



Natural Selections

A Magazine of the Tri-I Community

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Lewis Thomas Prize Lecture: Method and Marvel in Science

By Mary Whelan

In the labs at The Rockefeller University, scientists' attention is turned to the microscale as they investigate the fundamental mechanisms of life and disease. At the Lewis Thomas Prize Lecture, held at Rockefeller this spring, astronomer Chris Impey asked the audience to turn our attention upward and outward to the vastness of the entire observable universe and the possibility of extraterrestrial life.

The Lewis Thomas Prize for Writing about Science is an international award "honoring the scientist as poet." Awarded annually since its establishment by Rockefeller's Board of Trustees in 1993, it recognizes "the rare individual who bridges both worlds" of science and humanities and is named in honor of its first recipient, the influential physician, poet, and writer Dr. Lewis Thomas.

President Rick Lifton introduced this year's prize winner, Chris Impey, with an anecdote about Impey's high school physics teacher. As Lifton told it, the teacher seemed determined to turn his students away from the study of physics and astronomy with his dry, monotone explanations of the mathematical laws underlying the way our world works. Appalled by his teacher's lack of wonder at the expansiveness and elegant order of the physical world, Impey became set on pursuing a career in science with the hope of satisfying his already relentless curiosity.

Today, Impey has had a nearly fifty-year career as an astronomer, professor, and writer that has taken him all over the globe. His contributions to astronomy and

science writing have been recognized by many awards for research, teaching, and science writing. In his Lewis Thomas Prize lecture, Impey took us on a vivid journey through space as he discussed the search for exoplanets and extraterrestrial life and the questions this search raises, as well as the methodical and often arduous work required to study and make sense of the cosmos. Further insight into the exhilarating, sometimes highly speculative search for life on other planets can be found in Impey's book, *Worlds without End: Exoplanets, Habitability, and the Future of Humanity*, published by MIT Press in 2023.

What became clear throughout the evening, from Impey's talk to the dinner discussion that followed, is that a sense of wonder is inherent to his work. His and other astronomers' endless curiosity can only be satisfied by meticulous, painstaking experimentation, a process that may seem far removed from the childlike wonder that initially inspires it. However, this methodical work in turn drives discovery that informs and increases their wonder at the elegant complexity of the natural world.

This interplay between imagination and rigor also shapes Impey's writing. In his book, Impey provides a comprehensive walk-through of the experimental discovery methods used in the hunt for exoplanets—planets outside our solar system—and their applications and limitations. His writing style is accessible, from comparing the optics systems of massive space telescopes with the optics of the human eye to poetically likening giant, specialized devices called starshades to the petals of a

sunflower. Quotes from Epicurus, Shakespeare, and other philosophers and writers are interspersed throughout, along with personifications of planets and whimsical descriptions of their character traits. Fittingly, Impey quotes Lewis Thomas twice—once on his appreciation for Bach, and once from his lauded work *The Lives of a Cell* on the singularity of life on Earth within the solar system: "Viewed from



the distance of the Moon, the astonishing thing about the earth, catching the breath, is that it is alive . . . Aloft, floating free beneath the moist, gleaming membrane of the bright blue sky, is the rising earth, the only exuberant thing in this part of the cosmos."

Contrast this vision of Earth with the one made famous by the *Pale Blue Dot*, an image taken by NASA's Voyager 1 in 1990 from a distance of six billion kilometers in which Earth is barely a speck on a dark sky. Impey embraces both depictions in his writing, as he balances an appreciation for the individuality of Earth with an awe at the great expanse of the observable universe and the endless possibilities it contains.

To help his readers appreciate this vast expanse, Impey provides a staggering sense of scale. In the 1990s, the Hubble Space Telescope counted 10^{24} , or one million billion billion, stars—and there are many more planets than stars. He estimates that there are four billion Earthlike planets in the Milky Way, and up to 10^{21} —one thousand billion billion—Earthlike planets, or "potential biological experiments," in the universe. This "exoplanet census" inspires the search for extraterrestrial life.

"Life is tenacious and has gripped this planet like a fever for four billion years."

Looking back down to Earth, Impey notes that "Life is tenacious and has gripped this planet like a fever for four billion years . . . and has radiated into almost every conceivable environmental niche," which could argue for life's ability to thrive beyond Earth and throughout the universe. On a more dramatic note, he quotes philosopher Thomas Carlyle on the implications of worlds beyond our own: "If they be inhabited, what a scope for misery and folly; if they be uninhabited, what a waste of space!"

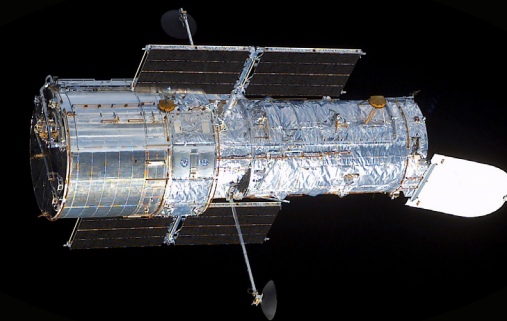
The first exoplanet was not discovered until 1995, but outer space, exoplanets, and their potential to host life have long inhabited the human imagination. In 325 B.C., Epicurus wrote of an "infinite number of worlds" that are host to life. In the late nineteenth and early twentieth centuries, H.G. Wells' *The War of the Worlds* and Ray Bradbury's *The Martian Chronicles* captured the public imagination, along with popular movies from *Le Voyage dans la Lune* in 1902 to *Alien* and *E.T.* to *Project Hail Mary*, released in March 2026.

But as alien worlds live on in the public imagination, astronomers are the ones tasked with studying them. In his talk, Impey recounted a day on the beach in Hawaii, where he was reflecting on those worlds beyond our own. He recalled estimating that the volume of sand under his beach towel might be around one cubic meter, which would contain about fifty billion grains of sand. This is approx-

imately equal to the number of potentially habitable worlds in the Milky Way. Looking down the stretch of beach, he estimated that the number of grains of sand on the entire beach is equivalent to the number of potentially habitable worlds in the entire universe. How long would it take to inspect each of them for life?

To make sense of the cosmos, astronomers must study it in a systematic, rigorous way. Impey quotes Kepler mission scientist Natalie Batalha, who became a physics major when she "encountered the elegance of applying mathematics to nature" and "was moved that the universe could be described in numbers."

In *Harmonice Mundi* (*The Harmony of the Worlds*), Johannes Kepler—the seventeenth century polymath for whom the Kepler mission was named—discusses the geometry of planetary orbits and revives



the classical idea of the *musica universalis*, the celestial symphony of the harmony of spheres. In the same work, Kepler introduces and proves his third law of planetary motion, which states that the square of a planet's orbital period is directly proportional to the cube of its distance from its star. Thus, the idea that inspired Batalha—that nature possesses an underlying order and that mathematics can reveal it—has animated astronomers' work for centuries.

Impey writes that "As first used by Pythagoras, [the word] cosmos conveys a view of the universe as a complex yet orderly system. The creation of the universe establishes order out of the chaos." Chaos is not merely a description of the universe's complexity; the behavior of many planetary systems can be described by mathematical chaos theory, in which systems' behaviors

are deterministic but extremely sensitive to initial conditions, with tiny perturbations having effects that amplify over time. This phenomenon is commonly known as the butterfly effect. Despite this infinite chaos, the fundamental laws underlying nature enable the systematic study of the universe at the micro- and macroscale, as we use increasingly advanced experimental tools to find order within it.

The idea that nature possesses an underlying order and that mathematics can reveal it has animated astronomers' work for centuries.

Astronomers use a wide range of techniques to study exoplanets, including both direct and indirect measurements. The first exoplanets were detected indirectly, by observing the effect of a planet's orbit on its star. This was accomplished using Doppler spectroscopy, in which tiny shifts in a star's spectrum caused by the gravitational pull of an orbiting planet are detected, with these changes repeating predictably with each orbit. This method requires extremely high-precision instruments to detect such signals, which are often masked by noise.

Another method for exoplanet detection is the transit method, in which the shadow cast by a planet on its star is observed by continually measuring a star's brightness over time. Again, a sense of scale helps us appreciate the high precision required. Our close neighbor Jupiter casts a shadow that would dim the brightness of the sun by about one percent, last for a single day during its twelve-year orbit, and only be observable from a particular orientation. Blink and you might miss it. In another example, a telescope in space must be aligned within one meter of its starshade, a spacecraft placed forty thousand kilometers in front of the telescope which mitigates diffraction from a star's light to improve the quality of observations. Exoplanet discoveries require many, many observations taken over a long period of time, in a process Impey compares to "looking for a needle in a haystack." The search for the first exomoon

took NASA’s most powerful supercomputers five million hours of processing time.

Impey himself is no stranger to the grueling demands of the work. “As a graduate student, I had my own experience with looking for a needle in a haystack,” he writes. “Hunting down supermassive black holes is exciting, but comparing millions of images by staring at them with a simple eyepiece felt like a Sisyphean task.” He describes the work in his field as “brutally difficult” and discusses how limitations of the technology in turn limit the planets that can be identified and studied, in terms of distance, size, orbit, and the fundamental limits of the telescopes. Throughout his lecture and his writing, Impey emphasizes the demands of the work, stating that “What is required is patience—and fortitude.”

Beyond the technical challenges of the work itself, another difficulty arises in knowing where to look and what to look for. In the search for potential life on other planets, the common wisdom has been to follow the water. As Nobel laureate Albert Szent-Györgyi stated, “Water is life’s mat-

ter and matrix, mother and medium. There is no life without water.” Astrobiologists have therefore focused their search for life on planets in the so-called Goldilocks zone, where water can exist as a liquid at the surface, and used this metric to define the traditional zone of habitability. However, Impey suggests that our perception of uninhabitability on perceived hostile planets could simply be a limit of our imagination.

Are the only essential ingredients for life water, energy, and carbon-rich material? Must all of these be essential? There is no firm consensus among astronomers and astrobiologists about what life might look like on other planets. Carl Sagan even wrote a paper about the potential for life in Jupiter’s atmosphere, which Impey charmingly describes as a “whiff of Hades.” During his lecture, Impey asked the audience to accompany him on a journey from the “weird” to the “really, really weird” as he stretched our imaginations of what the building blocks of life in an alien world might consist of—from noncanonical amino acids (weird) to methane-based life forms (really weird) to life that does not rely on any form of the central dogma of DNA to RNA to protein as we know it (really, really weird).

Since we do not know what any alien life form might look like or be composed of, this creates a fundamental problem: it is difficult to detect something without knowing what it is that you are trying to detect. Or, as one prominent scientist in the audience pointed out in the discussion following Impey’s lecture, the fact that all life on Earth relies on the same underlying biochemistry may suggest that evo-

lution repeatedly converges on a limited set of workable solutions, and that Earth really is the only place in which this experiment has worked. Impey acknowledges these limitations, but insists that in “a field that is limited only by imagination,” meaningful scientific progress remains possible.

