did not lead their authors to a full-fledged sociological account of scientific change until the 1960s.

This story of the rise of a more explicitly theorized history of science sometimes overlooks a more eclectic set of thinkers who began to develop sociological approaches to the history of science between the wars. The journal Science and Society, created in 1936, was “dedicated to the growth of Marxism scholarship” and announced a special interest in work that “illuminates the interdependence of science and society.” One contributor was Dutch mathematician Dirk J. Struik, who analyzed the “sociological stain” said to shape the development of even the purest forms of mathematics. In a series of articles published in the Austrian socialist journal Der Kampf, philosopher Edgar Zilsel analyzed the social roots of scientific causal thinking and the concepts of scientific progress and physical laws in religion, legal forms, state politics, and class relations. Philosopher Gaston Bachelard analyzed epistemic obstacles to scientific knowledge rooted in unconscious emotions, some of them linked to scientists’ anxieties about social status. American sociologist Robert K. Merton redeployed Max Weber’s Protestant Ethic thesis by explaining the rise of science in seventeenth-century England partly in terms of Puritanism.

A signal event was Thomas Kuhn’s The Structure of Scientific Revolutions (1962). New journals were created: Archive for History of Exact Sciences (1960), Minerva (1962), British Journal for the History of Science (1962), and Journal of the History of the Behavioral Sciences (1965). Chiron, the International Society for the History of Behavioral and Social Sciences, was founded in 1968. This history still does not explain why anyone should be interested in studying the history or sociology of social sciences. There are two sorts of justifications: some intra-scientific, and others of more general interest.

First, the historical sociology of social science helps social scientists understand their own quasi-spontaneous orientation toward specific theories, concepts, and methods. This form of “self-reflexivity” should not be imagined along the lines of a confessional; it is better described as a practice of self-objectification, in Pierre Bourdieu’s words. A historical excavation of meaning allows us to better grasp the buried significations and connotations of our current scientific language, which is often the result of earlier scientific battles. One example of the hidden sources of present-day conceptual language is the phrase social science. Different actors and institutions have preferred different genus labels. In battles over the scientific direction of UNESCO starting in 1946, Americans argued in favor of the label social science, which at the time suggested applied, mainly quantitative social research, organized around the individual person as the fundamental unit of analysis. French scholars pushed for UNESCO to adopt the label human sciences (sciences humaines), which for them encompassed philosophy and the humanities. Back in the United States at the same time, however, the phrase behavioral sciences was being used for the Ford Foundation’s program to fund the disciplines that had hitherto been known as social sciences. This was intended to avoid any confusion of social science with socialism and to emphasize the same set of approaches associated with “social science” at...
UNESCO. In Germany, the central debate pitted the traditional idea of *Geisteswissenschaften* against social science, which was usually rendered as *Sozialwissenschaft*. The new universities created after 1918 in Germany were the first to have “social science” divisions. The reassignment of sociology from the *Geisteswissenschaften* to the social sciences was largely completed between 1933 and 1945 due to the Nazis’ preferential support for applied research.14 Research on social science can make these sorts of histories part of the self-identifying practice of social scientists.

A second justification for this form of research is that many excellent social theories and concepts have been collectively forgotten and can be recovered and reintroduced. Serious research on Marx or using Marx’s ideas was largely excluded from professional social science in the United States and Germany before the 1960s.15 Durkheim and Weber were widely dismissed as outdated compared to American-style social science in France and Germany, respectively, after 1945. Zilsel was largely ignored, like most of the refugee sociologists from Nazi Germany, but his work has now been recovered.

A third justification for the history of social science is provided by sociologist Lothar Peter.16 Modern phenomena such as individualization, secularization, and capitalism may become more invisible as they become more universal, entering common sense and the taken-for-granted. Earlier observers who had a foot in two different social worlds and worldviews may have been able to perceive these nascent social processes more clearly than we are today.

The fourth justification for the history of social science is that it can help us understand the conditions in which social science flourishes or stagnates.15 Finally, the history of social science contributes to explaining (and thereby, perhaps, solving) various social problems. The social sciences permeate our social existence. They influence the configuration of our economies, social policies, educational systems, and foreign affairs. Here it is important to distinguish between the intentional application of social science to policy and the unintentional impact of social science on social practices.

Areas in which social science has been deliberately used to guide policy include eugenics and social insurance, labor market policies and poverty relief programs, and most recently, schemes intended to “nudge” individuals toward desired behaviors.16 One exceptionally well-documented instance of social science being directed toward government policy is modernization theory, which emerged in response to Harry Truman’s program for the development of previously colonial areas. Sociological ideas informed guided projects of community development, land reform, dam building, and the agrarian “Green Revolution.”17 Similar interventions were undertaken with social scientific guidance throughout the French and British African colonies during the postwar period under the guise of “development.”

