



Cafés, podcasts, art galleries, and poetry readings: taking science communication to the people

*National Nuclear Security Administration's Stewardship Science Graduate Fellowship and Laboratory Residency Graduate Fellowship Program Annual Review
July 27, 2019*

Ivan Amato
DC Science Cafe

Tasks for you as you listen to this talk:

- Identify something about your work, or how you came to do the work you do, which would make someone want to learn more.
- As I touch upon different channels of communication, identify the ones most suited for telling your story.
- For the finale, I will ask volunteers to share what they came up so we can analyze and discuss the choices.

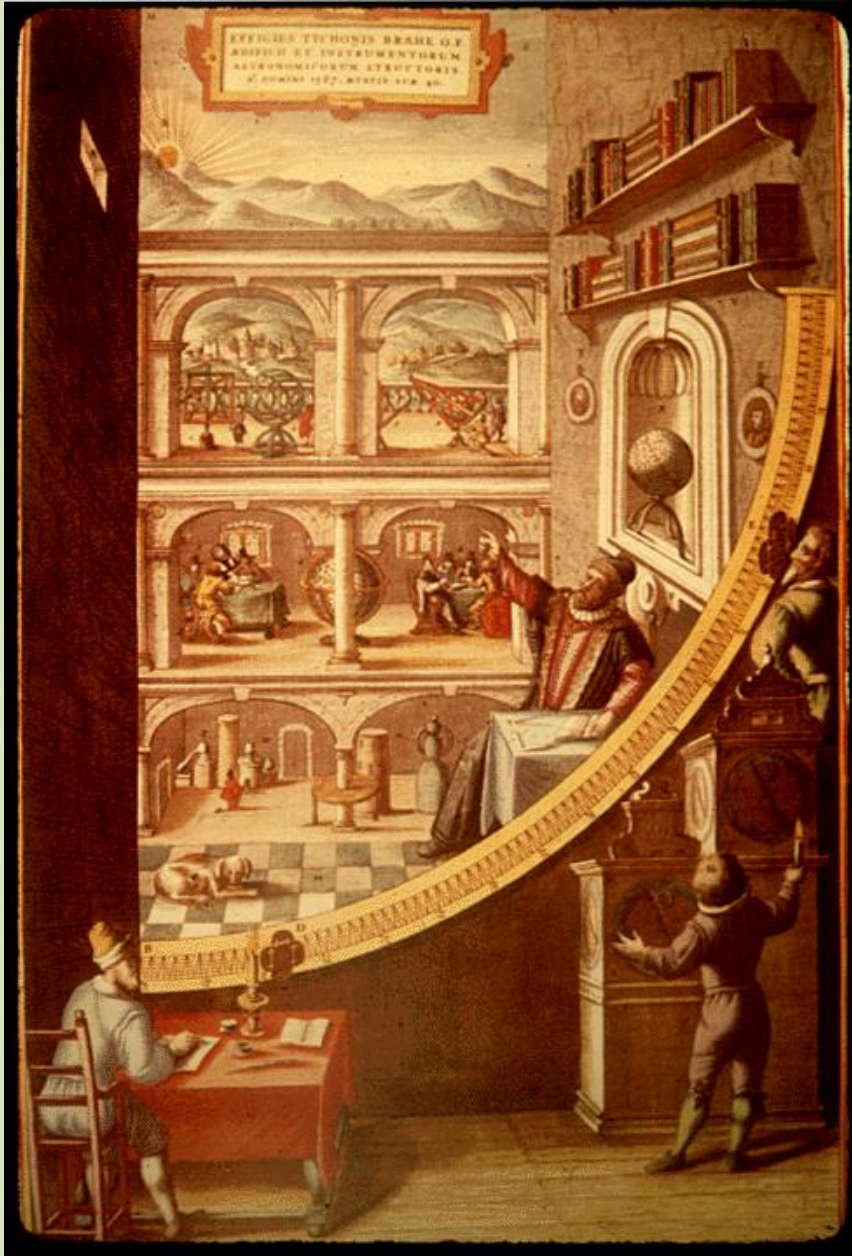
Your Stories

Most engaging stories have this same simple **WOW*** structure:

- A protagonist **W**ants something.
- The protagonist must overcome **O**bstacles to get what he/she wants.
- The protagonist **W**ins or loses.

*A concept derived from children's book writer Mary Amato.

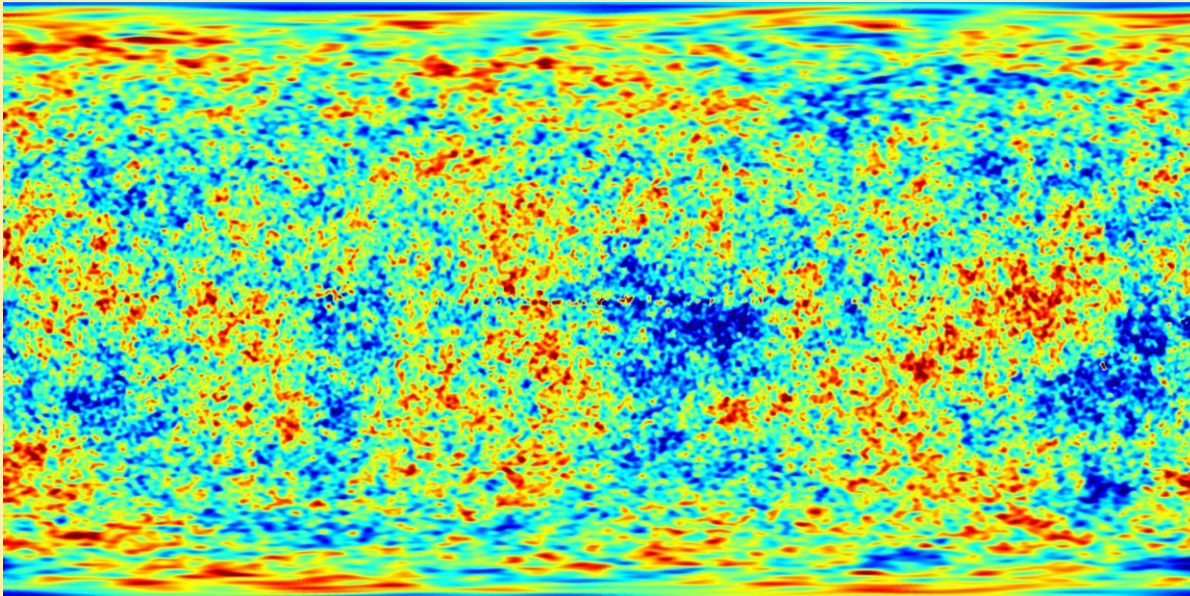
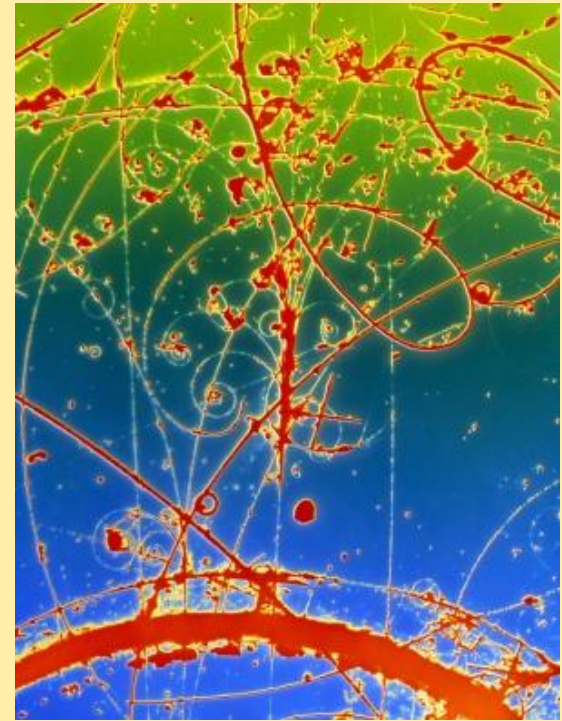
Science is the greatest story that can be told.