Besides not knowing where to look and what to look for, we have a very certain lack of evidence that there is life out there. While Impey is convinced that in terms of probability, he can confidently say that there is life in our universe (and, he suspects, intelligent life), he points out that Earth has many singular qualities and that our solar system is an “oddball.” He also writes that “Despite the almost certain abundance of habitable real estate in the universe, it’s conceivable that life on Earth was a unique accident.”

Life on Earth may be resilient and fill every niche, but it relies on the same basic bio-

chemistry and metabolic pathways. Scientist James Lovelock, who studied the Martian atmosphere for signs of life, observed that “The more I looked at our atmosphere, the more astonishing it was. It was weird, weird beyond belief,” and that the chances of the precise combination of elements in Earth’s atmosphere “occurring by ordinary, random chemistry are so remote that no computer will even give you a figure.”

Impey provides another striking example of the precise balance of many factors necessary to achieve life as we know it when he describes two “identical Earths,” with one receiving slightly weaker radiation

from its star. This would affect the fundamental mechanisms of life, which would in turn affect the evolutionary clock. “After 4.5 billion years on one, you’d find plants, animals, and us,” he writes. “While after 4.5 billion years on the slightly cooler Earth, you’d [see] barren land and no life in the oceans.” He goes on to say that “long-term habitability of our planet wasn’t inevitable but instead contingent . . . we’re literally lucky to be alive.”

If our solar system is such an “oddball,” this raises the conundrum of what assumptions to make when determining how to define habitability elsewhere. As planetary scientist Edwin Kite put it, researchers face “the inadequacy of working from Earth’s analogy.”

In addition to the technical difficulties required of astronomy research and exoplanet hunting, several other practical difficulties exist. Early Earth’s atmosphere was toxic to life, and for millennia no signs of life would have been detectable from afar. As millions of years are a blink of an eye in geological time, another source of uncertainty in the search for biology on other planets arises from being unable to determine if we are observing a planet at the right moment in its geological history.

Further, for the five thousand exoplanets identified, Impey states that studying their atmospheres to detect traces of life would require five million observations taken over a span of ten years with the assistance of forty high-resolution spectrographs yet to be built, and there is no compelling evidence that any of these five thousand targets would be a hit. As yet, the closest exoplanet to Earth in terms of

mass, orbit, star, and chemical composition is a planet called Kepler 452b. Reaching this planet to retrieve samples would take Voyager 1 ten million years. A planned mission to Saturn’s moon Titan—a close neighbor by astronomical standards—will take two decades and billions of dollars.

In the face of these challenges, Impey remains incredibly optimistic. “With persistence along with a few billion dollars here and there, if there’s life in our solar system, we will find it in the coming decades,” he writes. “With billions of habitable worlds in our galaxy, only a pessimist or a killjoy can suppose that all of them are dead.” In his lecture, Impey likewise stated his certainty that there is life out there and emphasized that, while ample challenges remain, this quest is fueled by endless curiosity and zeal.

The dinner following Impey’s talk was full of professors from Rockefeller, Weill Cornell, Princeton, and other peer institutions. It was a distinguished group, with several Nobel laureates in attendance. In this room full of accomplished scientists, the discussions at the dinner tables were dominated by genuine curiosity about Impey’s work and its implications, rather than technical methodologies or conceptual breakthroughs. Questions and speculations were raised about where the field of astronomy might go next. The guests’ excitement at the increasing convergence of astronomy and biology was clear, as well as their wonder at the sheer scale of the unanswered questions that still remain.

Biologists at Rockefeller are no strangers to the persistence required to study life at the molecular level. As in astronomy, progress often depends on long stretches of repetitive, fastidious work punctuated by brief moments of discovery. While the fundamental biology questions studied at Rockefeller might not have the same grip on the public imagination as space exploration and alien life, occasionally these worlds do converge in popular culture.

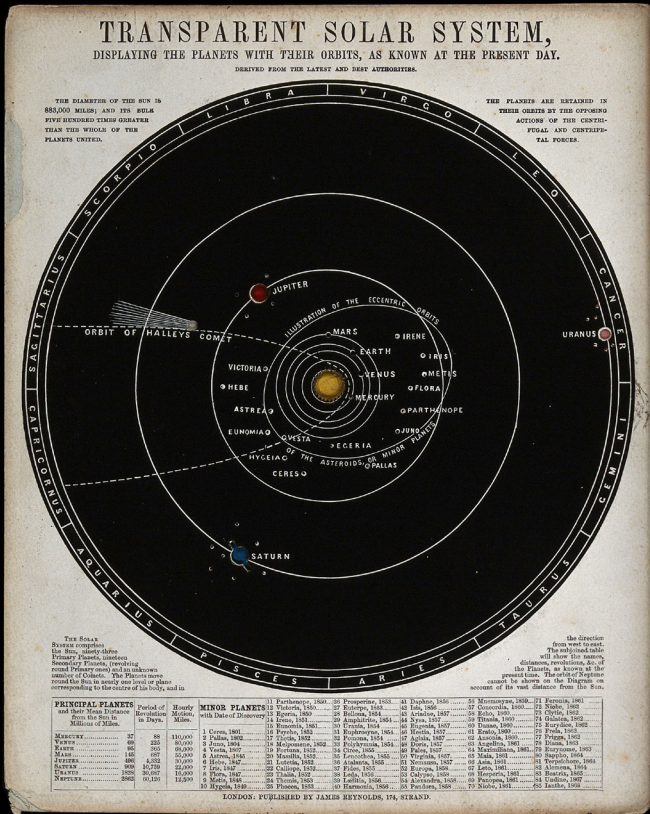
In the recent film adaptation of *Project Hail Mary*, Earth’s fate depends on the success

of experimental biology. (For a review, see page 22.) The protagonist, a molecular biologist recruited by the government to investigate sun-eating microbes, arrives at his solution through trial and error, improvisation, and relentless observation. This process includes crude experiments—such as the “Venus in a box” improvised using supplies from Home Depot—incremental progress, and rare flashes of insight. Even in science fiction, discovery happens through tedious experimentation rather than cinematic revelation.

Early astronomers mapped the motions of the planets long before the discovery of exoplanets became possible. In biology, similar meticulous work—from classical genetics experiments to sequencing the human genome—has revealed the intricate worlds housed within our cells. In both disciplines, discovery emerges from a feedback loop between curiosity and discipline as wonder motivates hard work, which leads to a greater understanding that deepens our wonder.

Quoting Shakespeare, Impey writes that the planets “observe degree, priority, and place.” Scientists continue to uncover that hidden order, even when nature initially appears chaotic. As NASA scientist Jessië Christiansen stated, “My favorite thing about space is all of the things we don’t know yet.”

Impey shares this sense of optimism. “We won’t know if there is biology anywhere else unless we look . . . Time will tell if this is a quixotic quest,” he writes. While practical and conceptual difficulties are abundant, he points out that “then of course there’s that human instinct for exploration and our natural curiosity, both of which are unstoppable.” ■



Transparent solar system, displaying the planets with their orbits, as known at the present day. Source: Wellcome Collection.



OPINION

Diversity Under Pressure Needs Institutional Actions Rather Than Statements

By Valerie Gallegos

“The road to hell is paved with good intentions” is a familiar phrase with two interpretations: actions can lead to unforeseen harm, and good intentions are worthless without proper execution. It is not a phrase that I would typically associate with diversity-related initiatives in higher education. However, recent financial and political pressures have highlighted the phrase’s unfortunate relevance to institutional diversity, equity, and inclusion (DEI) policies. Cornell University, which has long been a champion of diversity in

Weill Cornell Medicine has received multiple Higher Education Excellence in Diversity (HEED) awards, which recognizes institutions with outstanding commitments to academic excellence, diversity, equity, and inclusion throughout admission, recruitment, and outreach efforts. Insight into Diversity (now Insight into Academia) Magazine’s Higher Education Excellence in Diversity (HEED) Award also underwent a name change in 2025 and is now referred to as the Higher Education Excellence and Distinction (HEED) Award. The HEED award was established in 2012 and worked to spotlight institutions and diversity leaders who were committed to advancing DEI principles. This name change, as the magazine explains, will allow institutions from states with anti-DEI legislation to share “their best practices in recruitment, retention, leadership, and innovation with our readers.”



Black Lives Matter protest in New York City on June 9, 2020. Source: Stan Wiechers via [Wikimedia Commons](#). Used under [CC BY-SA 2.0](#).

higher education, offers a look into how quickly DEI commitments can unravel.

Cornell adopted six [core values](#) in 2019: 1) purposeful discovery, 2) free and open inquiry and expression, 3) a community of belonging, 4) exploration across boundaries, 5) changing lives through public engagement, and 6) respect for the natural environment. These guiding principles were established to lay the foundation for a more equitable and inclusive atmosphere at all Cornell campuses, in line with the institution’s founding principle to enroll students from all backgrounds (“any person . . . any study”). Weill Cornell championed these values by [establishing](#) the Office of Student Diversity, [appointing](#) the first senior associate dean for diversity and inclusion, and [celebrating](#) the first Diversity Week under the direction of Dean Augustine Choi during his six-year tenure (2016–2022). Dean Choi and Dean Barbara Hempstead also saw the development and expansion of research initiatives to promote diversity in science, including the NIGMS-funded Weill Cornell Initiative for Maximizing Student Development (IMSD) T32 leadership program. In parallel to institution-led diversity and inclusion initiatives, student-run organizations, such as the Tri-Institutional Minority Society (TIMS), fostered a sense of community and belonging amongst stu-

dents from underrepresented backgrounds. When I was going through the graduate school application process in 2018, I was pleasantly surprised to learn about all these diversity initiatives. I was drawn to the newly established IMSD program, which I found to be a helpful continuation of the professional training I received while participating in similar undergraduate research fellowships. Being an IMSD trainee allowed me to get a head start on lab rotations and gave me access to mentorship from the program’s directors and funding

to help cover enrollment expenses. As a first-generation scientist, I have been able to rely on the IMSD program to help navigate challenging situations and feel supported during my time at Weill Cornell.

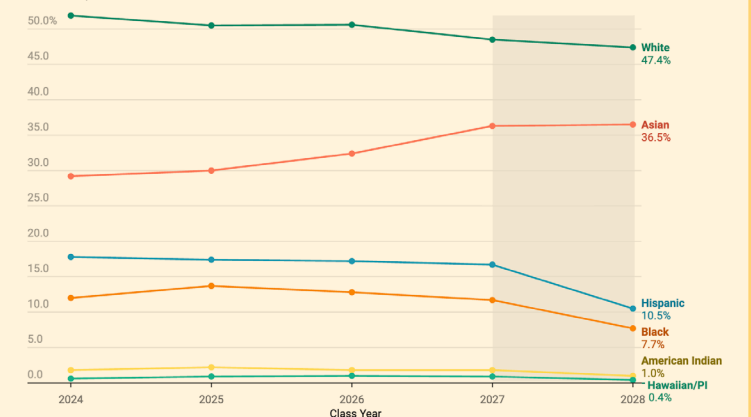
As we all experienced, 2020 was a pivotal year in the United States. While adjusting our lives to the COVID-19 pandemic, we also witnessed waves of protest against police brutality and injustice. Cornell University President Martha Pollack openly condemned the publicized police killings of George Floyd, Breonna Taylor, and Ahmaud Arbery through a series of statements sent to institutional emails.

