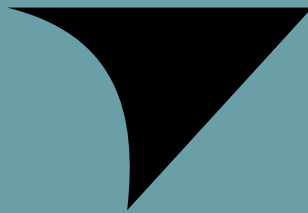


**IMPACT
REPORT 2024**



knowable MAGAZINE

FROM ANNUAL REVIEWS



**Making
scientific
knowledge
accessible
to all**

Dear reader,

In 1932, a small group of biochemists — eager to help their colleagues keep up with an avalanche of new, interesting research in their field — published their first “annual review.” That marked the start of our publisher, Annual Reviews, and of its approach: Invite leading scholars to mark progress in their line of research, synthesizing new findings and ideas for the benefit of the larger scientific community.

In 2017, I joined Annual Reviews to start a new experiment: *Knowable Magazine*. Our reason for being was, and still is, to keep the public informed about advances in knowledge, both the fundamental ones that change only the textbooks (for now!) and the ones that have immediate relevance for our everyday lives.

The cornerstone of our approach is adding context, avoiding hype and sensationalism, and providing insight into the methods of research. And we take our job very seriously, always striving to produce accurate, readable and appealing stories that introduce new ideas, and display what the mass of evidence says, to both delight and inform.

Our experiment has been a success. In these seven years, *Knowable* has provided millions of readers with free, high-quality science journalism. We have expanded our reach linguistically and geographically through the launch of *Knowable en español*. Our stories are free to read not only at our own website, but also through scores of media partners, who republish our work and amplify access to *Knowable*'s content.

It's gratifying to see *Knowable*'s stories reach large numbers of readers across the world, but my greater hope is that every article offers something special to someone. Perhaps it satisfies a curiosity about human behavior, or maybe it tackles an important societal problem. Perhaps it's illuminating the evolutionary adaptations of plants, animals and microbes, or explaining the elegant biological workings of our cells.

Whatever the story, know that we at *Knowable* — and the talented freelance science journalists with whom we work — put our hearts and minds into making that story as clear, accurate and engaging as we can.

This work would not be possible without the support of donors like you. As you read through this report, I hope you are proud of what you are helping to create, each and every week. We thank you deeply.

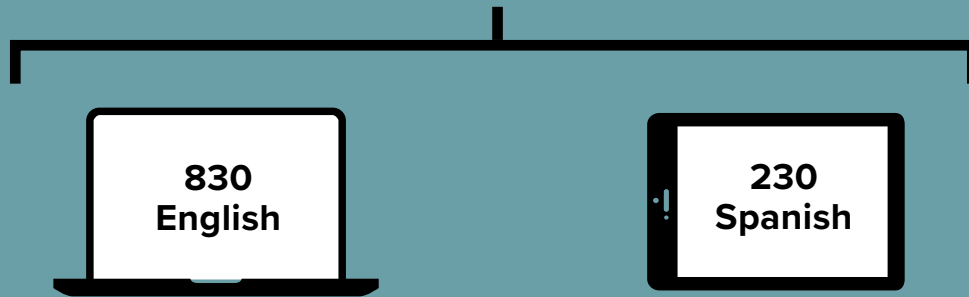


Best wishes,
Eva Emerson
Editor in Chief

Our impact since launch

Over 1,050 stories published

Includes articles, videos, comics, podcasts and events



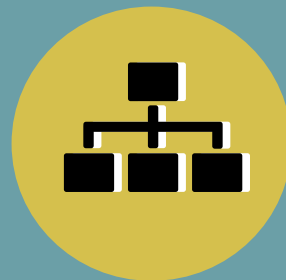
65 million+ pageviews

From our website and from
republication



**76,000+ newsletter
subscribers**

in English and Spanish



2,500+ replications



270+ translations

Recognition at the 2024 Folio awards

The annual Folio awards celebrate engaging online content, selecting from a wide field of publications.