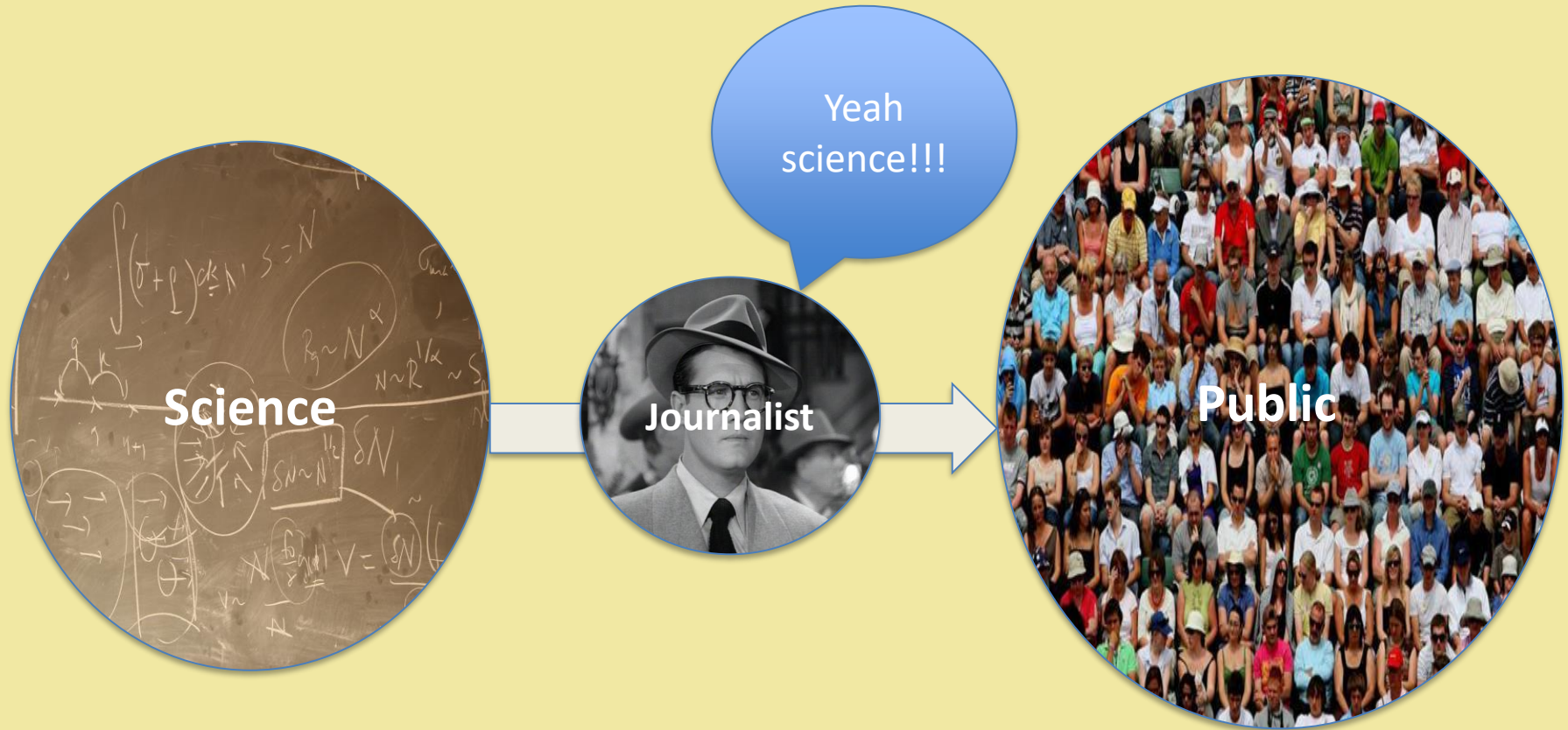
- ① The scientific way of asking and answering questions has led to an illuminating and empowering story about how nature works.
- ② The science story evolves as a series of provisional truths based on the evidence in hand and current theoretical frameworks.
- ③ This story is packed with drama.
- ④ People love great stories and you have some to tell.
- ⑤ Science and technology have become more important in decision-making

Don't forget this reason for sharing stories about scientific inquiry:

One of the greatest gifts scientists give to humanity are invitations to experience awe by revealing how the universe works, from its smallest to largest scales.



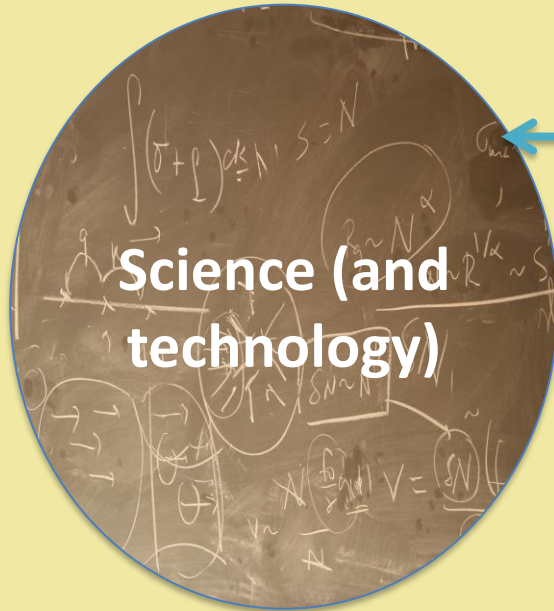
And now for a brief history of science journalism...