Counterinsurgency campaigns have also commissioned social scientific research. During the Algerian Civil War, social scientists helped to design and run the resettlement camps created to undercut the uprising. The entire process was overseen by the Specialized Administrative Sections of the French Army, some of whose officers studied “Muslim sociology” and some of whom were charged with studying indigenous villagers before and after resettlement in order to discover how to make the camps more viable.18 A number of these officials were trained by the former colonial military officer and Durkheimian sociologist Robert Montagne at the Parisian *Centre des hautes études d’administration musulmane* (Center for Advanced Study of the Administration of Muslims).

Closer to home, the U.S. Defense Department has funded numerous social science projects since World War II. Efforts have been made to guide foreign policy using game theoretic models and computational systems, such as the Crisis Early Warning and Monitoring System.19 Among the most-documented Pentagon-funded counterinsurgency research initiatives are the Troy (1950s), Camelot (1960s), and Human Terrain System (2007–2014) projects and the...
Red Hangover: Legacies of Twentieth-Century Communism
Exploring the human costs of regime change twenty-five years after the fall of the Berlin Wall

BY KRISTEN ROGHEH GHOSEE

The Left, in a coalition with other centrist and leftist parties, would organize a marktplatz. East German faced a young adulthood of dramatic social and economic upheaval. Have just graduated from secondary school, and probably listened to Madonna and Fine and how things had worked out for her. This German girl would have been eighteen I longed to talk to her, to ask her what she remembered about that summer of 1985, I'd gone to summer camp in communist East Germany rather than in capitalist California. This word “friendship” in the context of communist East Germany between 1949 and 1989, the ideological enemies, surviving our adolescences on different sides of the Iron Curtain. From the placard on the display case, I understood that this girl was born in 1971, one year after me. Somewhere out there, this girl was now a woman about my age, and I longed to talk to her, to ask her what she remembered about that summer of 1985, and how things had worked out for her. This German girl would have been eighteen when the Berlin Wall fell, and nineteen when her country ceased to exist. She would have just graduated from secondary school, and probably listened to Madonna and Fine Young Cannibals as I did: “Express Yourself,” “Like a Prayer,” and “She Drives Me Crazy.” But where I had the luxury of geopolitical continuity in my personal life, this East German faced a young adulthood of dramatic social and economic upheaval.

When I wandered through the cobblestone alleyways leading off the main market square. I saw posters for two upcoming demonstrations in Jena. The right-wing, anti-immigrant political party Alternative for Germany (AfD) would organize a rally and a march in the Marktplatz while Germany’s left-wing party, Die Linke (The Left), in a coalition with other centrist and leftist parties, would organize a counterdemonstration in front of the church. The counterprotesters had plastered the small city with posters saying “FCK AfD” and “refugees welcome,” and I guessed that the center/left demonstrators would outnumber their right-wing counterparts.

But after the November 2015 terrorist attacks in Paris, and the spate of sexual assaults on women in Cologne on New Year’s Eve, many Germans feared for their future. The political appeal of the far right increased across the country, but particularly in the former states of the now-defunct Deutsche Demokratische Republik. In the eastern city of Dresden, “concerned citizens” formed a group called PEGIDA, which stood for Patriotic Europäer gegen die Islamisierung des Abendlandes (Patriotic Europeans against the Islamization of the Occident). Many ordinary men and women frustrated with their governments’ open-door asylum policies supported PEGIDA. On January 11, 2016, as LEGIDA (the Leipzig branch of PEGIDA) celebrated its one-year anniversary, about two hundred masked neo-Nazis marched through the immigrant-friendly neighborhood of Connewitz, smashing cars and windows with axes and baseball bats. One month later, in the sleepy village of Clausnitz, a few kilometers from the Czech border, an angry mob of Germans tried to prevent a bus full of refugees from reaching a shelter.2 Men and women in the crowd shouted “Wir sind das Volk!” We are the people, a slogan used by anticomunist protesters in 1989. Twenty-five years ago, this chant reminded the leaders of the GDR, that democracy meant rule by the people. Two days after the incident in Clausnitz, a hotel destined to house Muslim refugees caught fire in the Saxony town of Bautzen.3 Onlookers cheered as the roof burned. Federal politicians condemned the growth of right-wing xenophobia in the former states of the GDR, as ever more eastern Germans felt their voices ignored. As I walked through the streets of Jena back to my university apartment, I wondered about that girl in the museum and the woman she had become. If she still lived in town, which rally would she be attending? With which side would she sympathize, and why?