“I want to make clear, both personally and on behalf of Cornell, that we will do all we can as a university to address this scourge of racism. We will address it directly in our educational programs, in our research and in our engagement and related activities, working through the ways we know best to push for a world that is equitable . . .”

—President Martha Pollack, from “Statement on the Recent Killings of Black People in America”

First-Year Cornellians' Self-Reported Race/Ethnicity by Percentage

Following the Supreme Court’s overturn of affirmative action last year, Cornell enrolled a lower percentage of students who reported their race/ethnicity as Black, Hispanic or White. All reported racial categories saw declines except Asian, which saw a 0.2 percent increase.

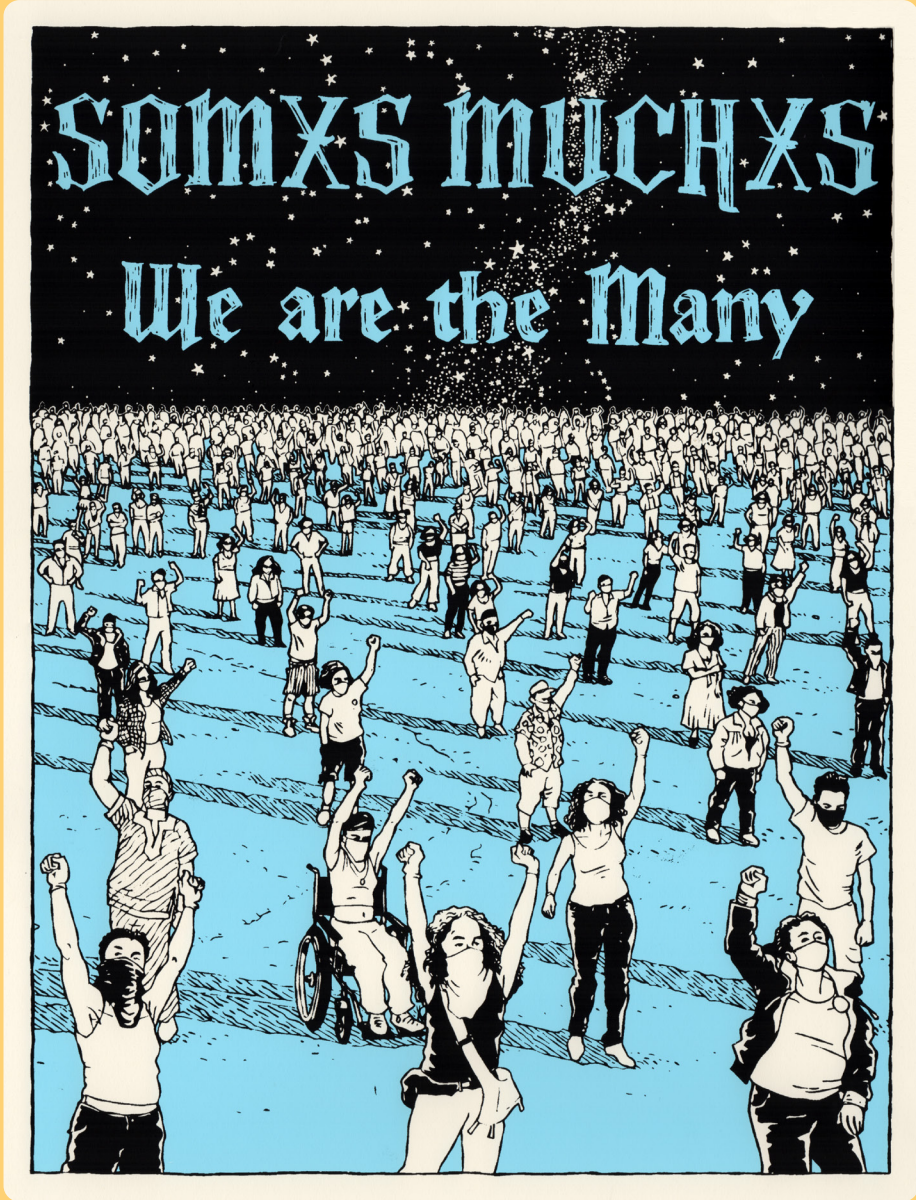


Includes U.S. citizens, permanent residents and refugees. Percent totals sum greater than 100 percent, as students may select more than one race/ethnicity.
Chart: Eric Reilly / Sun Assistant Managing Editor • Source: Cornell Institutional Research & Planning • Get the data • Created with Datawrapper

Recognizing the need to address systemic racism in academia after major Black Lives Matter protests, Weill Cornell [commissioned the Social Justice and Anti-racism Task Force](#) (SJAR). But financial pressures exacerbated cracks in the implementation of diversity and inclusion initiatives. The negative impact of COVID-related social distancing was evident. At a time when all classes were virtual and student-led organizations were expected to operate under strict health guidelines, Weill Cornell's once-vibrant student life was dimmed and isolated. After COVID restrictions were lifted, I began to participate in student-led diversity organizations, but quickly noticed the lower number of participants at meetings and events. This decline in participation coincided with reduced institutional financial support for student-driven diversity initiatives. Right after the first wave of budget cuts due to COVID, we were faced with the looming Supreme Court decision on race-conscious affirmative action admissions policies. This was a key decision that would not only impact the makeup of incoming classes, but could also create legal and political vulnerabilities for all diversity-related offices and initiatives. To address concerns, the Office of Student Diversity and SJAR [co-hosted a two-part session](#) discussing the future of affirmative action during the 2023 Diversity Week. I participated as a student representative on the panel for the second session, which sought to brainstorm actions the institution could take to support underrepresented individuals. Throughout the session, I heard my own fears reflected in the concerns of my peers and faculty. This feeling was magnified when I realized that the room was filled with the same familiar faces that have always worked to defend diversity initiatives, and not the people with the authority to directly implement them.

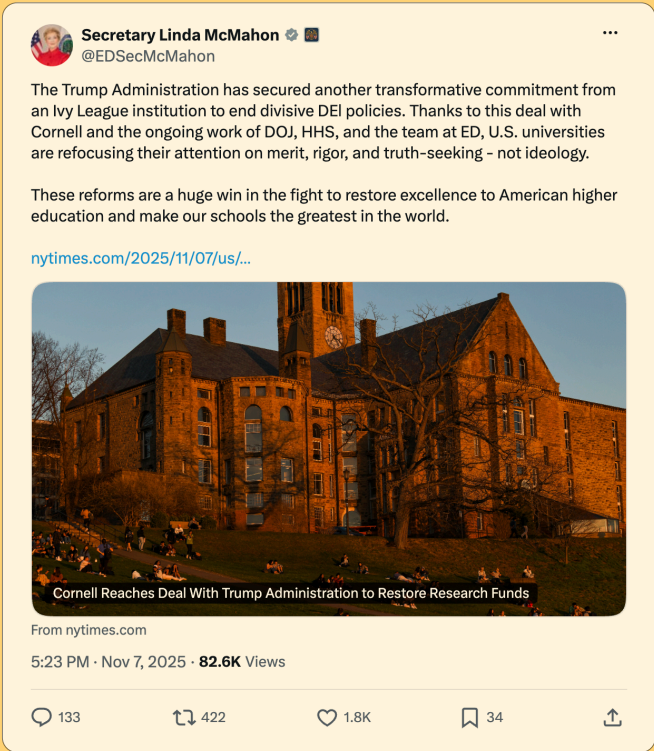
“As always, Cornell will follow the law, but within its scope we will remain a welcoming community, with strong core values and an unwavering adherence to our historic founding principle: to be a university where any person can find instruction in any study.”

—President Martha Pollack, from “Supreme Court Decision on Consideration of Race in College Admissions”



“Somxs Muchxs” by Fernando Martí. Source: [Justseeds](#).

Once the Supreme Court decision banning race-based affirmative action in university admissions was issued, it became clear that the DEI actions Cornell had boasted about were entering a new chapter. President Pollack expressed frustration and disappointment with the ruling but concluded her statement on the decision by saying that Cornell would follow the law. Though the competitive nature of admissions makes it impossible to truly fulfill the founding principle of “any person . . . any study,” Cornell University notably [enrolled lower percentages](#) of Black and Hispanic undergraduate students following the overturning of affirmative action.



Beyond changes to admissions made to fall in line with the Supreme Court decision, graduate students at Weill Cornell were also facing reductions in funding pools aimed at promoting diversity in STEM. As of April 2024, the Ruth L. Kirschstein NRSA Predoctoral Fellowship to Promote Diversity in Health-Related Research (F31-Diversity) was [no longer accepting](#) applications. The Trump Administration's attacks on DEI in higher education and science funding led to even more cuts. In April 2025, we were informed that the IMSD program had lost its funding despite having its five-year grant reapproved in 2024. These financial pressures came alongside the Trump Administration's decision to [freeze over \\$1 billion](#) of Cornell's funding and its demand that the university dissolve any remaining “racial preferences” and other race-conscious policies.

To further comply with anti-DEI executive orders, we observed changes in terminology in both [grant applications](#) and administrative titles. Weill Cornell's Office of Institutional Equity was [restructured as the Cornell Office of Civil Rights](#) (COCR). As of August 2025, the Office

of Student Diversity was renamed to the Office of Access, Belonging and Student Success. While the initiatives and support that the Office of Student Diversity provided continue, the name change is a glaring reflection of a common experience among underrepresented groups: changing aspects of oneself to be more “acceptable.”

In November 2025, Cornell's current president, Michael Kotlikoff, announced that Cornell University had reached a \$30 million settlement with the Trump administration to reinstate federal funding. In addition, the [University agreed](#) to submit anonymized undergraduate admissions data, begin collecting data on the social climate on campus, and bar the use of race in hiring, admissions practices, and scholarship programs.

It is hard to truly celebrate or trust an institution's core values when there is a mounting pile of evidence that good intentions might not lead to permanent improvements in inclusivity.

President Kotlikoff's accompanying statement highlighted the reinstatement of needed funding for research and the fact that Cornell had not been subjected to restrictions on course offerings. (When faced with a similar situation, Columbia University [agreed to have a senior vice provost](#) conduct reviews of several programs, including the Middle Eastern, South Asian, and African Studies.) However, Education Secretary Linda McMahon celebrated the decision to settle as an end to “divisive DEI policies.”

Though funding has been returned and we continue to seek “normalcy” in the post-COVID world, it is hard to truly celebrate or trust an institution's core values when there is a mounting pile of evidence that good intentions might not lead to permanent improvements in inclusivity. It is time for Cornell's administration to deeply reflect on their established core principles—or change them to better reflect the university's actions. If academic institutions continue to change language and policies in response to political pressure, they undermine the principles they have long pledged to support. ■



Art by Nina Montenegro. Source: [Justseeds](#).