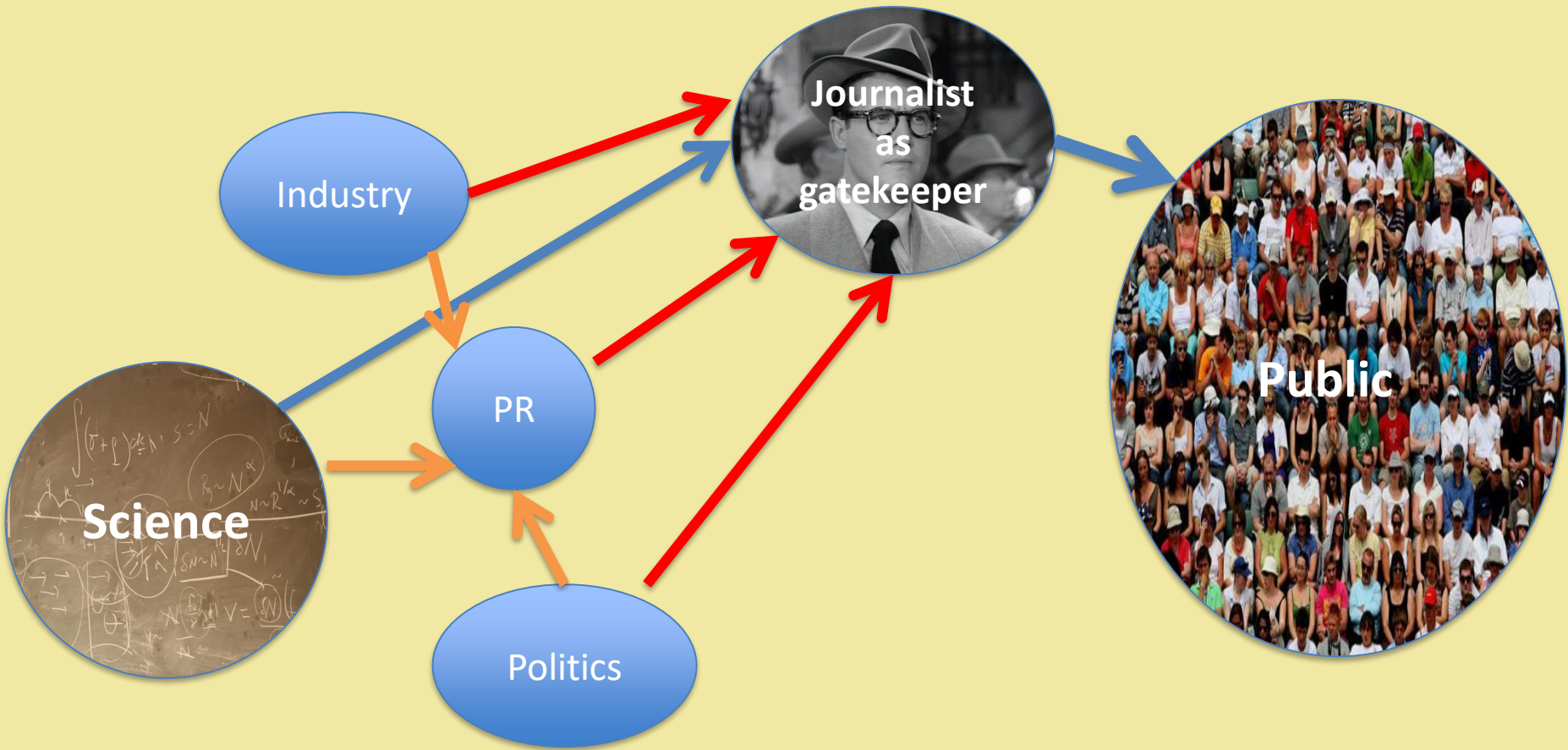
The Cheerleader Era

Who are the stakeholders?
Who is paying for the research? Who is gaining
and who is getting hurt?

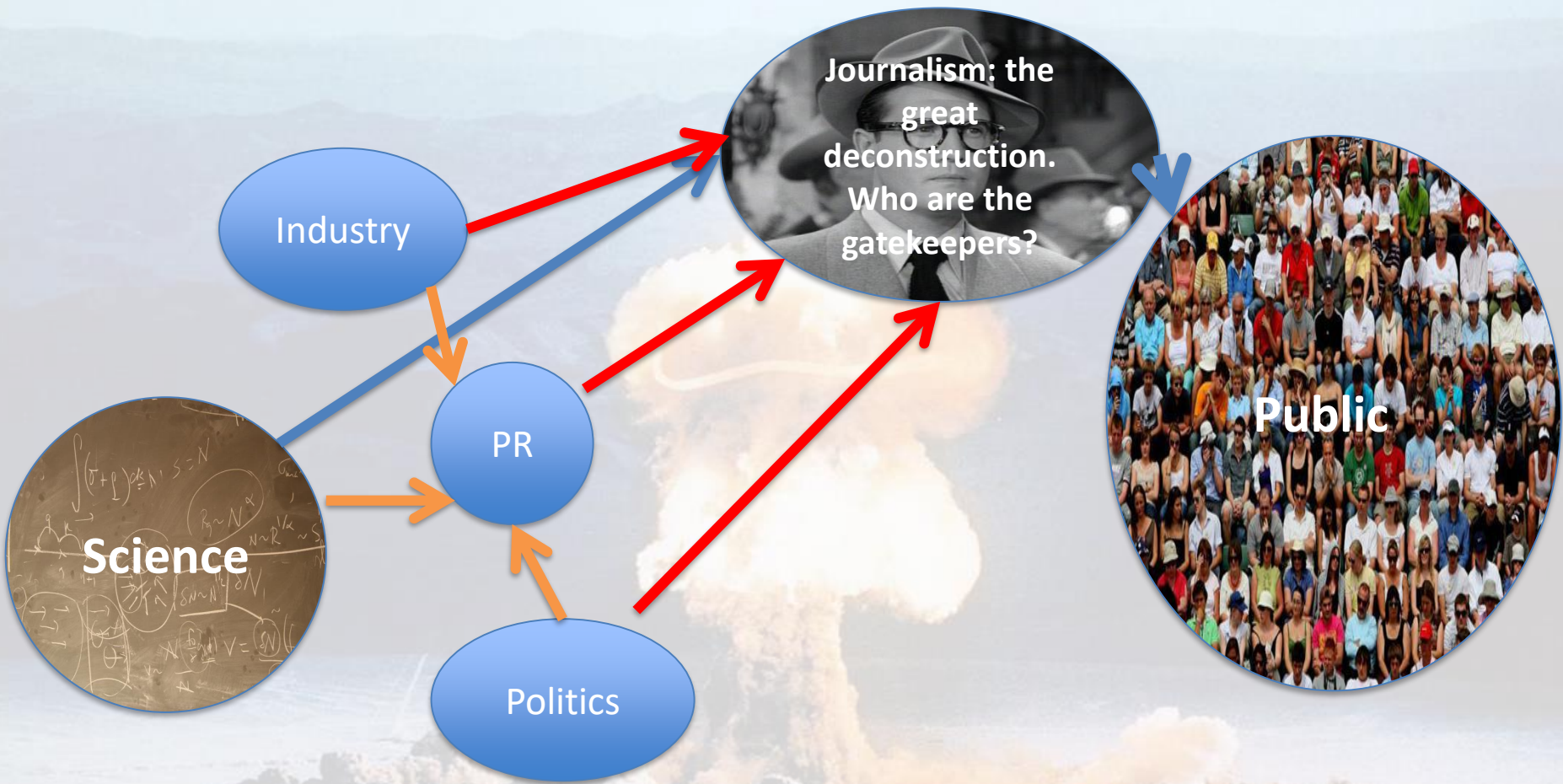
Examples: DDT and
military-industrial complex.