The year 2017 marks the one hundredth anniversary of the Russian Revolution and the creation of the world’s first socialist state. Much of the twentieth century was defined by the presence of this Soviet superpower and its challenge to the political economy of greed and exploitation that underpinned the capitalist system. Built on ideals of self-determination and social egalitarianism, the Soviet Union became a symbolic beacon of hope not only to people struggling against European imperialism and continued colonial domination, but also to Western workers locked in labor conflicts with avaricious employers. Even after the cruel brutalities of Stalinism and the economic failures of “really existing socialism” became clear, leftists continued to imagine alternative pathways to pure communism, the supposed highest stage of human history. When Eastern Bloc communism collapsed between 1989 and 1991, the whole project seemed consigned to the dustbin of history. The entire decade of the 1990s was one big ideological gloat-fest for the Cold War’s winners. Ding dong, the Reds are dead.

The end of the Cold War created an unprec edented opportunity to create a more stable, peaceful, and equitable world, for the Western countries to show moral strength and help rebuild the economies of the former Eastern Bloc in the way they once assisted the West Germans and the Japanese after World War II. But, the ideological war against communism continued as if the Cold War had never ended. The communist ideal became straitjacketed to the horrors of Stalinism for at least half a century. Of course, none of the twentieth-century experiments with the communist ideal ever came close to achieving communism in the Marxist sense, a future moment when the state wither away. To be technically correct, the countries of Eastern Europe should be called state socialist, with their governments’ open-door asylum policies supported PEGIDA. On January 11, 2016, as LEGIDA (the Leipzig branch of PEGIDA) celebrated its one-year anniversary, about two hundred masked neo-Nazis marched through the immigrant-friendly neighborhood of Connewitz, smashing cars and windows with axes and baseball bats.

5. “Really existing socialism” or “actually existing socialism” was a term embraced during the Brezhnev era to refer to the realities of Soviet-style central planning as opposed to Marxist ideals of socialism as a step on the way to pure communism.
Leonardo’s Watery Chaos

How an intellectual show and tell revealed stunning parallels among Leonardo’s studies of water and hydrodynamics

BY IRVING LAVIN

In order to explain my idea it seems appropriate to tell you how my interest in the subject came about. Shortly after I came to Princeton in the fall of 1974 I was invited to join a small group of people from a variety of fields in giving some account of what was new—recent developments and promising directions for future research—in our respective disciplines. Nothing ever came of the publication project the organizer of the meeting envisaged, but I was left scarred forever by the presentation of one of the participants in that little game of intellectual show and tell, the late Arthur Wightman, Professor of Mathematical Physics at Princeton University. Wightman spoke about the new and interesting studies of what he called catastrophe theory—that was the first time I had heard the phrase. In order to explain the subject to the laymen amongst us he gave the example of an object, like a stick placed in a stream of flowing water whose velocity is gradually increasing. The pattern of ripples caused by the obstacle develops and changes according to certain regular, mathematically definable rules, up to a certain point, literally an instant in time, after which the water becomes turbulent in the specific sense that it can no longer be described mathematically. The flow of water becomes unpredictable at the moment of what he called catastrophe. The problem of interest to the scientist was to try to push back (or forward) as far as possible the moment of catastrophe, reducing to a minimum the limit of predictability. The scientist then spoke of catastrophe, turbulence, and predictability—all of which I, as an art historian used to thinking in biblical and Christian eschatological terms, translated mentally into the term "chaos," which, as far as I can recall, Professor Wightman did not then use.

His presentation struck me, as an art historian, like a bolt of lightning because it suggested a new and interesting studies of what he called "chaos," which, as far as I can recall, Professor Wightman spoke about the new and interesting studies of what he called catastrophe theory—that was the fifth episode in a television series, "Dietro lo Specchio," broadcast by RAI 2 in Turin, Italy, October 21, 1981.

1 O mirabile giustizia di te, primo motore! Tu non ài voluto mancare a nessuna potenza l'ordini e cqualità de' suoi necessari effetti. Richter 1970, II, p. 285, No. 1134 (MS A, fol. 24v; Gombrich 1976, p. 45, fig. 93)

2 Primo libro delle acque: Il nulla ha superficie colla cosa e la superficie col nulla; e la superficie della cosa non e parte di essa cosa: seguita che la superficie del nulla non è parte di tal nulla, onde è necessario che una superficie sola sia termine comune di due cose che siamo in contatto come la superficie dell'acqua non è parte d'acqua e per conseguenza non è par e dell'aria, né altri corpi infra loro s'intenerpone. Che è quell'adunato che divide l'aria dall'acqua. (Brizio 1980, pp. 545ff., Cod. Arundel (Brit. Mus. MS 263), fol. 159a/b (my translation).
Discipline and Creativity
Anti-conformity, questions of usefulness, and free thinking in military and industrial settings

By Bregje F. van Eekelen

On April 6, 1960, Institute for Advanced Study Director Robert Oppenheimer received a letter from psychologist John E. Drevdahl, requesting his support in setting up a study among IAS Members to assess the factors that made them creative. Thus far, Miami University-based Drevdahl wrote, most studies were “based upon Air Force captains and industrial chemists,” noting understatedly that “I do not feel that [this]… resulted in the identification of those personality factors which are most characteristic of a truly creative and productive researcher.” While it is easy to relate to Drevdahl’s intuition that the military and industry were not the most suitable places to capture creative thinking, it was in those very places that creativity theories and techniques were flourishing in the United States at the time.