WINNER

KNOWABLE MAGAZINE PODCAST

Podcast (Science)

EVERYONE SHOULD START COUNTING SPIDERS

Single Article (Consumer – Science)

KATARINA ZIMMER

Range of Work by a Single Author (Consumer)

Article portfolio:

- Dead trees around the world are shocking scientists
- How wind turbines could coexist peacefully with bats and birds
- Geothermal power heats up
- The challenges and promises of climate lawsuits
- Indigenous languages are founts of environmental knowledge

HONORABLE MENTION

THE ATOMIC BOMB, EXILE AND

A TEST OF BROTHERLY BONDS:

ROBERT AND FRANK OPPENHEIMER

Long-Form Feature Content (Consumer)

KNOWABLE MAGAZINE NEWSLETTER

Newsletter (Consumer)

THE EXTRAORDINARY CASE OF THE

FEROCIOUS FEMALE MOLES

Single Article (Consumer – Science)

MOVING TREES NORTH TO SAVE

THE FORESTS

Single Article (Consumer – Science)

Knowable in the world

ART EXHIBIT SELECTION

COVID-19: WHY RACE MATTERS FOR HEALTH

“Legacy: Civil Rights at 60,” DC Commission on the Arts & Humanities

PANEL ORGANIZER

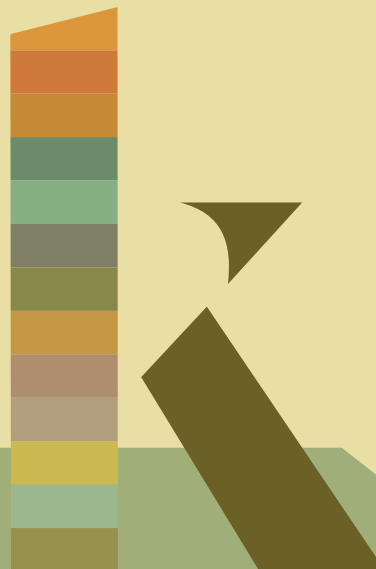
WHEN WORDS AREN'T ENOUGH: HOW TO

MAKE VISUALS PART OF YOUR STORYTELLING

ScienceWriters 2024, National Association of Science Writers

See all awards and recognitions:

knowablemagazine.org/awards-and-recognition



Sound science.

Our work covers the full breadth of an area of research, not just the latest study or press release. We evaluate evidence with a curious but skeptical eye and uncover how independent threads of research are — or are not — coming together. Everything is backed by in-depth reporting, multiple expert perspectives and reputable scientific papers, including articles from our publisher, Annual Reviews.

“I appreciate and value the enormous effort that goes into accurate and critical reporting — especially about topics that people disagree on. Unbiased information from well-researched articles provides the basis that allows each person to make informed decisions and enter into a well-informed and civil discourse.”

—Matthias Hess, Microbiologist, UC Davis

Smart stories.

Our stories are written by seasoned science journalists and undergo a rigorous editing process. We use everyday language, clear explanations and compelling storytelling. The result: Award-winning science journalism that is trustworthy, reliable and enjoyable.

“Right at the level smart people want to read.”

—Lynn Enquist, Professor Emeritus in Molecular Biology, Princeton University;
Founding Editor, *Annual Review of Virology*



**17 writing
awards**
since 2017



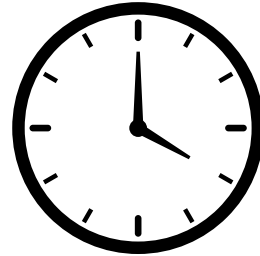
**Over 190 writers
from 6 continents***
since 2017
* Someday, Antarctica?



Fact-checked.

Fact-checking isn't just an extra step in our process; it's foundational to what we do. Our fact-checkers scrupulously verify every word, from the color of a scientist's armchair to the mass of a subatomic particle.

Over 800 Hours
spent fact-checking articles in 2024

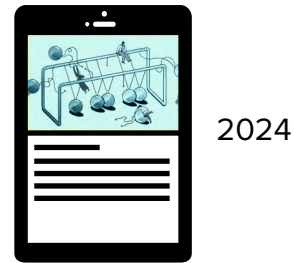


Presented beautifully.

We work with top-notch artists to craft award-winning illustrations and graphics that clarify complex concepts and make our articles visually compelling.