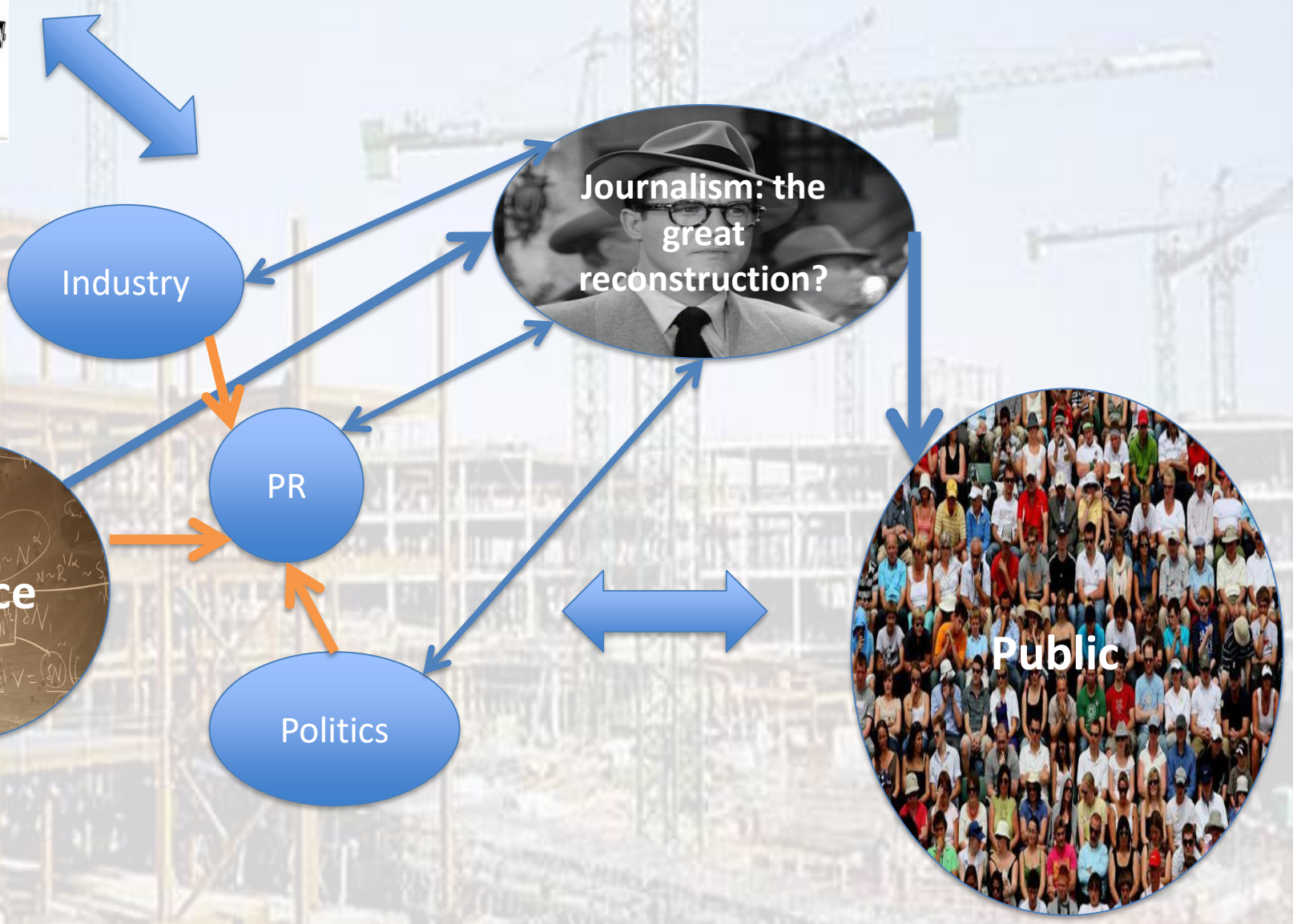
The Watchdog Era (1960s)



The Public Relations Era (1980s)