My research project on the social history of creativity shows that in the decade preceding the correspondence, processes to garner new ideas and techniques to think “beyond” existing bodies of knowledge became an object of professional interest in a contact zone of industry, military, and academia. Various elements of the military were early sites for the introduction of creative ideation techniques. Imagine for instance a psychologist (Abraham Maslow no less) imploring military officers in 1957 to get in touch with their unconscious: “out of this unconscious, out of this deeper self, out of this portion of ourselves of which we generally are afraid and therefore try to keep under control, out of this comes the ability to play—to enjoy, to fantasy, to laugh, to loaf, to be spontaneous.” By 1964, at least 50,000 Air Force members had taken creative problem-solving courses. U.S. Steel, Reynolds Metals, Ethyl Corp, GE Motors, New York Telephone Company, and Boeing Airplane were some of the earliest industrial places where free-wheeling buzz sessions, brainstorming, and group thinking emerged.

The scientific study of creativity, as carried out by Drevdahl and numerous others at the time, can be regarded as a legitimating element in this professionalization process. The field of creativity studies drew on a motley set of practitioners from military and industrial settings, engineers, philosophers, anthropologists, and psychologists. Many of their research endeavors were generously supported by military funding. The Cold War provided a generative backdrop for much of the interest in creative ideation, as it highlighted numerous pressing situations that necessitated a move beyond existing knowledge. In military survival training, for instance, recruits were exposed to creative thinking techniques in an effort to refrain them to “think” for themselves in unforeseen situations. Atomic future requirements participated to think the unthinkable and thus to let go of “fixed thinking.” As befitted the Cold War atmosphere, Drevdahl’s creativity study was also framed as a matter of national security. “[T]he survival of our nation, and perhaps, even of Western civilization,” he argued, depended on future creators. His thesis was that the most creative people were “of only moderately superior intelligence” (which does beg the question why he was keen to study IAS Members). Rather than intelligence, he hypothesized, “personality” might be the deciding factor in creativity, and personality was amenable to change, in that it was “produced by a person’s environment.” If his hypothesis that creativity was a matter of nurture rather than nature was correct, the United States government could step in by fostering an educational and institutional ecosystem that would “create more creative people.”

Drevdahl’s study can be regarded as a piece of what came to be called the “Sputnik-inspired era of creativity.” It was supported by United States funding from the National Defense Education Act (NDEA), which had been initiated following the shock of Sputnik. With the model of a plastic population whose creative abilities could be cultivated, one of the NDEA-sponsored challenges was to detect creative citizens. And indeed, the field of creativity studies participated in the widespread testing of the U.S. population. Besides Air Force captains and industrial chemists—and often in addition to both—children were subjected to a variety of tests meant to capture their creative ability. In addition to standard intelligence tests, soldiers and children were subjected to Rorschach tests, symbol-equivalence tests, Thematic Apperception Tests, drawing completion tests, figure preference tests, anagram tests, and mosaic construction tests. These tests were meant to detect those creative individuals whose future knowledge might contribute to national security. The Torrance Test for Creative Thinking was perhaps most successful in making creativity a measurable attribute, even as creativity’s operationalization—almost by definition—remained elusive.

While creativity was an object of scientific inquiry and a generative practice in military and industrial settings, it was at the same time pitted against predominant utilitarian rationalities. Creativity emerged precisely in those highly regimented settings in which thinking inside the box was institutionalized through military protocols or managerial rationalities. In these settings where knowledge-formation was under pressure, calls for anti-conformity, for the bracketing of the question of usefulness, and for non-hierarchical free thinking were made in an organized quest to overcome the limits of boxed-in thought. At its best, these calls for what I call “counter-knowledge”—knowledge that comes about by not following the existing rules of thought—were self-reflexive responses of managers and supervisors of highly rationalized workplaces who were concerned about the limiting effects of their own organization on knowledge production.

The early handbooks that were adopted in these settings are remarkable for a number of reasons. In their calls for thinking beyond existing knowledge, handbooks drew on (and fostered) a language of anti-conformity, free association, and the bracketing of usefulness. Many techniques were geared at collective creativity, although later manuals were adapted to include techniques for individuals to hone their creative self (and either way, it was cast as self-satisfying for the newly emerging “creative man”). They index a shift away from experience, which is deemed inadequate to think through the challenges of the present, let alone of the future. In creative thinking techniques, one should, instead, train oneself to be unencumbered by any past insights. This also explains the egalitarian principle that “everybody has ideas,” widely promoted in many of the manuals. A *Time* report from 1957 gave a description of a brainstorm session:

> They sit around in a comfortable, yellow-painted (yellow is considered conducive to thought) brainstorm room furnished in homey knotty pine, have plenty of pads, pencils and cigarettes. Lunch is served, then the session begins. A central problem . . . is presented, and everyone storms ahead. No idea is too fantastic; a cardinal rule is that no one laughs at an idea. If anyone is thoughtless enough to say, “It won’t work,” he is sternly reminded that such remarks are taboo by the chief brainstormer, who clangs a schoolmarm’s bell at him.