Over 100 original banner illustrations commissioned



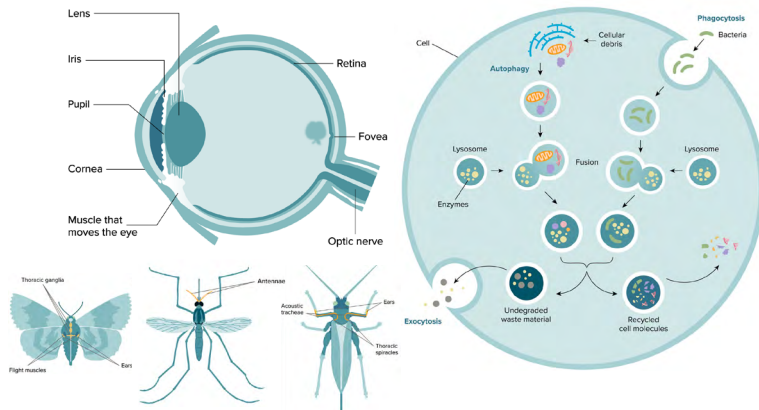
18 original banner illustrations commissioned

Knowable Magazine Science Graphics Library

A library of free-to-use science graphics for community college and high school educators. Launched with the support of the Gordon and Betty Moore Foundation.

EXPLORE MORE:

Over 350,000 views
260+ images



Now available in Spanish, too.

Spanish is the native language for half a billion people around the world. In 2022, with the support of the Gordon and Betty Moore Foundation, we launched *Knowable en español* to serve this growing audience. In just two years, our Spanish-language channel has offered free science journalism to an estimated 25 million readers.

What *Knowable en español* provides:

Translations
of *Knowable
Magazine's*
English stories



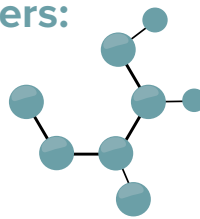
Original stories (reported
and written in Spanish)

knowable EN ESPAÑOL
OF ANNUAL REVIEWS

Knowable en español covers:



Significant and
thought-provoking
science conducted
in Latin America or
of special relevance
to the region



The work of Latino
scientists in the United
States and emerging
research that affects the
US Latino community



25 million+
pageviews
(on [es.knowable
magazine.org](https://es.knowablemagazine.org) and
republications)



230,000+
Facebook
followers



46,000+
Instagram
followers



230+
republications
(since launch)

Nexus: Science & Latinos in the United States

A bilingual series of stories and interviews

Produced with support from the Howard Hughes Medical Institute's Science and Educational Media Group, this series explores the work of Latino scientists and emerging research that affects the US Latino community, presented in English and Spanish.

Explore more: knowablemagazine.org/science-latinos-united-states-hhmi-series

We increase our reach through republishing...

Thanks to our Creative Commons license, *Knowable Magazine's* stories are freely available for anyone to republish. We actively seek republishing partners in English and Spanish serving a wide variety of audiences: From professional and specialty websites to large newspapers and magazines read by the general public. Our articles have appeared in over 200 publications, doubling our readership.

IN 2024, WE APPEARED IN



YOU CAN ALSO FIND US IN



...and translation partnerships.

Beyond republishing, our network of translation partners has brought *Knowable Magazine*'s work to readers in their local tongue more than 270 times.