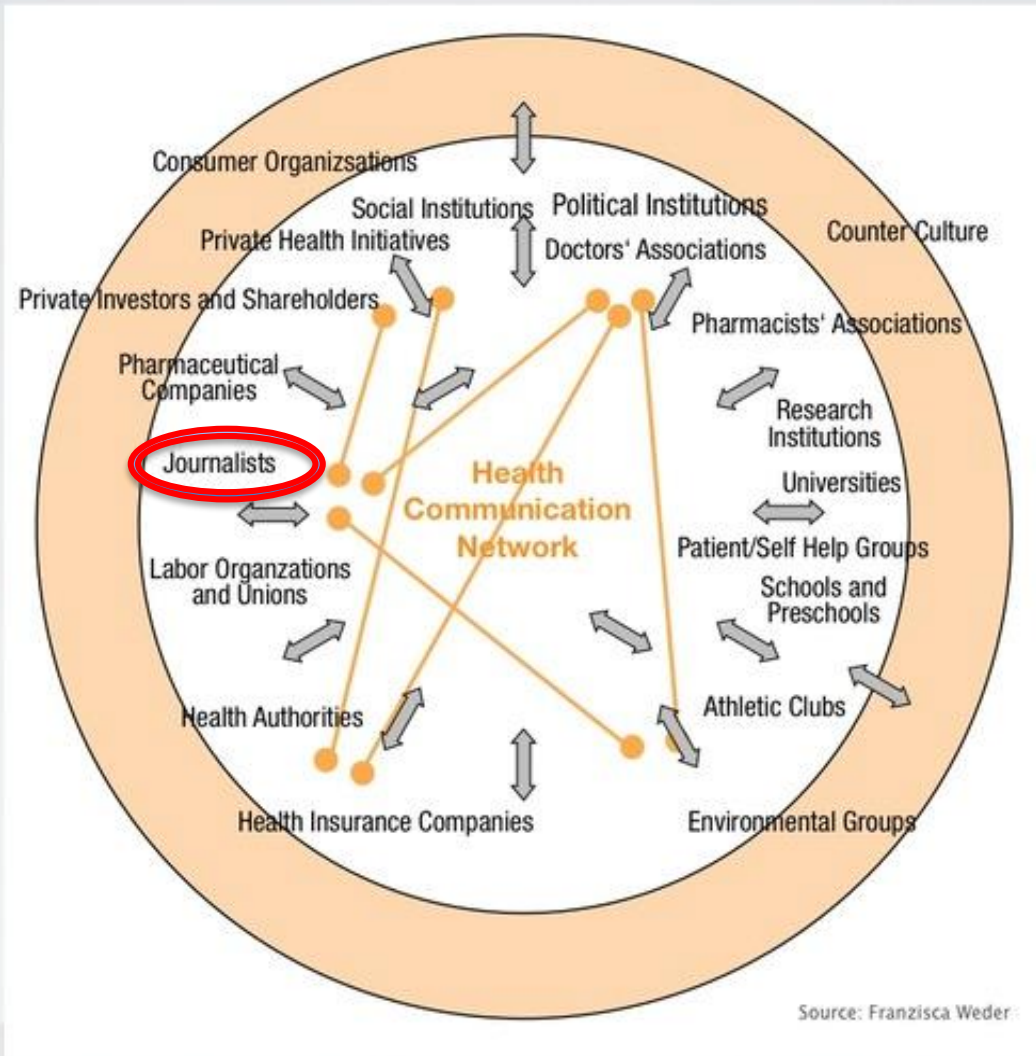


The Internet Era: Deconstruction



The Internet Era: Reconstruction?

Journalists have become one voice among many in an enlarging crowd...



Most Americans rely on general news outlets for science news, but a minority says they get the facts right about science

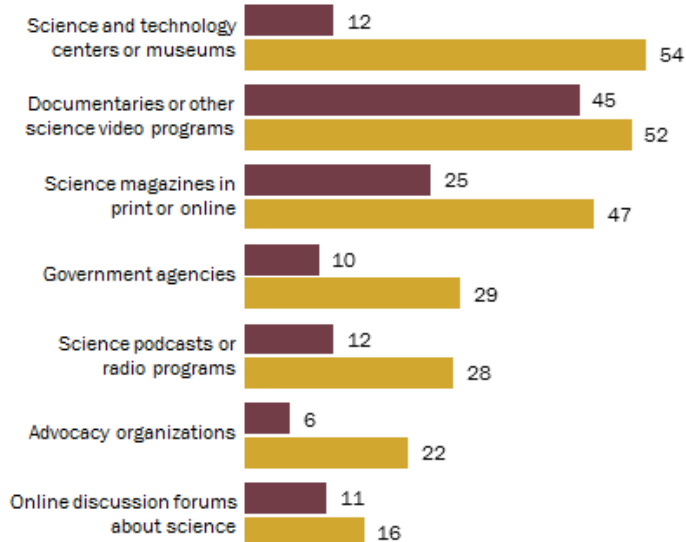
% of U.S. adults who say ...

- They regularly get their science news from each source type
- Each source type gets science facts right most of the time

GENERAL NEWS SOURCES



SPECIALTY SOURCES



Note: "Most of the time" combines those who said "almost all" or "more than half" of the time. Respondents who gave other responses on each question or who did not give an answer are not shown. Other source types rated are not shown.

Source: Survey conducted May 30-June 12, 2017.

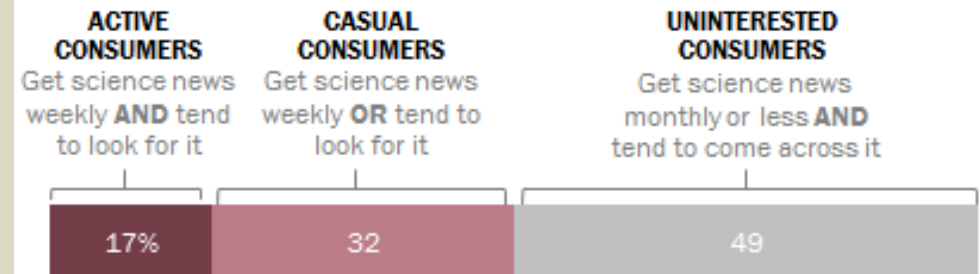
"Science News and Information Today"

PEW RESEARCH CENTER

Who consumes science news?

About one-in-six U.S. adults are active science news consumers

% of U.S. adults who are each type of science news consumer



Note: Respondents who did not give an answer to either question are not shown.

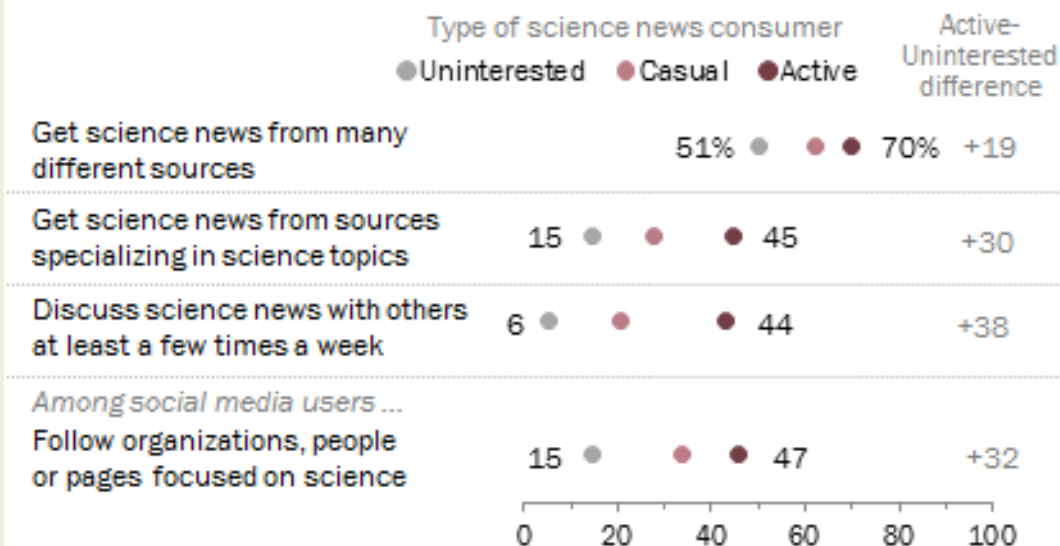
Source: Survey conducted May 30-June 12, 2017.