As can be gleaned from the “stern reminder,” to get at new ideas, early creative thinking techniques were very disciplined undertakings. Brainstorming was originally defined, for instance, in military idioms. One was “using the brain to storm a problem,” and freely associated “in commando fashion.” Creativity was cast as embodied practice, in which one had to train one’s mental muscle to “think freely” (rather than judiciously). Creative thinking techniques thus alluded to a managed form of freedom. Scientists, workers, engineers, military officers, and housewives had to manage their own minds so as to think more and differently—to overcome inhibitions, to learn to freely associate, to mine their unconsciousness. Despite its semantics of pushing thought beyond the boundaries of existing knowledge, creative thinking was usually undertaken with a fairly limiting goal in mind. It was geared at problem solving—in government, in corporations, in engineering, in warfare. Hence, just as “thinking outside the box” refers to the solution to a problem by thinking creatively about the quandary of a nine-dot square puzzle, creativity itself, despite its connotations of operating in a space “beyond” existing knowledge, was very much related to—but not questioning—the territory of the problems that call for its employment. Moreover, even if the hierarchal organization was criticized in the creative practices, and even as participants were encouraged to think for themselves, the ideation was organized specifically to serve institutions, to increase the knowledge base of organizations like the military or manufacturing corporations. Hence, while setting up a dichotomy in which time is being questered from all-too practical matters (semantically not unlike the IAS’s founding principles), creative thinking techniques were in the end geared at useful knowledge. Free association, creative ideation, and free-wheeling brainstorm sessions were used to engage unknowns

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1 In these puzzles, all nine dots should be passed by drawing four continuous straight lines without lifting the pencil—this puzzle can only be solved by drawing outside the nine dots.

(Continued on page 17)
How do we fit into our mathematical descriptions? Well, one thing I'll tell you is that in general, when you have dualities, things that are easy to see in one description can be hard to see in the other description. So you and I, for example, are fairly simple to describe in the usual approach to physics as developed by Newton and his successors. But if there's a radically different dual description of the real world, maybe some things physicists worry about would be clearer, but the dual description might be one in which everyday life would be hard to describe.

—Edward Witten, Charles Simonyi Professor in the School of Natural Sciences, in “A Physicist’s Physicist Ponders the Nature of Reality,” Quanta Magazine, November 28, 2017, bit.ly/2wufjUJR

Inevitably the Qur’an is rooted in its time, just as the brutal parts of the Hebrew Bible are. Even so, much of what the Qur’an proclaims is more benevolent and less barbarous than many of the fundamentalist doctrines that emerged in later centuries. We must remember that there is no jihad in the sense of holy war in the Qur’an and that there is no legal system called sharia. The Muslim Holy Book undoubtedly affirms the need to destroy those who take up arms against the One God. But it proudly acknowledges its affinity with the two other great monotheistic religions that preceded it and recognizes their prophets. This is why the Qur’an firmly anchors Islam among the Abrahamic religions.


We can respect the right of free speech without having to respect the ideas being uttered. Critical thinking is precisely not a program of neutrality, not tolerance of all opinion, nor an endorsement of the idea that anything goes. It is about how one brings knowledge to bear on criticism; it is a procedure, a method that shapes and disciplines thought.


If American citizens are good democrats, they will always be suspicious of government officials, and that will make them receptive to the information that whistleblowers provide. But they ought to be suspicious of whistleblowers, too. Citizens may not need to know the information that a whistleblower provides—indeed, the whistleblower might be acting for profit or publicity and not out of a desire for more democratic decision-making or a concern for law and morality. Sometimes, however, whistle-blowing opens a debate that should have started long before and exposes government activities that many citizens strongly oppose.

—Michael Walzer, Professor Emeritus in the School of Social Science, in “Just and Unjust Leaks,” Foreign Affairs, February 20, 2018, bit.ly/2HL6e0P

By investing in basic science, many other societal issues are addressed. Think about the money spent on defense, health care, and education. These days we are able to deal with diseases at the molecular level, only because fifty years ago we allowed scientists to ask basic questions about the foundations of life. Basic research is not a cost. It is an investment that in the end will allow us to be much more cost-effective in all of the other subjects.