91 Freeway at Weir Canyon, Anaheim, circa 1981. Photo courtesy [Orange County Archives](#). Used under [CC BY 2.0](#).

OPINION

Notes from the 91

By James Wang

As a new New Yorker, it's almost a rite of passage to lament how *boring* and *homogenous* your hometown is. For me, that place is Orange County, California. But to say that it is boring and homogenous glosses over its sordid history of racial discrimination, religious fundamentalism, and Reagan-era policy. Indeed, even as your average resident professes to be disinterested in politics, an undercurrent of conservatism continues to run through the region via the Santa Ana River, from Yorba Linda to Huntington Beach.

The place has redeeming features, though (no, not Disneyland). Garden Grove, my birth city, is home to a large Vietnamese-American diaspora. As a kid, my parents enjoyed a certain mutualism with the Vietnamese-Americans in the

area—every month, I'd get a five-dollar haircut and a bowl of pho as a reward for sitting still. Unbeknownst to me, a burgeoning community of Asian-American refugee writers was also growing up.

Like myself as an edgy adolescent, the Orange County (OC) Asian-Am lit movement struggled against its parents.¹ Books like Amy Tan's *The Joy Luck Club* (1989) had brought needed readership to the genre.

.....

1 I use Asian-American literature (Asian-Am lit) to refer to writings of first and second-generation (South)east Asian authors writing about their American communities and ethnic enclaves. The distinction between Asian-American lit and the diasporic literature from West Asia, Central Asia, and the Indian subcontinent is a historical one, reinforced by political organizing work in the Civil Rights era.

However, Asian-Am lit in the 1990s and 2000s relied on ancient mythological and cultural symbolism while tastefully side-stepping the traumas of post-colonial life. In effect, these books were written for white audiences. The OC movement changed that by portraying the daily lives of real Asian immigrants, *for* Asian immigrants. But the genre remains constrained by its focus on interracial interactions and its reluctance to abandon seemingly inoffensive but harmful “model minority” stereotypes.

The Sympathizer (2015) by Viet Thanh Nguyen, set in OC, revolutionized Asian-Am lit. In it, Nguyen writes a down-to-earth spy thriller describing the immigrant experience against the backdrop of Cold War fallout and betrayal. The unnamed main character, a secret Communist spy, is tasked with infiltrating the

Vietnamese diaspora in Orange County to quell its remaining capitalist regime. Marxist and post-colonial themes pervade the novel, but Nguyen focuses notably on the relationship between Vietnamese refugees and white Americans.

As any Angeleno on Hinge will know, aspiring filmmakers are endemic to the city. Nguyen exploits this regional feature by introducing our spy to The Auteur, who is directing a Vietnam War film. The next seventy pages of the novel take place on the set of *The Hamlet*, where our spy is roped in as the film's cultural consultant. He tries his best to save the garish writing of the Viet Cong, but is powerless to change the casting:

“In my naivete, I had simply assumed that once roles were created for Vietnamese people, Vietnamese actors would be found. But no. We looked, Violet told me yesterday, when we had found time to sip iced tea together on the hotel veranda. Frankly, there just weren't any qualified Vietnamese actors. Most of them were amateurs and the handful of professionals all overacted. It must be the way they were trained. You'll see. Just withhold judgement until you see these actors act . . . What Violet was telling me was that we could not represent ourselves, we must be represented, in this case by other Asians.”

The Auteur's casting and writing decisions reflect a reality that Asian-Americans had long known but had never written down: that in the eyes of the American establishment, we were a faceless monolith, versatile as movie extras and expendable as casualties of war.

Nguyen's focus on the white gaze resonated with us, and others took its mantle. Enter *Interior Chinatown* (2020) by Charles Yu. Yu is a SoCal native and current Orange County resident. His book, however, is only vaguely OC: *Interior Chinatown* is a screenplay for a TV crime drama, *Black and White*, set in fluorescent Chinatown. Our narrator, Generic Asian Man, aspires to ascend to the hallowed status of Kung Fu Guy.

And stylistically, no notes. In the middle of the second act, the characters jump from the screen and materialize as dy-

namic, breathing figures; the line between crime drama and inner dialogue becomes increasingly blurred. As the novel rushes towards its conclusion, even genre boundaries break down: is this a crime drama or a rom-com? Coming-of-age story, or Kill Bill training arc? Is the narrator in a psychotic break, or is Yu using magical realism to raise the stakes? Whatever the case may be, his directorial vision works: the climax, in the form of the Generic Asian Man's come-to-Jesus courtroom defense, risks being cliché and campy but never is.

What *does* read clichéd is his description of the immigrant experience. Yu's Generic Asian Man presents a somewhat outdated interpretation of Asian-American anxieties. On the menu: getting into a good college, honoring your parents, idolizing martial arts, lacking good Asian movie stars, and repulsing white folks with the smell of Chinese food. It's all valid, but even in 2020, there was no shortage of discourse on these issues, between books, graphic novels, documentaries, movies, and [one \(un\)subtle Facebook meme group](#) with over 1.7 million members. Reiterating his grievances, but unwilling to expound on them, Yu fails to dialogue with his subject matter adequately.

Even worse, I worry his complaints fall on deaf ears. The book is for Asian-American men who feel constrained by our racial

stereotypes. But our stand-in, the Kung Fu Guy, never gets a word in. Instead, other racial groups, prejudiced by Asian-American stereotypes, tell him what to be. In this way, *Interior Chinatown* falls into the same trap as *The Sympathizer*, which focused on the perspective of SoCal's political and media elite. For example, when Generic Asian Man (here, Special Guest Star) meets the titular Black cop in *Black and White*, the two get off to a bad start:

SPECIAL GUEST STAR

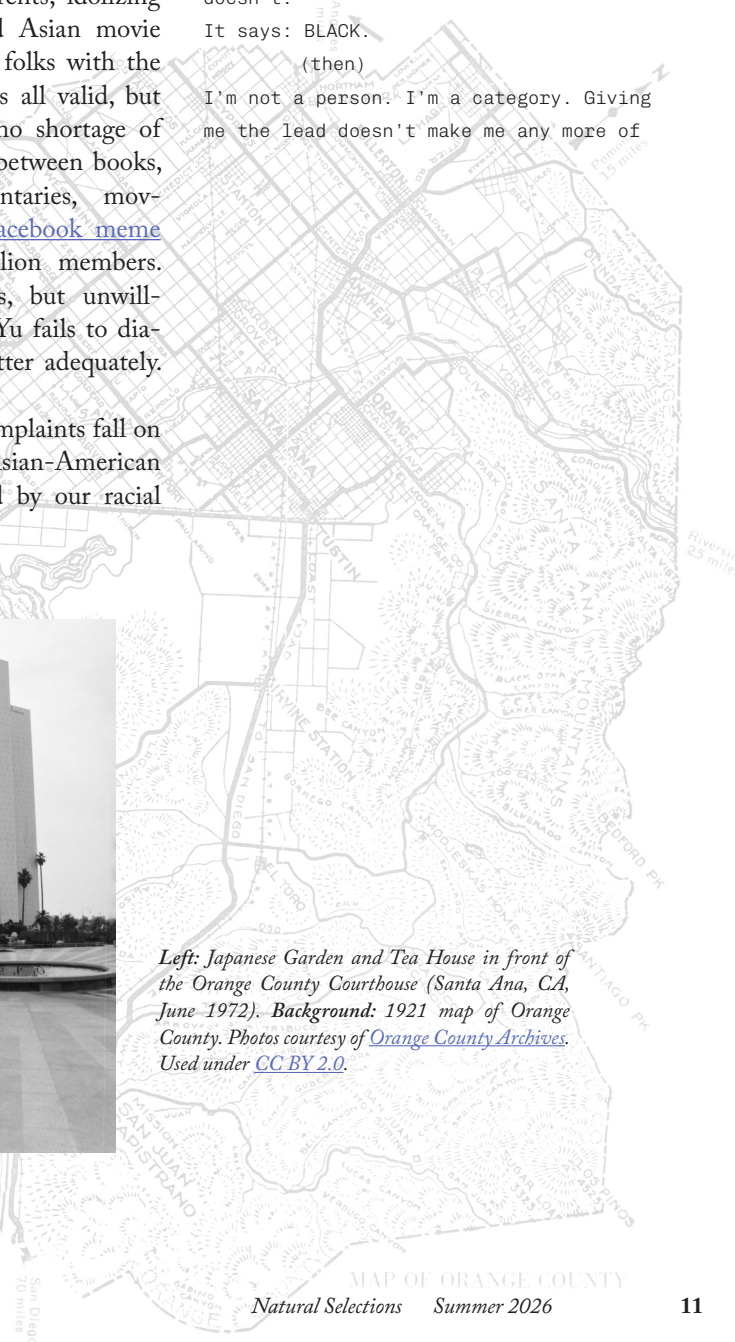
You're part of the system. Your face is on the poster. Your name is in the title.

TURNER

I am? It says Miles Turner? No, it doesn't.
It says: BLACK.
(then)
I'm not a person. I'm a category. Giving me the lead doesn't make me any more of



Left: Japanese Garden and Tea House in front of the Orange County Courthouse (Santa Ana, CA, June 1972). Background: 1921 map of Orange County. Photos courtesy of [Orange County Archives](#). Used under [CC BY 2.0](#).



a person. If anything, less. It looks me in. Do you know where I started? Do you know what it took? You can't come in here, five minutes ago, talking about how hard you have it. If you don't like it here, go back to China.

Interior Chinatown's B plot doesn't resolve. As Turner takes the stand in the climactic courtroom scene:

TURNER
He thinks he can't participate in this race dialogue, because Asians haven't been persecuted as much as Black people. (to you [Generic Asian Man])
Don't you need to take some responsibility for yourself? For the categories you put us in? Black and White? I mean, come on? Do you think you're the only one who's trapped?

The Sympathizer and *Interior Chinatown* obviously resonate with audiences: both now have respective screen adaptations. But *Interior Chinatown* trends in a worrying direction. Despite his birthright citizenship, the Generic Asian Man *amplifies* the alienation of Nguyen's refugees. What contributes to this alienation? History plays a role: Yu makes direct reference to exclusionary national policy that impeded Asian-American assimilation. But there is no positive definition of "Asian-American," just a reliance on stereotypes. By asserting our identity based on others' perceptions, we continue to reinforce our status as model minorities. Tragically, the Generic Asian Man becomes just as faceless and expendable as Nguyen's movie extras.



Blight is spreading across Asian-Am lit. Portrayals of authentic Asian-American experiences à la Nguyen and Yu, particularly by women authors, have recently received vicious online criticism. Unsurprisingly, the male pioneers of the genre escape unscathed. Mainstream media, on the other hand, continues to platform Asian-Americans insofar as they remain sufficiently proximal to whiteness—and profitable. For instance, *Beef*, the TV mini-series that initially received acclaim for its portrayal of OC's Asian enclaves, recently set its second season at a country club. Reliance on others' Asian stereotypes and the model minority myth is strangling the genre.