"Science News and Information Today"

PEW RESEARCH CENTER

Active science news consumers rely on a wider range of sources and discuss science news more often

% of U.S. adults in each group who say they ...



Note: Type of science news consumer based on their frequency of science news consumption and whether they tend to look for or come across it. Respondents who gave other responses or who did not give an answer are not shown.

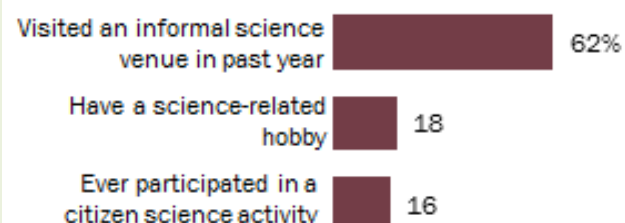
Source: Survey conducted May 30-June 12, 2017.

"Science News and Information Today"

PEW RESEARCH CENTER

Many Americans encounter science in other venues of everyday life

% of U.S. adults who ...

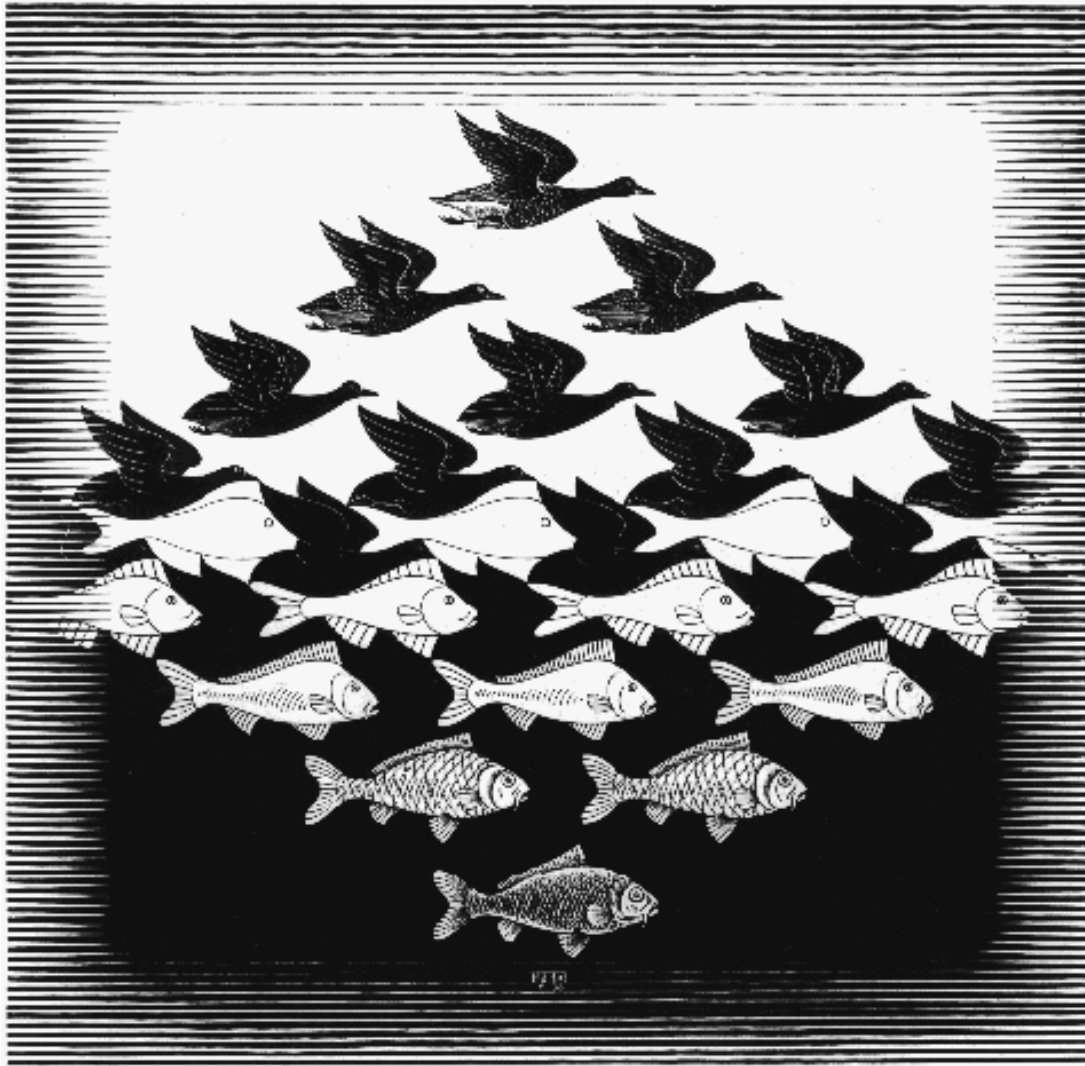


Note: Visits to informal science venues based on those who have been to any of five informal science venues. Citizen science activity based on those who have done any of three activities. Respondents who did not do each or who did not give an answer are not shown.

Source: Survey conducted May 30-June 12, 2017.