—Robbert Dijkgraaf, Director and Leon Levy Professor, in Innovation Hub, February 23, 2018, bit.ly/2HsDaZP

Phenomena with different levels of complexity are understood in terms of different irreducible concepts—turbulence, survival, alertness, and so forth. The brain is an assembly of cells; a painting is an assemblage of chemical pigment. But what’s important and interesting is the pattern and structure—the emergent complexity.

—Martin Rees, Institute Trustee and frequent former Member in the School of Natural Sciences, in “Climatic Thinker Worries about Ends of Science and Humanity,” Scientific American, March 12, 2018, bit.ly/2esgfj3

Talking Points

On mathematics and science, religion and free speech, and gender and democracy

DISCIPLINE AND CREATIVITY (Continued from page 16)

(how to survive behind enemy lines, how to rebuild infrastructures after an atomic attack). These unknowns were not an occasion to facilitate the pursuit of curiosity, let alone to rethink the framing of the problem, but to enable concrete knowledge production within the parameters of the problem. The survival of the U.S. population, it was said, and at least of soldiers, depended on it. Creative thinking techniques were developed and disseminated in military survival courses, not to ignite blue-sky research, nor to raise questions about the (l)utility of war, but to facilitate very concrete survival in unforeseen situations. Even the U.S. response to the Sputnik shock—which instigated a serious self-examination regarding knowledge production and a renewed commitment towards science and education—was very much focused on training citizens to solve particular challenges in the near future (moonshots were in those days really that, efforts to reach the moon).

While IAS founding Director Abraham Flexner boldly stated that practical use was not the justification for scientific pursuits, the practical use was thus the justification for the introduction of creative thinking techniques in military and industrial settings. To be sure, the language of usefulness was espoused in creative thinking techniques, but its incorporation indexed that usefulness was, ironically, made applicable, and thus defanged from the temporal and fundamental conditions that characterize and sustain basic research. For the cultivation of curiosity was predicated on protection from being “deflected by considerations of immediacy of application,” in creative thinking techniques, the immediacy of application was also bracketed… but only briefly. The timescales of knowledge-production in creative thinking techniques and in fundamental science are in a sense incommensurable. While by its very nature, in fundamental science, you don’t know what you are going to find, nor when, in the case of brainstorming—which prohibited immediate calls for practicability; think of the schoolmarm’s bell in the quote above, which aimed to induce laughter and a return to a free-wheeling mood—ideas were often sorted out by supervisors within twenty-four hours. Creative thinking techniques were thus geared at thinking something new.

In sum, the processes of problem solving and the pursuit of fundamental science are often defined as contrastive. At the very least, their temporalities of inquiry are incommensurable (compare one day to thirty years). Moreover, whereas in creative thinking exercises the problem is not itself up for reconsideration, examining the very formulation of the problem is at the heart of basic science. Thus, while some of the language is similar—the objective of a move beyond existing knowledge through freedom of thought, the unlocking of creative thoughts through a deferral of questions of utility, and a seclusion from practical matters—the institutional conditions of both pursuits of knowledge are wildly dissimilar. Creative thinking techniques were primarily peddled in settings where thinking was boxed in. At the IAS, by design, there are no institutionally enforced limits to knowledge production. Conditions of both pursuits of knowledge are wildly dissimilar. Creative thinking techniques were primarily peddled in settings where thinking was boxed in. At the IAS, by design, there are no institutionally enforced limits to knowledge production—this would propel one to “look beyond” those strictures. On the contrary, its very institutionalization of freedom (including the freedom from practical obligations) make self-disciplining or managerial creative thinking practices unnecessary. Which is not, by any means, to say that the IAS doesn’t foster creativity, but given the conditions under which IAS Members are laboring, they hardly required disciplinary actions. The IAS is of course a curious place to extractive creativity from intelligence to begin with (as Drexhald proposed). And as a place for an academic elite, it is probably not the best representative of the principle that “everybody has ideas.” What is more, this elite is not a population that is particularly amenable to measurement (as soldiers and children may be). Oppenheimer stated as much by explaining that it was not proper for him to encourage Drexhald to contact the IAS Members, “nor is it consistent with the conditions of membership that our members, as members, be encumbered with any such operations.” A creativity researcher descending on IAS’s grounds might be just the thing that would get in the way of Members’ emerging thoughts.