2024 TRANSLATION PARTNERS INCLUDE



FROM A REPUBLISHING PARTNER

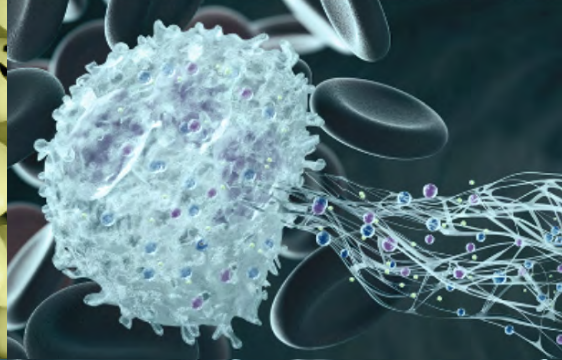
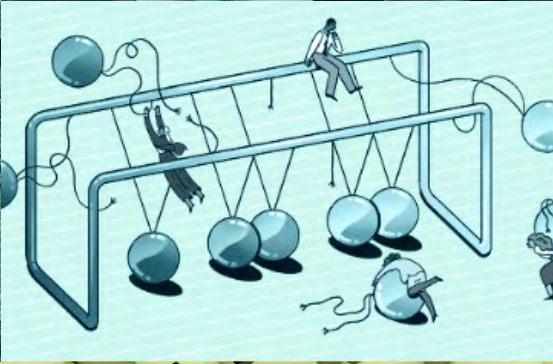
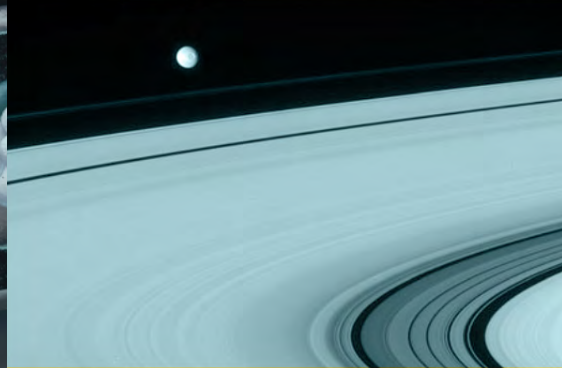
“Access to *Knowable en español*'s features and stories has made a significant contribution to the quality and diversity of the scientific content we offer in *La Nación*'s Sunday magazine. These journalistic pieces, of high value, stand out for their pleasant and accessible style, in addition to being enriched with graphic elements that facilitate the understanding of complex topics. Having these resources provides a real benefit to our readers and contributes to improve their quality of life.” —V́ctor Ferńandez G., Editor, *Revista Dominical, La Naci3n*, Costa Rica

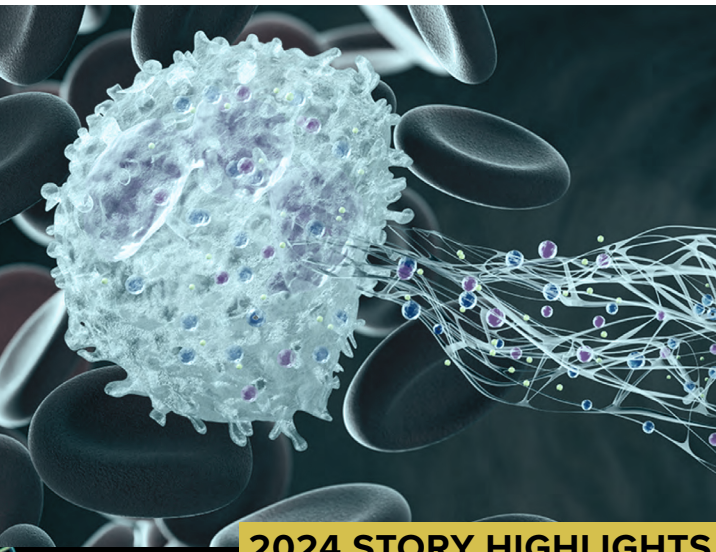


Interested in republishing or translating *Knowable Magazine*?
Contact: Katie Fleeman kfleeman@annualreviews.org