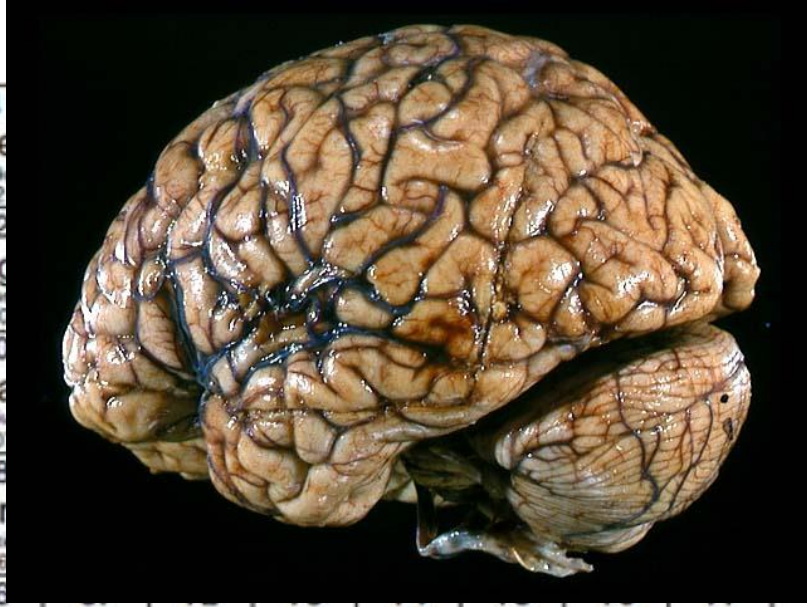
"Science News and Information Today"

PEW RESEARCH CENTER

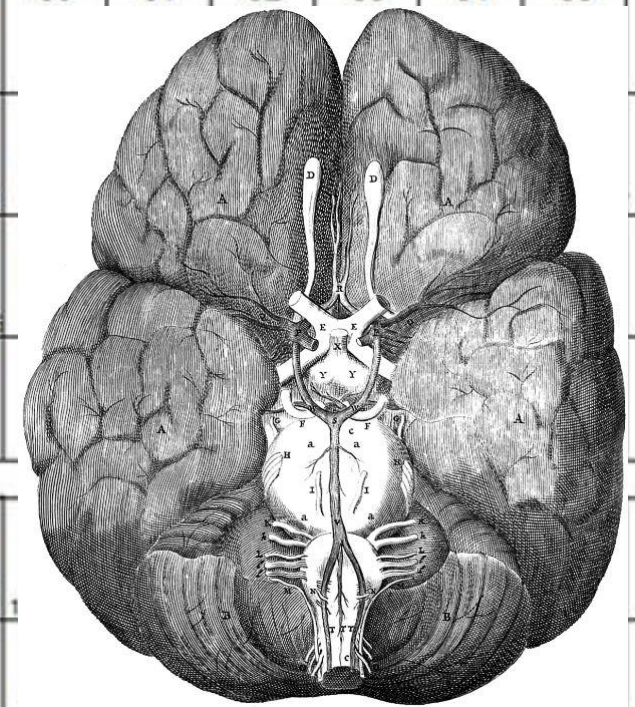


A would-be scientist defects from the lab bench and morphs into a science writer and later into a champion of the notion that science communication can unfold anywhere

The Periodic Table of the Elements



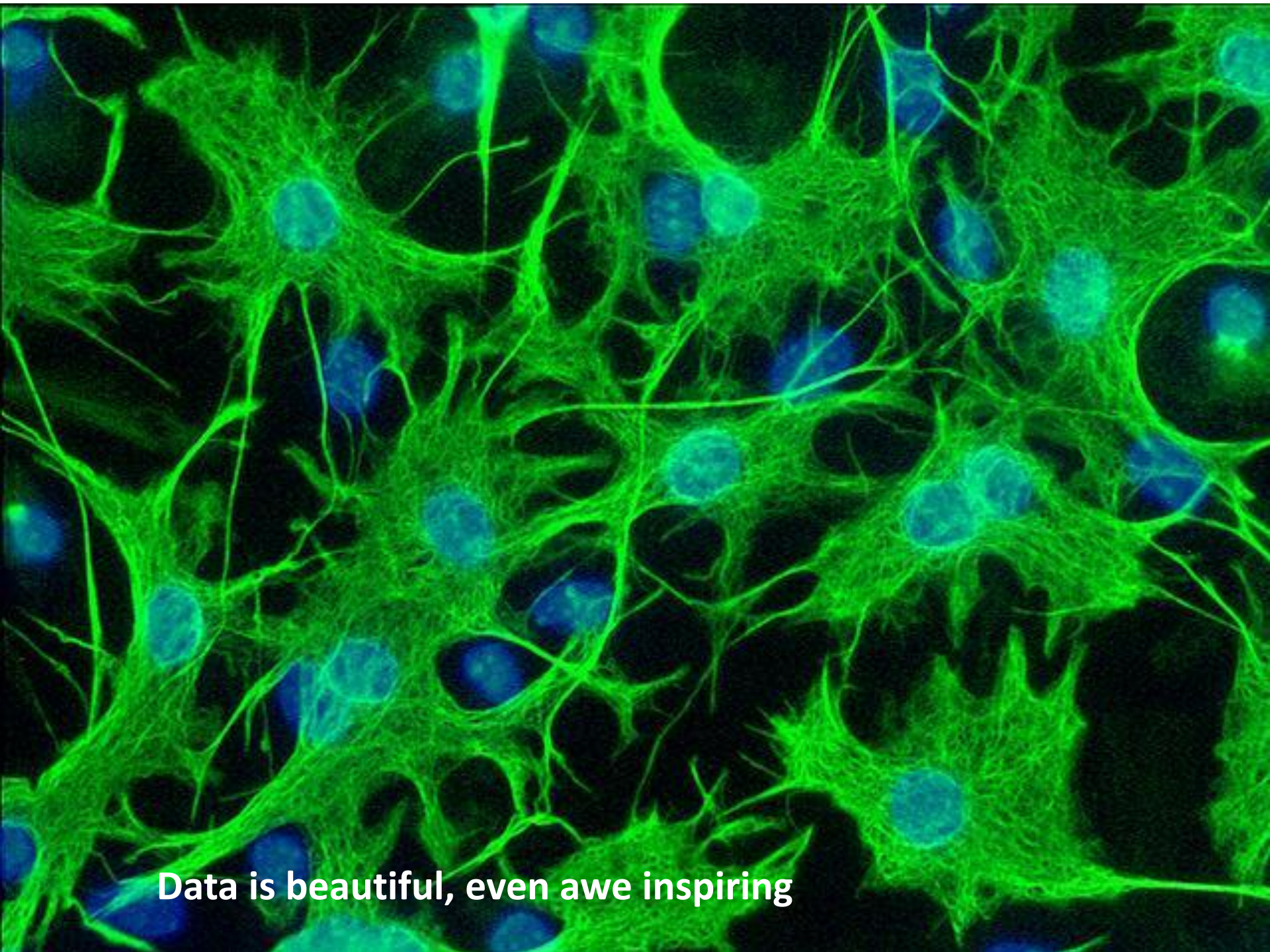
5 B Boron 10.811	6 C Carbon 12.0107	7 N Nitrogen 14.00674	8 O Oxygen 15.9994	9 F Fluorine 18.9984032	10 Ne Neon 20.1797
13 Al Aluminum 26.981538	14 Si Silicon 28.0855	15 P Phosphorus 30.973761	16 S Sulfur 32.066	17 Cl Chlorine 35.4527	18 Ar Argon 39.948