Asian-Am lit urgently needs to reevaluate its growth trajectory. What is to be done? It's surprising that neither Nguyen nor Yu looked to their own backyards for inspiration. Indeed, Orange County is not just Black or White or Asian. Latinos are the second largest ethnic group in the OC and have suffered exclusionary immigration policies, racial stereotypes, and redlining into barrios. The concessions Asian-Americans receive in employment and education as a result of our "positive stereotypes" incentivize us to adhere to the model minority myth. Unencumbered by model minority stereotypes, Latin American literature put down stronger roots. It's these verdant grounds that bore Álvaro Enrigue's *Now I Surrender* (translated by Natasha Wimmer), published in March of this year.

In *Now I Surrender*, Enrigue brings his imaginative style to the nineteenth-century expansionist era, when Mexican and U.S. armies jockeyed for control of the Apache-occupied Chihuahua Desert. The Chiricahua Apache people, led by their commander Geronimo, surrendered to the combined U.S. and Mexican armies in 1886 after a months-long bloody campaign. They were then displaced to Fort Marion, Florida, where they would remain for the next quarter-century, away from home.

Now I Surrender is so violent that it almost reads as a spaghetti western; Enrigue does not sugarcoat the grisly ways the Chiracahuas butchered their colonial intruders. Equally violent, though, are the tactics the Mexican and American governments used to suppress the

Apache people. Amid the chaos, Enrigue interjects with the benefit of hindsight:

"When the Chiricahua—the most determined of the Apache nations—had no choice but to become part of either Mexico or the United States, they chose a third, completely unexpected path: to fight until the end. I will move to Canada, the gringos always claim, but they never do. I'd rather die, say the Mexicans, but then we all go on and accept the new state of things anyway. The Apaches said they weren't interested in integrating when the conquistadors made contact with them in 1610, and they kept on saying no until the most celebrated band of Chiricahua warriors fit into the single train car that carried the last twenty-seven of them out of Arizona."

These meditations—combined with his interpretation of the Chiracahuas as shrewd war tacticians—re-center the colonial narrative on the Apache people and reimagine the Mexican-American identity as both colonizer and colonized. For better or worse, Geronimo's character is now a complication to Mexican-American heritage, which could have otherwise been dominated by White-Hispanic relations. Meanwhile, the Apache, emboldened by their struggle for independence, push both U.S. and Mexican borders back, run around them, interrupt Enrigue's meditations—and, at the book's climax, break away from their historical context and disrupt the Western narrative entirely.

Asian-American assimilation and the Apache genocide are different beasts. But like Geronimo, we have figures that loom larger than life, complete with heroes, villains, martyrs, and gods. The characters in our screenplay *should* be complex and uncomfortable to think about. These messier depictions of the Asian-Am narrative are essential. Asian-Am lit has grown past the limits of the walled Garden Grove: once iconoclastic, ideas like the "bamboo ceiling" are now anodyne. Mainstream media seems content to let our ecosystem smother itself. It's up to grassroots writers and artists to imagine a new Asian-American literary movement—maybe from someplace less *boring* and *homogenous*. ■

CUCUMBER MINT-LIME COOLER

Adapted from Stephanie's Dish by Cecilia Cuddy

This cucumber mint-lime cooler drink will keep you refreshed and hydrated on a hot summer day. Perfect to pair with any picnic outdoors, this drink is super easy to make!

Ingredients:

- 1 large English or Persian cucumber (consider saving a few thin slices/ribbons for a garnish)
- 5–8 mint leaves
- 2 tablespoons fresh lime juice
- 1 tablespoon sugar, simple syrup, or agave nectar
- Chilled sparkling water
- Crushed ice

Instructions:

1. Chop the cucumber into small- to medium-sized pieces and blend in a blender. Ensure the cucumber is not too large so the blending is easier.
2. Add the fresh mint leaves and 1 cup of room-temperature water.
3. Blend on a high speed setting until completely smooth and liquified.
4. Pour everything through a fine-mesh strainer into a separate pitcher to separate the juice from the pulp.
5. Add the fresh lime juice and sweetener directly into the strained cucumber-mint juice and mix thoroughly.
6. Fill a glass with crushed ice.
7. Pour the cucumber mixture into the glass until $\frac{3}{4}$ full, then add your chilled sparkling water until completely full.
8. Optionally add a skewer of thin cucumber ribbons and fresh mint as garnish (can also add an extra lime wedge) and enjoy!



SWEET CHERRY CLAFOUTIS

Adapted from Once Upon a Chef by Cecilia Cuddy

Ingredients (for 6–8 servings):

- 2–2½ cups black or regular cherries, pitted (can also use raspberries, blueberries, blackberries, apricots, or peaches as the base)
- 3 large eggs or 4–5 regular eggs
- ½ cup plus 2 tablespoons granulated or brown sugar
- ½ cup all-purpose flour
- 1 cup whole milk
- ¼ cup heavy cream
- 1 teaspoon vanilla extract
- ⅛ teaspoon almond extract
- 2 tablespoons unsalted butter
- ¼ teaspoon sea salt (no thick flaky salt!)
- Powdered sugar (for dusting at the end)

Instructions:

1. Preheat the oven to 375°F (190°C).
2. Generously grease a roughly 9-inch pie dish with butter before scattering the pitted cherries evenly across the bottom to ensure an even layer.
3. In a blender (or a medium mixing bowl with a hand whisk), combine the eggs, sugar, flour, milk, vanilla extract, almond extract, and salt until smooth and free of lumps.
4. Pour the batter over the cherries.
5. Bake for 35–40 minutes. When done, the edges should be puffed and golden brown while the center is just barely set; look for a slight wobble when you move the pan!
6. Remove from the oven and let sit on a wire rack for 30 minutes.
7. Dust generously with powdered sugar before serving.

Un toro, unos fríjoles, y muchos mártires

Three Spanish Anti-War Paintings

By Juan Sebastián Andrade-Martínez

“... But this number [the number of people killed in the Holocaust], like all the others, must be seen not as 5.7 million, which is an abstraction few of us can grasp, but as 5.7 million times one. This does not mean some generic image of a Jew passing through some abstract notion of death 5.7 million times. It means countless individuals who nevertheless have to be counted, in the middle of life...”

—Timothy Snyder

Bloodlands: Europe Between Hitler and Stalin

Memory is a fickle thing, and exasperatingly so. Ray Bradbury accurately shows this in *Fahrenheit 451* when describing a child Guy Montag frustrated and in tears at being unable to make a sieve hold sand, no matter how much he tried. But frustration can become fear when one considers how entire societies and states can forget, and how fast they do.

In *Secular Cycles*, Peter Turchin and Sergey Nefedov discuss how periods of peace and instability alternate in Western pre-industrial societies based on demographic factors. They observe that during periods of societal instability, internal warfare occurs at intervals of roughly fifty years, an effect they term “fathers-and-sons” dynamics. In essence, the fathers’ generation, which grew up in the midst of war, avoids waging it. Their sons, oblivious to armed conflict and its effects, are prone to engage in it. Given the current state of the world, I cannot help but wonder, amid our disintegrating [Long Peace](#), whether war is so foreign to the Western world that we have forgotten its horrors, just like our ancestors did.

Memory can be stored on drives, books, films, and multiple other media, but it is useless if people don’t

seek it out. And sometimes to remember we need to feel the past, as much as it’s possible to do so. This is why historical anti-war media fascinates me. It wants us to experience, through representations, what no one should deserve to experience, yet they have.

Let us then share the memory of two wars which occurred centuries apart across Spain, and whose cruelty led to three of the most vivid and visceral anti-war paintings ever produced.

The first of these paintings was conceived from the ashes of the bloody [Peninsular War](#), Napoleon’s invasion and subsequent struggle for control of the Iberian Peninsula between 1808 and 1813. The French Emperor’s initial goal was to take control of Portugal, which kept trading with Britain despite French efforts to establish a continent-wide blockade of the



El tres de mayo de 1808 en Madrid (Francisco de Goya, 1814). Source: Diego Delso via [Wikimedia Commons](#). Used under [CC BY-SA 4.0](#).



Soft Construction with Boiled Beans (Premonition of Civil War) (Salvador Dalí, 1936). Philadelphia Museum of Art: The Louise and Walter Arensberg Collection, 1950-134-41 © Salvador Dalí, Gala-Salvador Dalí Foundation / Artists Rights Society (ARS), New York.

British Isles. However, Spanish discontent regarding the presence of French troops in their territory led to a revolt across the country in early May 1808. The royal family fled to France, where Napoleon forced them to abdicate in favor of his brother Joseph.

The intervention of the British forces, along with the dogged resistance of the Spanish guerrillas and Napoleon’s botched expedition into Russia, led to the restoration of the Bourbon Monarchy at the end of 1813. [In 1814](#), as part of the celebrations for the return of King Ferdinand VII to Madrid, the Regency Council tasked Fernando de Goya with the production of two paintings in remembrance of the war. Because the arrival of the King coincided with the anniversary of the 1808 May revolt, the painter depicted this uprising and the subsequent French reprisal in two twin canvases: [The 2nd of May 1808 in Madrid](#) and [The 3rd of May](#).