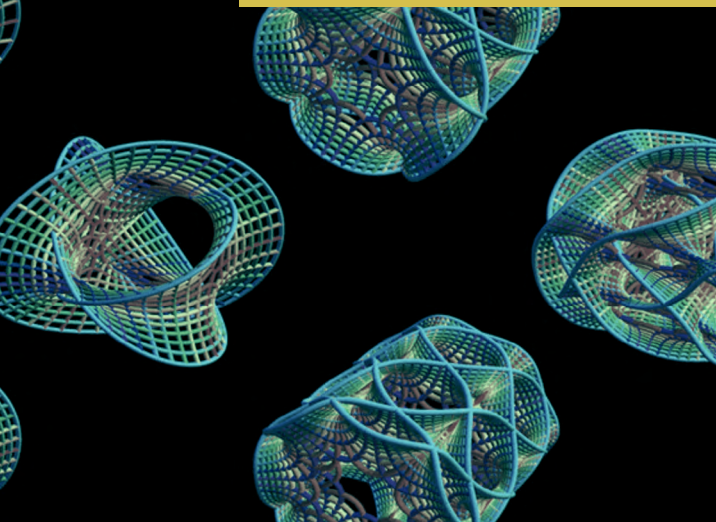


2024 STORY HIGHLIGHTS





2024 STORY HIGHLIGHTS



Fundamentals

Stories that shift our understanding of “textbook” science

Your cells are dying. All the time.

Sus células están muriendo... todo el tiempo

By Amber Dance, special contributor

Some go gently into the night. Others die less prettily in freak accidents or deadly invasions, or after a showy display.

Republished by: *Ars Technica, Nautilus, Popular Science, The Wire*

String theory is not dead

La teoría de cuerdas no ha muerto

By Tom Siegfried, Magazine Advisory Group member

Out of the limelight, theoretical physicists seek the math that can explain the universe’s particles and forces

Republished by: *Astronomy, Discover, Popular Science, The Wire*

To pee or not to pee? That is a question for the bladder — and the brain

¿Orinar o no orinar? Esta es una pregunta para la vejiga —y para el cerebro—

By Emily Underwood, associate editor

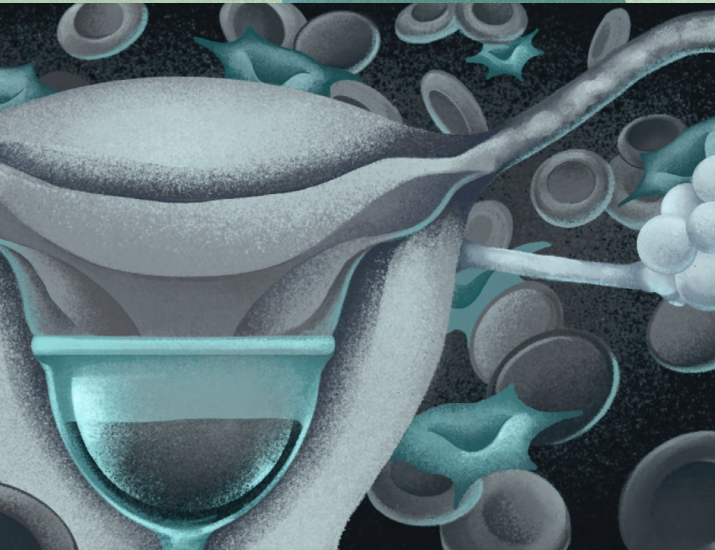
How do we sense the need to urinate? The basic urge is surprisingly complex and can go awry as we age.

Republished by: *Smithsonian Magazine, Brain Facts, Ars Technica, Popular Science, Inverse, El Espectador*

Featured by: 1440 newsletter



2024 STORY HIGHLIGHTS



Frontiers

Emerging research that challenges or extends the borders of knowledge

Toward truly compostable plastic

Hacia un plástico verdaderamente compostable

By Boyce Upholt

Materials scientists are cooking up environmentally friendly polymers from natural sources like silk, plant fibers and whole algae. Economics and acceptance remain hurdles.

Republished by: Freethink, Inverse, Popular Science, Sierra Magazine

Featured by: Environmental Health News

A new look at our linguistic roots

By Kurt Kleiner

Linguists and archaeologists have argued for decades about where, and when, the first Indo-European languages were spoken, and what kind of lives those first speakers led. A controversial new analytic technique offers a fresh answer.