Bregie F. van Eckelen, Member in the School of Social Science and a member of the Institute’s History Working Group, is Senior Researcher, History of Social and Human Sciences, at Erasmus University Rotterdam. At IAS, she is working on a book that traces the history of creative thinking in military and industrial settings and asks how the concept of “creativity” emerged in response to military and managerial rationalities, the standardization of questions of utility, and a seclusion from practical matters—the institutional conditions of both pursuits of knowledge are wildly dissimilar. Creative thinking techniques were primarily peddled in settings where thinking was boxed in. At the IAS, by design, there are no institutionally enforced limits to knowledge production—this would propel one to “look beyond” those strictures. On the contrary, its very institutionalization of freedom (including the freedom from practical obligations) make self-disciplining or managerial creative thinking practices unnecessary. Which is not, by any means, to say that the IAS doesn’t foster creativity, but given the conditions under which IAS Members are laboring, they hardly required disciplinary actions. The IAS is of course a curious place to extractive creativity from intelligence to begin with (as Drexhald proposed). And as a place for an academic elite, it is probably not the best representative of the principle that “everybody has ideas.” What is more, this elite is not a population that is particularly amenable to measurement (as soldiers and children may be). Oppenheimer stated as much by explaining that it was not proper for him to encourage Drexhald to contact the IAS Members, “nor is it consistent with the conditions of membership that our members, as members, be encumbered with any such operations.” A creativity researcher descending on IAS’s grounds might be just the thing that would get in the way of Members’ emerging thoughts.

References


March 6–8, 1960, correspondence between Drexhald, John E. and Oppenheimer, J. Robert, Director’s Office: General files, Box 16, felder Di-Dv (2): 41–73. From the Shelby White and Leon Levy Archives Center, Institute for Advanced Study.


change theorem, which was the starting point of Wiles’s proof of Fermat’s last theorem.”

The Abel Prize is an international award that acknowledges outstanding scientific work in the field of mathematics and comes with a monetary award of nearly $800,000. The Prize will be given to Langlands by H.M. King Harald V at an award ceremony in Oslo on May 22. Since the Abel Prize was first bestowed in 2003, seventeen of the nineteen recipients have been affiliated with the Institute as Faculty or Members.

Langlands’s profound insights in number theory and representation theory include the formulation of general principles relating automorphic forms and algebraic number theory; the introduction of a general class of L-functions; the construction of a general theory of Eisenstein series; the introduction of techniques for dealing with particular cases of the Artin conjecture (that proved to be of use in the proof of Fermat’s last theorem); the introduction of endoscopy; and the development of techniques for relating the zeta functions of Shimura varieties to automorphic L-functions.

Born in British Columbia in 1936, Langlands grew up in a small Canadian town where his father owned a building supply store. He enrolled at the University of British Columbia at age sixteen, where he was drawn to mathematics over physics, particularly algebraic computations. After earning his bachelor’s and master’s degrees from the University of British Columbia, Langlands earned his Ph.D. from Yale University in 1960. He taught at Princeton University and Yale University, became a Member in the Institute’s School of Mathematics in 1962, and was appointed to the Faculty of the Institute in 1972.

In his conjectures, Langlands drew on the work of Harish-Chandra, Atle Selberg, Goro Shimura, André Weil, and Hermann Weyl, among others with extensive ties to the Institute. His early work in representation theory involved adapting the methods of former IAS Professor Harish-Chandra to the theory of automorphic forms. “His papers were among the first—Selberg’s papers and then Harish-Chandra’s—that I studied very carefully, that I actually worked with, that I actually used in what I was doing,” Langlands has said.

Endoscopy, which aims to distinguish the internal structure of automorphic representations of different groups, arose from Langlands’s study of the zeta functions of Shimura varieties developed by former IAS Member Goro Shimura and in the theory of the discrete series, a theory created by Harish-Chandra at the Institute in the sixties. The modern theory of Shimura varieties, so named by Langlands in the 1970s, began with the development of the theory of abelian varieties with complex multiplication by Shimura, Yutaka Taniyama, and Weil in the mid-1950s.

Langlands’s principle of functoriality, which in the many cases where it has been proved uses the Selberg trace formula and the fundamental lemma to link automorphic representations of different groups through their L-groups, was informed by the theory of class fields, and the representation theory of semisimple Lie groups in the form given to it by Harish-Chandra.

Some aspects of the Langlands program have been proven, such as Laurent Lafforgue’s proof of the “Langlands conjecture for function fields,” which Lafforgue presented in a series of lectures at the Institute in 1999 and for which he was awarded the Fields Medal in 2002. While a Member at the Institute, Bao Châu Ngô realized a proof of the fundamental lemma, a technical device formulated by Langlands that links automorphic representations of different groups, for which Ngô was awarded a Fields Medal in 2010. Other aspects have led to seemingly unrelated theorems, such as Andrew Wiles’s 1994 proof of Fermat’s last theorem.


View the 2018 Abel Prize announcement at ow.ly/jqRJ30jzXJf.

Listen to remarks made by Robbert Dijkgraaf, IAS Director and Leon Levy Professor, as part of the 2018 Abel Prize activities: ow.ly/c7M850h8FT.

Much of the modern theory of automorphic forms is governed by two fundamental problems that are at the heart of the Langlands program: Langlands’s principle of functoriality and the general analogue of the Shimura-Taniyama-Weil conjecture on modular elliptic curves. The work of Wiles that led to the proof of Fermat’s last theorem suggests that the two problems, among the deepest questions in mathematics, are inextricably linked.