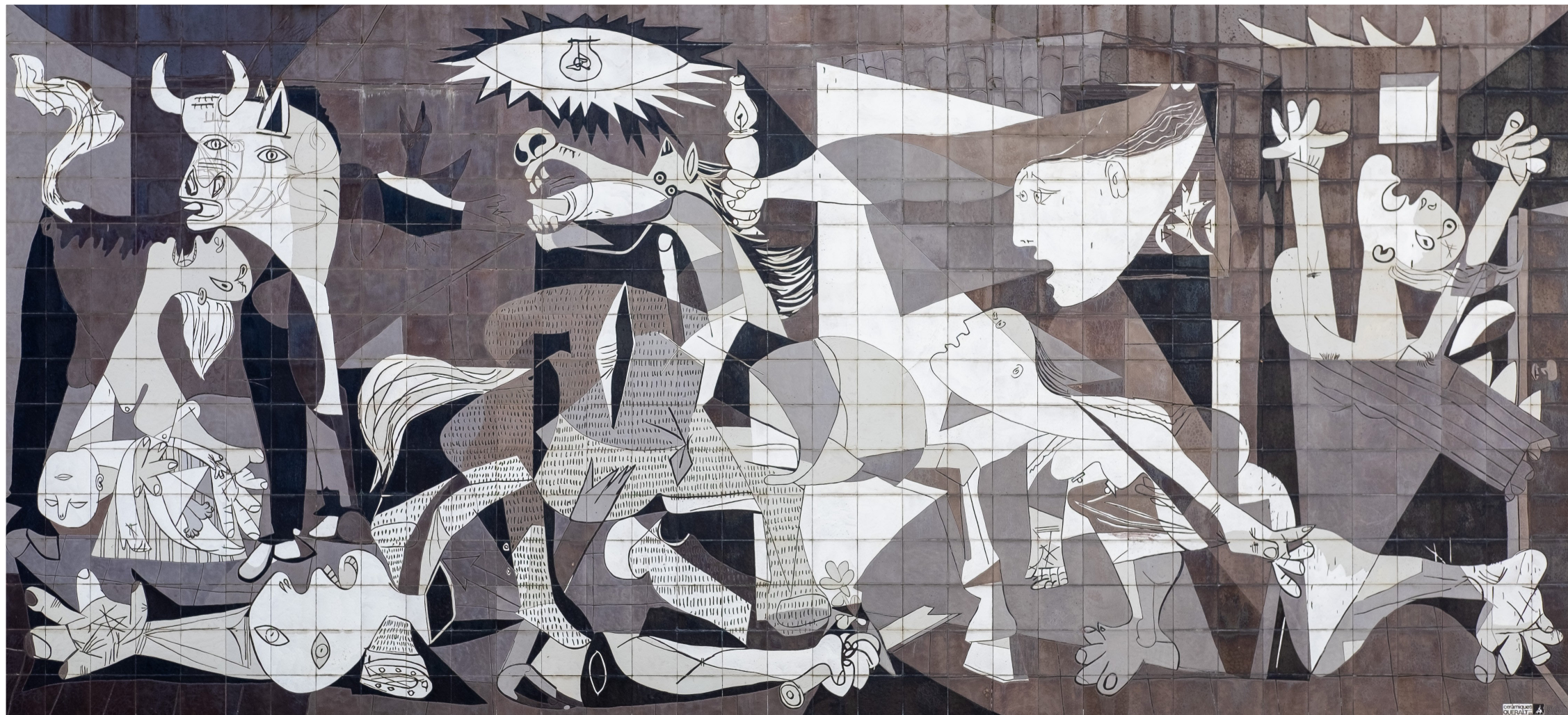
It was the latter painting, also called *Los Fusilamientos*, that would become a cornerstone of anti-war media. In it, Goya shows the executions carried out by the French army the day after the revolt in Madrid. To the right, in somber colors, we observe a group of French soldiers with their rifles and bayonets fixed, aiming at the victims. [From the viewer’s perspective](#), the executioners’ faces are hidden and their individuality is barely notable. They are poised as a [single instrument of war](#). To the right, we see a group of men bunched together, hopeless,

[cowering in fear](#). Some dead bodies lie towards the front of the canvas, while a line of those to be killed next trails towards the back. To our left and behind the victims rises a steep hill, trapping them. There’s nowhere to go.

This painting doesn’t glorify conflict, doesn’t try to show a heroic sacrifice or the death of a notable person. At the very center, we see a man with outstretched arms, a white shirt, and stigmata on his hands. The analogy to Christ is evident, almost automatic: an innocent, with a human expression of fear, to be slaughtered pointlessly by an impersonal war machine. Goya wanted to convey the horrors of war as they were, which is why the piece had such an impact on future works.

War between nations is a catastrophe, but that between brothers and sisters might be even more so. Between 1936 and 1939, the world witnessed Spain ripping itself apart during its [civil war](#). While he would [claim](#) he foresaw the beginning of hostilities in a dream, Salvador Dalí’s opinion that a war was imminent in early 1936 was a foregone conclusion from the polarized state of his country at the time. He would crystallize the anxieties of the imminent conflict in [Soft Construction with Boiled Beans \(Premonition of Civil War\)](#).

The surrealist author presents us with a grotesque construction: a [giant humanoid](#), whose face is [inspired](#) by Goya’s [depiction of Saturn](#) in his black paintings,



Mural reproduction of the painting *Guernica* (Pablo Picasso, 1937) in the city of Gernika-Lumo. Source: [Jules Verne Times Two](#) via [Wikimedia Commons](#). Used under [CC-BY-SA-4.0](#).

grimaces while it tears itself apart. An [alternative interpretation](#) is that of two different sets of limbs, one male and one female, destroying each other. Between them lies an open space depicting a Spanish landscape. The excrement and dispersed beans seen in the bottom of the canvas have no clear interpretation. That being said, Dali [mentioned](#) that it was inconceivable to eat such an amount of meat within the painting without any vegetable complement. In light of an [earlier comment](#) after fleeing a worker uprising in Catalonia in 1934—"I sensed the impending great cannibalism and civil war of our history"—and the accompanying excrement in the piece, the idea of a country tearing and eating itself is easy to conceive.

The conflict would be the playground not only of foreign powers, supporting both the Republican Government and Nationalist Insurrectionists, but also of the new ways to conduct warfare. A [gruesome episode](#) of this was the [bombing](#) of the Basque town of Guernica by the German Luftwaffe on April 26, 1937. At the time, Picasso had been commissioned by the Republican Government to produce a painting for the Spanish Pavilion of

the 1937 World Expo in Paris. The news of the heinous bombing, which killed more than a hundred civilians, reached the author in Paris and [moved him](#) to make the piece about the event. Thus, *Guernica*, one of the most influential paintings of the twentieth century, was born.

Picasso [famously refused](#) to explain the symbolism of each part of the canvas, instead prompting the viewer to be its interpreter. The painting is rendered exclusively in black and white, [perhaps to mimic](#) the color of the photographs and news reels of the time, perhaps to evoke the bleak atmosphere—laden with death and despair—of the bombing's aftermath. A soldier lies dead on the floor. One of his hands is open, and, similar to the martyr in Goya's painting, its palm displays stigmata. His other hand doggedly holds a broken sword and lies next to a small flower. This element, along with the wounded horse in the center of the canvas, has been linked to the Spanish people, both their suffering (the sword and horse) and their hope of a new Spain rising from the ashes (the flower). To the left of the horse is a terrified chicken, which [can be interpreted](#) as the suffering of the animals during the bombing, given that it took

place on a market day. An [alternative reading](#) is that it is a dove, and as such represents the disruption of peace.

The trio of women in the piece contributes to the feeling of dread and terror: one drowned in grief while holding a dead infant, one consumed by flames, and one holding a candle as she looks at the scene of destruction. A light at the top of the canvas [has been associated](#) both with the search for truth and hope and with the [falling bombs](#). Finally, the bull could be either an additional symbol of the [Spanish people](#) or of the unrelenting cruelty of the [Nationalist faction](#), which the Germans supported in the war. Regardless of the specifics, the composition as a whole presents a strong anti-war message similar to Goya's paintings: there's no glorification of armed conflict or of heroes within it, only a grim showcase of the death and misery brought by war. Because of this, this heart-wrenching piece has been a [vivid symbol](#) of anti-war movements from its conception until now.

In *Ages of Discord*, his follow-up book to *Secular Cycles*, Turchin analyses societal instability in an industrial society, the United States, and draws parallels between

pre-Civil War America and our current age. His final words resonate in my head from time to time: "Will we be capable of taking collective action to avoid the worst of the impending demographic-structural crisis? I hope so. More, I hope that the theory and data explained in this book will contribute to finding solutions that will help us find a non-violent escape from the crisis."

Whether or not Turchin is right is not important. What is important is that in this day and age—where we have innumerable tales of the horrors of war, where we can easily feel them ourselves via the work of Goya, Dalí, Picasso, and many others—it is a personal and proactive decision not to see and not to remember. I believe we can keep some of the sand in the sieve—maybe not all of it, but just enough to ensure that cooler heads prevail, and that our legacy is not filled with martyrs, their palms laden with stigmata, lying dead on the ground of a sandless beach. ■



“Give Back Through Arts and Craft”: A Creative Community-Building Initiative

By Erica Luo

TRI-I HAPPENINGS

If you happened to peer down into the Collaborative Research Center basement on a chilly Thursday evening this past winter, you might have seen clusters of scientists hard at work at the tables. But instead of discussing posters or a symposium talk, they were participating in “Give Back Through Arts and Craft,” one of several projects sponsored by the Office for University Life & Community Engagement’s (OULCE) community-building microgrant program. This particular project was led by Sara Omer, a third-year graduate student in the Bargmann lab, and Lola Neal, a sixth-year graduate student in the Vosshall lab. During the winter edition of “Give Back Through Arts and Craft,” Sara and Lola invited Rockefeller students and staff to learn how to crochet scarves for donation to charity. I was one of many first-time crocheters who attended, eager to meet people and learn a new skill after work. Yarn and needles were provided using microgrant funds, removing any barrier to entry other than an interest in crocheting. Now that scarf season is (thankfully) over, I asked Sara and Lola to reflect on how they designed and ran their arts-and-crafts initiative.

When designing their project, Sara and Lola wanted not only to build stronger

connections on campus, but also to contribute to the greater community outside Rockefeller. “In such a privileged place like Rockefeller, there is always time to give back to our communities. We have the benefit of having heat in our apartments, labs, etc., but right outside these gates and in the rest of the city, these luxuries are not guaranteed,” Lola wrote. Sara also touched on Rockefeller’s presence in the Upper

“If you have an idea or want to help someone, seeking out the resources to do so is possible in a place like [Rockefeller].”

East Side as a motivating factor for looking beyond the campus gates. “New York is so huge, and it would be a shame to live here for . . . seven years doing my PhD and not interact with more community members.”

Outside of their lives at the lab bench, Sara and Lola are both avid crocheters, and it was Sara’s idea to use their shared hobby as the project’s mechanism for giving back. They decided on crocheting scarves because they are an easy project for beginners, and warm clothing is always needed

during New York’s harsh winters. After reaching out to a number of potential charities, Sara and Lola partnered with the Bowery Mission, a nonprofit dedicated to meeting the essential needs of New Yorkers experiencing poverty and homelessness. Among their many services, the Bowery Mission accepts and distributes clothing donations, which fit with Sara and Lola’s goal of donating arts and crafts.

Despite their many combined years of crocheting experience, teaching a group of people how to crochet presented a bit of a learning curve for the project leaders. “I didn’t realize how overwhelming it is to teach multiple people at once,” Sara said. However, as beginners like me learned the basics of making stitches, Sara gained insight into her own crocheting process through the task of breaking down and verbalizing the steps. “It was very nice to kind of slow down and try to explain something that I’ve been doing for years in a very simplified way.”

Lola wanted project participants to benefit from the methodical nature of fiber arts. “The frustration of learning can be difficult, but embracing the process and knowing that mistakes while learning crafts are very low-stakes can relieve some of the

pressure many of us in academic science have to face in our daily lives.” As a participant, I can attest that crocheting was a great way to wind down after a long day in the lab. Even though I had to unravel and re-crochet chunks of my scarf many times, I definitely felt a sense of accomplishment as I watched my rows grow neater and my hands move faster over the course of the three crocheting sessions.

By the end of January, the crafting group completed forty scarves that were all donated to the [Bowery Mission](#). Since the ice and snow have long melted from the sidewalks, Sara and Lola have found a new craft to match the warmer weather. This past May, they hosted a pipe-cleaner flower making session to decorate the Bowery Mission dining room.