Republished by: Ars Technica, Discover, Scientific American

Adapted for audio by: Grammar Girl podcast

Translated by: Le Scienze (Italian)

The untapped potential of stem cells in menstrual blood

El potencial sin explotar de las células madre de la sangre menstrual

By Sneha Khedkar

Long overlooked, menstrual stem cells could have important medical applications, including diagnosing endometriosis

Republished by: The Hindu, Good News Network, VaccinesWork, El País



Inspiration

Stories that spark wonder and awe

Animals use physics? Let us count the ways

¿Los animales usan la física? Veamos de qué manera

By Tom Siegfried, Magazine Advisory Group member
Cats twist and snakes slide, exploiting and negotiating physical laws. Scientists are figuring out how.

Republished by: *Ars Technica, Big Think, Discover, El Espectador, Climática, Popular Science, Scientific American, The Wire*

Featured by: *Nature Briefing*

Why do some people always get lost?

¿Por qué hay gente que siempre se pierde?

By Bob Holmes, special contributor

Research suggests that experience may matter more than innate ability when it comes to a sense of direction

Republished by: *Ars Technica, Big Think, Discover, El País, La Nación, Popular Science, Scientific American, Smithsonian Magazine*

Translated by: *Courier international (French)*

Featured by: *El Financiero, Flipboard's 10 for Today, Nature Briefing, Numlock News, RNZ: The Panel*

Saturn's moon Mimas may hide a surprisingly young ocean

La luna Mimas de Saturno podría esconder un océano sorprendentemente joven

By Shannon Hall

The existence of another watery world in the outer solar system may offer clues to how such seas form — and hope for a new spot to search for life

Republished by: *Astronomy, The Atlantic, Big Think, Inverse, Popular Science, Scientific American*

Translated by: *Atlantico (French)*

Featured by: *Futurism*



2024 STORY HIGHLIGHTS



Solutions-focused stories

Tackling major problems with evidence-backed ideas

Moving trees north to save the forests

Trasladar árboles hacia el norte para salvar los bosques

By John H. Tibbetts

As the world warms, trees in forests such as those in Minnesota will no longer be adapted to their local climates. That's where assisted migration comes in.

Republished by: *The Atlantic, Big Think, Freethink, Inverse, Scientific American, Smithsonian Magazine*

Translated by: *Atlantico (French)*

Featured by: *Botany One*

Honorable mention: 2024 Folio awards, Single Article (Consumer — Science)

The greening of planes, trains and automobiles

La transformación ecológica de aviones, trenes y automóviles

By Nicola Jones

We need new fuels to transport people and goods around the globe as society moves away from coal, natural gas and oil. Here's how things are shaping up.

Republished by: *Ars Technica, EHN en Español, Popular Science, The Wire, Worth, Yale Climate Connections*

Featured by: *El Financiero, MIT Technology Review*

Cleaning up cow burps to combat global warming

Limpiar los eructos de las vacas para combatir el calentamiento global

By Bob Holmes, special contributor

New tools for lowering methane emissions from livestock are on their way

Republished by: *Ars Technica, Discover, Inverse, The Wire*

Featured by: *MIT Technology Review*



2024 STORY HIGHLIGHTS



On-the-ground reporting

The hornet has landed: Scientists combat new honeybee killer in US

By Hannah Hoag, reporting from Germany

An invasive yellow-legged wasp has been decimating beehives in Europe — and bedeviling the state of Georgia since last summer. Researchers are working nest by nest to limit the threat while developing better eradication methods.

Republished by: *Ars Technica, USA Today*

Nature interrupted: Impact of the US-Mexico border wall on wildlife

Naturaleza interrumpida: el impacto del muro fronterizo entre EE.UU. y México en la fauna salvaje

By Iván Carillo, reporting from Mexico

Scientists on both sides of the border are working to understand how the barrier is affecting the area's biodiversity. Meanwhile, communities try to save animals left without access to water.