In addition to changing the field of automorphic forms drastically, making the infinite-dimensional representation theory of reductive groups into a major field of mathematical activity, and introducing a general class of L-functions that have had major consequences for algebraic number theory, Langlands’s conjectures have had a significant influence on other fields, such as physics. In the geometric Langlands program, created by former IAS Member Vladimir Drinfeld and collaborators, some of the ideas are converted from number theory into statements in geometry. The geometric form is particularly rich for implications in theoretical physics, especially string theory. In 2006, Edward Witten, Charles Simonyi Professor in the School of Natural Sciences, cowrote a 225-page paper on the relation of part of the geometric Langlands program to ideas of the duality between electricity and magnetism.

Among Langlands’s honors are the Shaw Prize in Mathematical Sciences (2007); the Frederic Esser Nemmers Prize in Mathematics (2006); the Grande Médaille d’Or (Gold Medal) of the French Academy of Sciences (2000); the Wolf Prize in Mathematics (jointly with Andrew Wiles, 1996); the inaugural National Academy of Sciences Award in Mathematics (1988); the Common Wealth Award (1984); and the American Mathematical Society’s Cole Prize (1982). —Kelly Devine Thomas, Editorial Director

On March 20, the day the Abel Prize was announced, the Institute community gathered in Simons Hall to celebrate Robert Langlands with a reception and brief remarks, excerpts of which follow.

Whether you are a Platonist or not, I think mathematicians often feel that their research is a discovery, not an invention. Math is perhaps an archeological excavation. And many of us are very happy to find just a small fragment. And some of us find a beautiful treasure. But very rarely does one find, as you did, Bob, a Rosetta Stone, to use André Weil’s favorite metaphor.

—Robbert Dijkgraaf, Director and Leon Levy Professor

This year, in the School of Math we have a very special activity in and around the arithmetic theory of locally symmetric spaces. There have been very few lectures in which Bob’s techniques and conjectures have not appeared in the first five minutes. And in almost all the lectures, his ideas remain everywhere dense. —Peter Sarnak, Professor in the School of Mathematics

Bob is very well known for number theory and representation theory, but his interests go far beyond that. He was really responsible for broadening our School, bringing in different directions because he has such broad interests. In fact, one of the things that is maybe not so well known is that, when I arrived, he was working in statistical mechanics. And he actually made very important conceptual progress there. Things which are called SLE these days had their roots in some of Bob’s work where he was understanding geometric ideas behind statistical mechanics. —Thomas Spencer, Professor Emeritus in the School of Mathematics

The majority of my work has been devoted to working on the beautiful theory that Robert has put forward and trying to poke a little bit at the edges of what he’s suggested. And I’m certainly not the only one. There’s a large percentage of the audience who owes their career in some form to the vision that Robert has put forward. I was ecstatic today when I heard about this prize. It is very richly deserved and I’m just happy to be here and to say thank you to him for his mathematics and for his encouragement.

—Joyce Getz, Member in the School of Mathematics
De Lellis's groundbreaking achievements in fluid dynamics and the regularity of minimal surfaces earned him the prestigious Fermat Prize in 2013. His transformative and original work in the field has also resulted in the Stampacchia Gold Medal (2009); the SIAM Activity Group on Analysis of Partial Differential Equations Prize (2013); the Caccioppoli Prize (2014); and the Lucio & Wanda Amerio Gold Medal Prize (2015). He was also an invited speaker at the 2010 International Congress of Mathematicians in Hyderabad, India, and a plenary speaker at the 2012 European Congress of Mathematicians in Kraków, Poland.

De Lellis earned degrees from Scuola Normale Superiore di Pisa and the University of Pisa. He held a postdoctoral position at the Max Planck Institute for Mathematics in the Sciences (2002), followed by a postdoctoral residency at Eidgenössische Technische Hochschule Zürich (2003). De Lellis joined the faculty of Universität Zürich in 2004 as Assistant Professor of Mathematics, and he became Professor in 2005. He is an engaged member of the mathematical community and serves on the editorial boards of many leading publications in the field, including Annales de l'Institut Henri Poincaré, Calculus of Variations and Partial Differential Equations, Inventiones Mathematicae, and the Journal of Differential Geometry.

Trivellato and her work have been recognized with numerous honors and fellowships. In addition to her membership in the School of Historical Studies, Trivellato has held a Fulbright Scholarship (1996–97) and fellowships from the Radcliffe Institute for Advanced Study (2006–07), the American Council of Learned Societies (2006–07), the American Academy in Berlin (2013), and the John Simon Guggenheim Memorial Foundation (2012–13). Trivellato is on the editorial and advisory boards of many leading publications in the field, including the American Historical Review, the Journal of Economic History, Jewish Social Studies, and Trans Global.
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