With two rounds of crafting under their belts, Sara and Lola hope that they were able to empower participants to continue trying new hobbies and volunteering. “[I] wanted people to be able to open themselves up to doing something different than just what’s on campus . . . It’s nice to know that people are very excited about doing stuff outside of science,” said Sara. Lola encourages others to exercise their creativity in finding ways to give back as well. “The opportunity to help is there, even if it is not built into the system of the university itself. If you have an idea or want to help someone, seeking out the resources to do so is possible in a place like [Rockefeller].” Having taken part in “Give Back Through Arts and Craft,” I will certainly think a little harder about how to use my hobbies to bring joy to others. ■





SHAVED MELON AND PROSCIUTTO SALAD

Adapted from *The New York Times* by Cecilia Cuddy

Mixed with meat and light, refreshing fruit, this salad pairs well with any summer dish.

Ingredients (for 4 servings):

- ½ ripe honeydew melon (seeded is preferable)
- 4–5 thin slices of prosciutto, torn into ribbons
- 2 cups arugula (washed and dried)
- 4 ounces fresh mozzarella balls, halved or torn into bite-size pieces
- Handful of fresh mint leaves
- 1 tablespoon extra-virgin olive oil
- ½ fresh lime (juiced beforehand is best!)
- Flaky sea salt and black pepper

Instructions:

1. Cut the melon into quarters and remove all of the skin.
2. Using either a vegetable peeler or sharp knife, shave the melon into ribbons as thin as possible. If you prefer bite-sized portions of melon, you can use a melon baller instead.
3. Scatter arugula across a shallow plate (this is what I usually prefer, but you can also use a deeper bowl!).
4. Arrange the mozzarella, melon ribbons, and prosciutto ribbons over the arugula. My advice is to layer them gently one after the other in a pattern to create an even and balanced distribution of melon and prosciutto.
5. Scatter torn mint over the top of the melon and prosciutto.
6. Whisk olive oil and fresh lime juice together in a separate bowl before drizzling the combination evenly across the salad.
7. Finish it off with a pinch of sea salt and black pepper!

CREAMY LEMON BUTTER CHICKEN

Adapted from *Tasty* by Cecilia Cuddy

Ingredients (for 4 servings):

- 6 bone-in, skin-on chicken thighs
- 1 teaspoon paprika
- Salt and pepper
- 3 tablespoons unsalted butter
- 3 cloves garlic (minced or chopped)
- ½ cup heavy cream
- ¼ cup Parmesan cheese
- Juice of ½ to 1 lemon
- 2 cups fresh baby spinach
- 1 teaspoon fresh or dried thyme
- 1 cup chicken broth
- A splash of dry vermouth (optional!)

Instructions:

1. Preheat the oven to 400°F (200°C).
2. Season the chicken thighs with salt, pepper, and paprika.
3. Melt 2 tablespoons of butter in a large oven-proof skillet over medium-high heat. Add chicken skin-side down and sear both sides until golden brown. Drain excess fat and set chicken aside (you can also keep the excess fat—based on preference!).
4. Melt remaining tablespoon of butter in the skillet. Add garlic and stir until fragrant.
5. Add the chicken broth, vermouth, heavy cream, Parmesan, lemon juice, and thyme into the pan and stir. Bring to a boil, then reduce the heat to a low setting.
6. Add in the spinach, stir, and simmer until it has wilted and the sauce has thickened.
7. Return chicken to the skillet and bake for 25 minutes. After removing from the oven, allow to cool slightly before you dig in!



WHO LIVES ON YOU!

By Maya Wyse

Feeling lonely? Texts in the group chat getting no love? Got fewer birthday wishes this year than the last? Miss feeling like the most important person in someone's life?

Well, fret no more! For a limited time only, you have the chance to meet some of the little guys who are ready to call your skin their home. Find your loyal, constant companions and late-night cuddle-buddies—the team that ultimately makes sure you're NEVER alone.

Nematodes (*Strongyloides stercoralis et al.*)

Loved for their role in research, despised for their role in itches. When found on human skin they are also known as roundworms, hookworms, threadworms or “eww, what’s that gross thing on my arm?”

Nematodes don't usually mean to set up shop on us humans. They were probably looking for a cat or rat and took a wrong turn along the way. Lost and confused, larvae that find themselves on our skin will burrow below the surface and wander aimlessly, leaving itchy red tracks in their wake. They're just looking for a home, and haven't you been meaning to take in a stray?

Pubic lice (*Phthirus pubis*)

Not to be confused with head lice, this species is smaller, crabbier, and wields two mean claws. They live wherever coarse hair grows (and the sun doesn't shine) and drink your blood to survive. Yum! Plus, they don't actually transmit disease, just more cooties. Perhaps not the intimate experience you were gunning for, but it's tough out there and there are so many crabs in the sea.

Ringworm (*tinea corporis*)

Don't let its name fool you, this one isn't a worm at all! It's actually a highly contagious fungus. And if you happen to have circular, red, and scaly rashes on your skin, you've already got it. It can show up anywhere on your body, and you can get it from touching just about anything—people, animals, the nasty floors at your local gym's locker room.

Previous hosts say they're kind of clingy, so if you really need some alone time, a couple rounds with anti-fungal cream will get this organism to throw in the towel.

Creature feature:

Demodex (*D. folliculorum*)

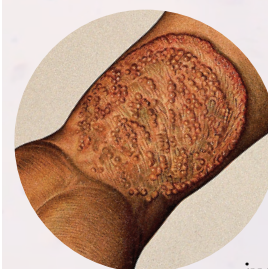
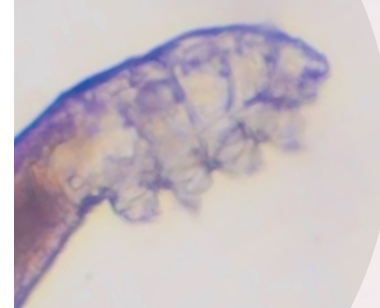
Skin! Oh, that wondrous organ; those ever so sebaceous glands, bountiful hair follicles...and colonies of pudgy eight-legged mites in every oily pore. Well, not quite every pore. Primarily the ones on your face!

Less than half a millimetre long, these babies lounge in hair follicles (think eyelashes) by day, nibbling on your sebum with their little teeth. By night they're on the move, hanging out in groups of 2–6 per follicle, looking to get freaky. And they say that the friend group is a myth...

Most of us get our Demodex from our parents at some point in our childhood. By the time you're an adult, it's pretty much a given that you have thousands of them milling about on your skin. Less than 10% of adults are lucky enough to be Demodex-free!

The good news is that they're harmless, only rarely causing skin reactions. In fact, they are so benign, they've actually lost their parasite status. Ever since the 2010s, Demodex have been considered obligate commensals—or, the “dinner guests” of the human skin.

So take comfort in knowing that you are loved and that you're not alone. No, really, you're not. You're teeming with life. You are a (roughly 5–6-ft. tall) pillar of community, and it's time you start giving back with intention. You weren't going to use all that skin and blood anyway, right?



MOVIE REVIEW: PROJECT HAIL MARY

Cool Space Experiments? Have a Cute Alien Instead.

By Erica Luo



WARNING: SPOILERS AHEAD!

Kindly move on if you have not watched the movie or read the book...



I first got wind of the hype for the *Project Hail Mary* (PHM) movie in January of this year, two months before its scheduled release date. The buzz was so promising that I bumped the novel to the top of my lengthy reading list so I could finish it in time for the movie premiere. I became even more excited when I saw press screening reviews gushing about the movie's heartwarming depiction of humanity, hope, and scientific discovery. Movies with a capital *M* were back, so it seemed. But when my viewing finally rolled around, I walked out of the theater feeling like I missed something.

Don't get me wrong, I enjoyed *Project Hail Mary* at its surface level: I was endeared by Rocky and Ryland Grace's friendship and teared up at the designated emotional beats. However, I didn't feel any of the sense of wonder that a movie about space and inter-species connection should evoke. *Project Hail Mary* is a hard sci-fi movie, so where did the science go?

I'm obviously a biased reviewer: I work in a lab and I enjoy getting into the weeds of scientific speculation. I knew there would be some inaccuracies in the movie, but I thought they'd be small

enough that I could suspend my disbelief and brush them off. Instead, I ended up complaining to my roommate the entire subway ride home.

My first assumption was that writers cut down on the science to appeal to a wider audience. After a little digging, I found that this was actually not the creators' intention. In *Project Hail Mary's* [production notes](#), writer Drew Goddard, who previously adapted the sci-fi blockbuster *The Martian*, acknowledges the public's interest in science. "One of the things we learned on *The Martian* was that we don't have to simplify the science," he [wrote](#). "The audience loved that the science was complicated and challenging."

Directors Phil Lord and Christopher Miller [decided](#) the best strategy to depict Grace's scientific process was through "action rather than explanation . . . If Grace is figuring something out, the audience would have to watch him figure it out. They would watch him fail, watch him test: Discovery had to be active."

The book version of events demonstrates the unpredictable nature of science: sometimes small experimental choices can have huge consequences, and often we discover things we never even considered at the beginning.

With that in mind, I reviewed what I had seen. Did Grace actually partake in the process of trial-and-error the directors claimed to show? Sort of. In one scene, Grace performs a flight of procedures on an *Astrophage*—an alien microbe that is "eating" our sun's energy—a sequence that feels mostly played for laughs as he fumbles around in an anti-contamination suit. He certainly experiences failure when he kills a precious sample.

Then there is the segment where Grace and his security detail Carl construct a lightproof box to see if *Astrophages* are attracted to the spectral frequency of carbon dioxide. I enjoyed this scene because it showed the DIY side of experimentation. It was clear *what* Grace intended to test with this box, and I got to watch the entire building and observation process unfold. Consequently, I shared Grace's surprise and eventual excitement when he discovered that *Astrophages* need carbon dioxide to breed. I felt this scene best achieved Lord and Miller's objective of presenting active discovery.



★ **Best Rocky Movie Quotes** ★

Why room so messy, question.

Amaze!
Amaze!
Amaze!

Grace Rocky save stars.

Words of *great* encouragement!



The final significant “scientific” scene happens after Rocky risks his life by exiting his climate-controlled enclosure to save Grace when he gets pinned to the control panel. While Rocky recovers, Grace successfully breeds enough Taumoeba, a newly discovered Astrophage predator, to save Earth and Rocky’s home planet. Even though this was arguably the most critical accomplishment of the mission, we barely got to see how Grace did it. All I registered was a lot of tape-ripping, then Grace breaking the happy news to Rocky.

The majority of the science scenes pass in this manner: Grace states each important reveal in an offhand manner before the camera quickly ushers us to the next scene. Despite the creative team’s claims, it felt like there wasn’t even an attempt to include the majority of the experiments Grace and Rocky performed to complete their mission. (There is a four-hour cut of PHM out there that was edited down to the movie’s run time of two hours and thirty-seven minutes. Maybe all the experiments lived and died in that footage.) In the official cut, there is no substantial inquiry, no explanation for anything.