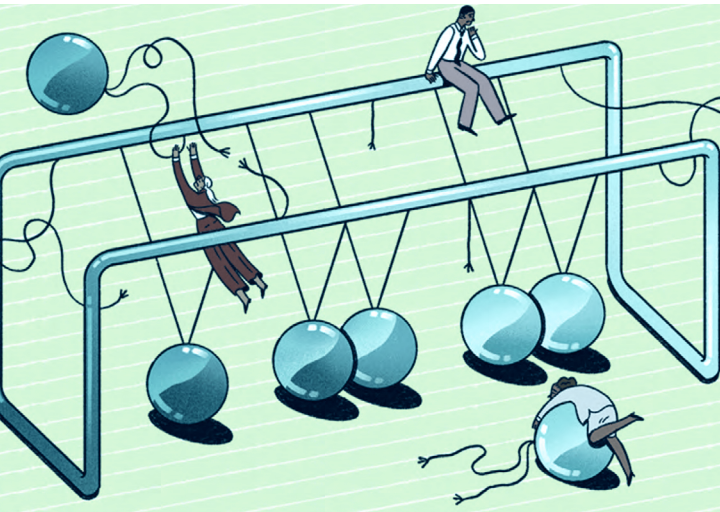
Republished by: *Ars Technica, Earth Journalism Network, El Universal, El Espectador, Dossier Político, Tucson Sentinel*

Can desalination quench agriculture's thirst?

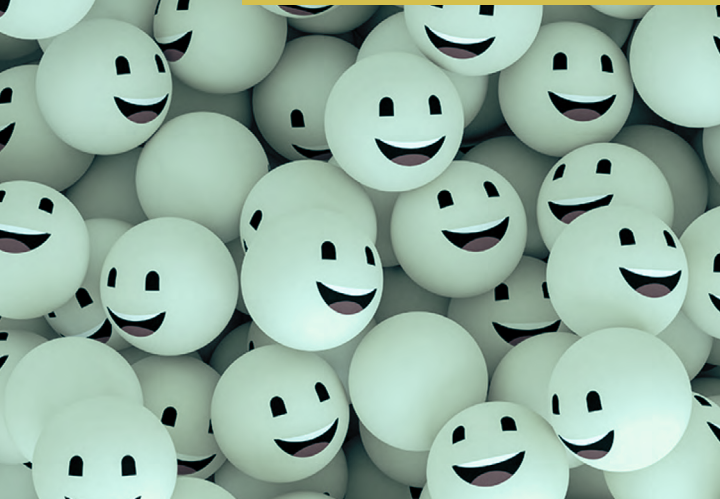
By Lela Nargi, reporting from Texas

Miles away from the ocean, projects are afoot to clean up salty groundwater and use it to grow crops. Some say it's a costly pipe dream, others say it's part of the future.

Republished by: *Ars Technica, Maven's Notebook, Popular Science, Yale Climate Connections*



2024 STORY HIGHLIGHTS



Health and wealth

Evidence-based stories that affect daily life

Are you a workaholic? Here's how to spot the signs

¿Es adicto al trabajo? Aquí explicamos cómo detectar las señales

By Chris Woolston

In a major shift, psychologists now view an out-of-control compulsion to work as an addiction with its own set of risk factors and consequences

Republished by: *Ars Technica, El Espectador, El País, La Nación, Medscape (Edición en Español), Popular Science, Salud con lupa, The Washington Post, The Wire*

Featured by: *Numlock News, La Voz, El Financiero*

Scientists scrutinize happiness research

Científicos examinan la investigación sobre la felicidad

By Amber Dance, special contributor

From meditation to smiling, researchers take a second look at studies claiming to reveal what makes us happy

Republished by: *Bebés y más, Big Think, El Espectador, El País (US Edition), Inverse, Freethink, Medscape (Edición en Español), Scientific American*

Translated by: *Le Scienze (Italian)*

Featured by: *Nature Briefing*

Should you take vitamin D? Here's the science
¿Debemos tomar vitamina D? Esta es la ciencia

By Katarina Zimmer, special contributor

Some people take too much, and too many get too little. Experts explain who needs D supplements, and why.

Republished by: *El Espectador, El País, La Nación, Popular Science, The Wire*



2024 STORY HIGHLIGHTS



People behind the science

The atomic bomb, exile and a test of brotherly bonds: Robert and Frank Oppenheimer

La bomba atómica, el exilio y una prueba de los lazos fraternales: Robert y Frank Oppenheimer

By KC Cole

A rift in thinking about who should control powerful new technologies sent the brothers on diverging paths. For one, the story ended with a mission to bring science to the public.

Republished by: *Smithsonian Magazine*

Featured by: *JSTOR Daily, Bunk*

Honorable mention: 2024 Folio awards, Long-Form Feature Content (Consumer)

Of genes, chromosomes and oratorios

De genes, cromosomas y oratorios

By Marla Broadfoot

Jenny Graves has spent her life mapping genes and comparing genomes. Now she's created a musical opus about evolution of life on this planet — bringing the same drive and experimentalism she brought to the study of marsupial chromosomes.

Republished by: *Nautilus*

What's that smell — and how'd you know?

¿Qué es ese olor? Y ... ¿cómo logramos descifrarlo?

By Daniela Hirschfeld

Q&A — Neurobiologist Peter Mombaerts: It's clear that genes, receptors and neurons all play a role in detecting odors. But much of how we make sense of what we sniff remains mysterious. A neuroscientist explains.

Republished by: *Brain Facts, La Nación, Popular Science, The Wire*

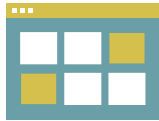
About our publisher: Annual Reviews

Annual Reviews is a nonprofit organization that synthesizes and integrates knowledge for the progress of science and the benefit of society through three divisions.



Annual Reviews Journals

Annual Review articles hold a unique place in the scholarly communication ecosystem because they transfer expert knowledge synthesized from the expanding corpus of scientific literature to scholars and society.



51 journals



3,625 expert authors from 69 countries



15 journals ranked #1 by JCR 2023

(Journal Impact Factor, Clarivate)



1,106 articles published in 2024

Subscribe to Open

Through the innovative Open Access model called Subscribe to Open (S2O), developed by Annual Reviews, existing institutional customers continue to subscribe to the journals. With sufficient support, every new volume is immediately converted to OA under a Creative Commons license and is available for everyone to read and reuse. Annual Reviews successfully converted all 2023 journal volumes to open access using S2O, resulting in a two- to threefold increase in global readership.

Knowable Magazine staff



Eva Emerson
Editor in Chief



Rosie Mestel
Executive Editor



Lisa Modica
Art Director



Rachel Ehrenberg
Senior Associate Editor



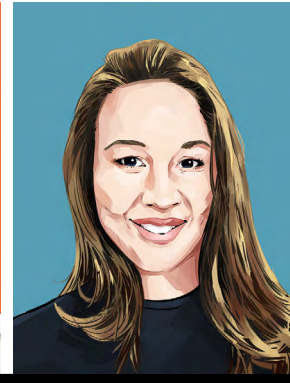
Katie Fleeman
Audience Outreach
and Strategy Manager



Debbie Ponchner
Editor, *Knowable
en español*



Betty Baboujon
Editorial Production
Manager



Emily Underwood
Associate Editor

Knowable Magazine Business Group

Richard Gallagher, Publisher
rgallagher@annualreviews.org

Jonathan Michael, Director of Finance
jmichael@annualreviews.org

Andrea Lopez, Director of Business Development
alopez@annualreviews.org

Mark Greene, Business Development Manager
mgreene@annualreviews.org

Help us expand our impact

Knowable Magazine has multiple opportunities for foundations, institutions and individuals interested in deepening their support for science journalism.

To learn more, contact: Richard Gallagher, Publisher,
rgallagher@annualreviews.org

Stay in the Know

Sign up for the weekly newsletter

ENGLISH knowablemagazine.org/newsletter

SPANISH es.knowablemagazine.org/boletin

Knowable Magazine from Annual Reviews is an editorially independent journalistic endeavor that seeks to make scientific knowledge accessible to all.

Annual Reviews is a nonprofit organization that synthesizes and integrates knowledge for the progress of science and the benefit of society.

knowable MAGAZINE
FROM ANNUAL REVIEWS

Knowable Magazine
knowablemagazine.org

knowable EN ESPAÑOL
DE ANNUAL REVIEWS

Knowable en español
es.knowablemagazine.org

**ANNUAL
REVIEWS**

Annual Reviews
annualreviews.org