I understand why the screenwriters would trim down Grace’s long stretches of thinking to keep the film moving, but I don’t think they had to throw out the context entirely. Back to Grace’s Taumoeba breeding: we see Grace in action as he tinkers around with his breeding cages. Yet showing pure action with no explanation for the steps he takes feels like lazy storytelling. The details? Don’t worry about it! Grace might as well have been banging on the spaceship walls with a wrench—it would’ve registered as the same vaguely “scientific” pantomime.

Project Hail Mary is a life-or-death mission for humanity—the movie could’ve done more to make us really feel the stakes.

After Grace and Rocky part ways to bring the Taumoeba back to their respective stars, Grace’s Taumoeba eat through their xenonite enclosures and begin consuming the Astrophage fuel on his ship. Xenonite is a strong and flexible building material, composed mainly of xenon gas, that is unique to Rocky’s planet. Up until this point in the movie, xenonite has been understood to be nearly indestructible. Grace is able to get the Taumoeba under control by switching out the tank material, but this spells disaster for Rocky, whose entire ship is made of xenonite. In the movie, the Taumoeba’s appetite for xenonite is presented as an unfortunate



In today’s increasingly anti-science political climate, we should be doing as much as we can to encourage curiosity and critical thinking.



surprise. However, book readers will know that Grace’s Taumoeba colony developed the ability to move through xenonite because they were all bred in xenonite containers.

Maybe the xenonite breeding enclosures seem like a superfluous detail, but I prefer a plot twist preceded by a hint over a reveal that comes out of nowhere. The book version of events demonstrates the unpredictable nature of science: sometimes small experimental choices can have huge consequences, and often we discover things we never even considered at the beginning. Leaving out this element takes away the full emotional gut punch of the plot twist. The knowledge that Grace inadvertently jeopardized his friend’s life makes the story far juicier, and I think it would’ve been fun to sit a little longer with Grace’s guilt and panic. After all, *Project Hail Mary* is a life-or-death mission for humanity—the movie could’ve done more to make us really feel the stakes.

That being said, *Project Hail Mary*’s length already falls on the longer side of movie run times. Even so, I think there were small changes that could’ve been made to fit more scientific context into the final product. The banter-heavy scenes in the first act dragged down the movie’s pacing—for example, the montage of Carl and Grace’s field trip to Home Depot. The writers could’ve sacrificed some of this scene (sorry Carl) to include more experimenting. They also could’ve used Grace’s canonical teaching experience to talk about the unique biology of Astrophages. It would’ve been quite straightforward for Grace to put his teaching hat on and give everyone a crash course on how Astrophage “eat” sunlight or detect specific frequencies—anything.

It’s clear that the movie wanted to emphasize Grace and Rocky’s friendship and how they learn to work together. But even so, the writers neglected to show Grace trying to heal Rocky after he leaves his hamster ball, like he does in the book. In fact, it’s never explicitly explained why a human atmosphere is so bad for Rocky. Grace attempting to help his friend would have demonstrated the strength of their bond and been a chance to introduce the audience to some of the unique parts of Rocky’s biology. I think the majority of viewers are at least a little curious about how an alien body works.

Overall, it felt like the movie creators underestimated the level at which people are willing to engage with science beyond passively watching it happen. I would argue that the average American is even more interested in science and space than the directors expected, given the [public response](#) to the recent Artemis II mission. [Twenty-seven million people](#) watched the Artemis II re-entry, a jump from the eighteen million viewers who tuned in for launch. Many teachers incorporated the mission into their lesson plans, and planetariums received an influx of visitors hoping to learn more. Space gets people excited! If anything, *Project Hail Mary* was a missed opportunity to introduce people to more science. In today’s increasingly anti-science political climate, we should be doing as much as we can to encourage curiosity and critical thinking.

It’s not easy to present complex topics to a general audience without confusing them or bashing them over the head with unnecessary information. Perhaps I only have so many grievances because I read *Project Hail Mary* (the book) first and saw all that was lost in translation from page to screen. Unfortunately, I don’t think the movie made enough of an effort to depict the challenging nature of science. The writers would’ve benefited from having more confidence in their audience: trusting that people are capable of being exposed to scientific concepts at the same time as watching a feel-good movie. We might not all be rocket scientists (or molecular biologists), but just like Grace and Rocky, we can still figure it out together along the way. ■

The Visitors: New York City Fauna

By Rebecca Su

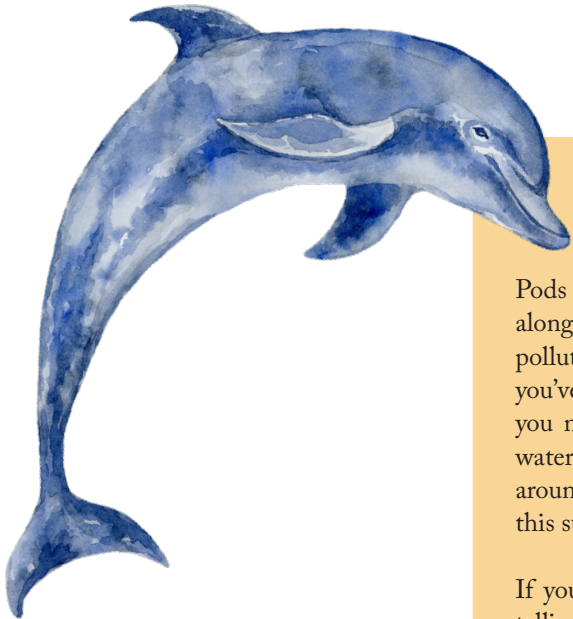
Trumpeter Swan

The newest Tri-I visitor is a [trumpeter swan](#)! It recently moved here from up north, maybe because of how cold this past winter was. A vacation was probably much needed, since this species was heavily hunted for feathers and meat to the point of near extinction.

This extra-large bird—the heaviest living species in North America—has taken up residency in Brooklyn, where it has already made friends with a local mute swan named William. Rumor has it that the swan has even joined the local co-op.



Source: NPS / Jacob W. Frank via [Flickr](#).
Used under [PDM 1.0](#).



Dolphin

Pods of bottlenose and short-beaked common dolphins used to live along the East River. They went away for a while because of how polluted the river became, but they have recently [made a return](#)! If you've been eating lunch at Rockefeller's Bass Dining Commons, you may have seen these dolphins circling back into the brackish waters of the East River. Since their return, they've also been spotted around Coney Island. They might even make it to a Cyclones game this summer!

If you do spot a dolphin milling about the river, here's a trick for telling which species it is: bottlenose dolphins have a uniform grey coat, while short-beaked common dolphins have a yellow patch on their sides.



Astoria in The Battery in February 2026. Source: Aude via [Wikimedia Commons](#). Used under [CC BY 4.0](#).

Turkey

Turkeys, like the trumpeter swan, are native to North America. One turkey named Astoria was fostered by Tri-I residents on Roosevelt Island and the Upper East Side before she moved to the Battery this year. Despite being named Astoria, she has never actually lived in Mayor Mamdani's former Assembly district—perhaps, [like the state of Turkey](#), she's more of an Eric Adams fan.

Beaver

Though beavers are New York's state mammal, they are not often seen in the city. However, one beaver was [recently spotted](#) swimming in the Hudson River. Time will tell if these new tenants will stick around. But as the waters around New York City become cleaner, perhaps we will see more and more of these wild visitors giving city living a try.



Source: GlacierNPS via [Flickr](#).
Used under [PDM 1.0](#).

Summer Recommendations

By Cecilia Cuddy

1 Elizabeth Street Garden

If you are looking for a mental palate cleanser, I highly recommend walking through [this garden](#). Tucked away between Prince Street and Spring Street, it feels like a mini oasis of lush trees and flowers that acts as a hidden and surreal pocket universe within our city. The narrow, half-acre garden is packed with dense greenery, winding paths, and many neoclassical marble monuments. The garden's quietness makes it the perfect place to relax and reset your mind. My advice is to visit on a weekday, in the morning or during golden hour in the late afternoon. This garden is the premier spot to turn off your phone and unwind as you take in the beauty of your surroundings!



2 Brooklyn Public Library

The [Brooklyn Public Library](#) at Grand Army Plaza is the perfect intellectual respite away from the summer heat! Housed in a stunning and massive Art Deco building (that looks like an open book!), this library is a grand, air-conditioned sanctuary. My advice would be to check out the Dweck Center for film screenings and live performances, as well as stopping for coffee and snacks at Emma's Torch. This is a premier spot to escape the summer heat!



Photo from [hudsonriverpark.org](#)

3 Free Kayaking at Pier 26

If you are looking for a high-reward activity that doesn't require much previous experience, you should definitely check out the [Downtown Boathouse](#) at Pier 26 in Tribeca! Run entirely by volunteers, this public program in the heart of downtown Manhattan allows you to launch a kayak straight into the Hudson River free of charge. No prior experience is needed—the boathouse provides everyone with the necessary safety gear, life vests, and paddling lessons to help you feel safe and get out on the water right away! I would advise you to go during the weekend, when the boathouse is open from 10am to 4:30pm (until early October). You can also attend weeknight sessions on Tuesdays and Thursdays from 5:30pm–7:15pm.



Photo from [nyctourism.com](#)

4 Arte Museum New York

Located at 61 Chelsea Piers, this [museum](#) stands out amongst the many in New York City! With its cutting-edge technology, the museum abandons traditional spacing, opting for large 3D mapping, directional sound design, and custom-created scents. The museum is built around the theme of *Eternal Nature*, where people walk through fourteen distinct exhibits/zones. You can expect to see an endless field of digital roses blooming or enormous hyper-realistic waves crashing in a 5,000-square-foot room. I would aim to visit on a weekday morning or early afternoon so you can take your time wandering through each exhibit. The museum is open Sunday–Thursday from 10am–7pm and Friday–Saturday from 10am–9pm.

5 Queens Night Market

The [Queens Night Market](#) at Flushing Meadows Corona Park offers a vibrant night out! This market takes place every Saturday night throughout the summer from 4pm to midnight and is a great activity to do with a group of friends. What makes this market amazing is that there are over 100 independent local vendors, easily representing over 90 countries. You can sample food from every corner of the globe, from Taiwanese wheel cakes to Sudanese kofta. All of this incredible food rarely exceeds \$6 per item, making this the perfect night out with friends looking to explore all the wonderful cuisines NYC has to offer!



6 Rooftop Cinema Club

Located in Midtown, this unique movie experience trades your traditional theater for one where you can watch a movie under the stars! If you're worried about the sounds of New York getting in the way, don't worry—the theater provides high-fidelity wireless headphones. All you have to do is lounge back in your chair and enjoy a film against the backdrop of Manhattan skyscrapers. The screenings run all summer long, with doors opening 30–60 minutes before sunset so you can enjoy the golden hour over Midtown. Note that you should book tickets [online](#) in advance!