1 H Hydrogen 1.00794	2 He Helium 4.003																
3 Li Lithium 6.941	4 Be Beryllium 9.012																
11 Na Sodium 22.989770	12 Mg Magnesium 24.30																
19 K Potassium 39.0983	20 Ca Calcium 40.0																
37 Rb Rubidium 85.4678	38 Sr Strontium 87.6																
55 Cs Cesium 132.90545	56 Ba Barium 137.327	57 La Lanthanum 138.9055	72 Hf Hafnium 178.49	73 Ta Tantalum 180.9479	74 W Tungsten 183.84	75 Re Rhenium 186.207	76 Os Osmium 190.23	77 Ir Iridium 192.217	78 Pt Platinum 195.078	79 Au Gold 196.96655	80 Hg Mercury 200.59	81 Tl Thallium 204.38	82 Pb Lead 207.2	83 Bi Bismuth 208.9804	84 Po Polonium (209)	85 At Astatine (210)	86 Rn Radon (222)
87 Fr Francium (223)	88 Ra Radium (226)	89 Ac Actinium (227)	104 Rf Rutherfordium (261)	105 Db Dubnium (262)	106 Sg Seaborgium (263)	107 Bh Bohrium (262)	108 Hs Hassium (265)	109 Mt Meitnerium (266)	110 (269)	111 (272)	112 Cn Copernicium (285)	113 Nh Nihonium (284)	114 Fl Flerovium (287)	115 Mc Moscovium (288)	116 Lv Livermorium (293)	117 Ts Tennessine (294)	118 Og Oganesson (294)

58 Ce Cerium 140.116	59 Pr Praseodymium 140.90768	60 Nd Neodymium 144.24	61 Pm Promethium (145)	62 Sm Samarium 150.36	63 Eu Europium 151.964	64 Gd Gadolinium 157.25
90 Th Thorium 232.0381	91 Pa Protactinium 231.03588	92 U Uranium 238.0289	93 Np Neptunium (237)	94 Pu Plutonium (244)	95 Am Americium (243)	96 Cm Curium (247)

71 Lu Lutetium 174.967
103 Lr Lawrencium (262)


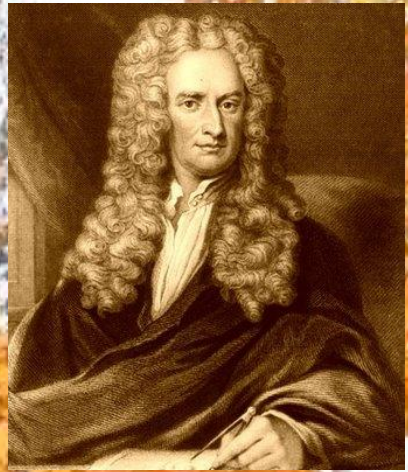



Data is beautiful, even awe inspiring

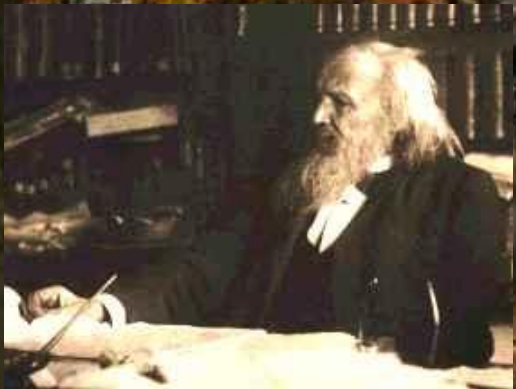
This is about
where the
double beheading
comes in...



THE
DESCENT OF MAN,
AND
SELECTION IN RELATION TO SEX.
By CHARLES DARWIN, M.A., F.R.S., &c.
IN TWO VOLUMES.—Vol. I.
WITH ILLUSTRATIONS.
LONDON:
JOHN MURRAY, ALBEMARLE STREET.
1871.
[On the right of frontispiece is reversed.]



**DIALOGO
DI
GALILEO GALILEI LINGEO**
MATEMATICO SOPRAORDINARIO
DELLO STUDIO DI PISA.
*E Filosofo, e Matematico primario del
SERENISSIMO
GR.DVCA DI TOSCANA.*
Dona de i congressi di quattro giornate di discorso
sopra i due
MASSEMI SISTEMI DEL MONDO
TOLEMAICO, E COPERNICANO,
*Propositi indistintamente in varie Filisofie, e Naturali
Scienze per l'anno, quanto per l'altra parte.*
CON FRI  VILEGL
IN FIRENZA, Per Gio: Batista Landini MDCCXXII.
CON LICENZA DEL SUPERIORI.



The scientific story is rife with high human adventure

Master teacher Holly Stocking shows me how to combine a love of science and a love for words into a profession that is all about telling great and important stories to a general audience.

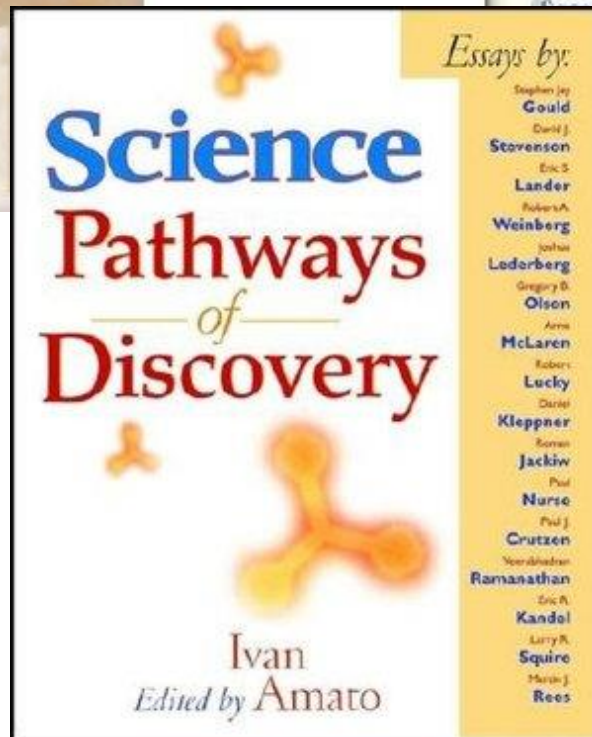
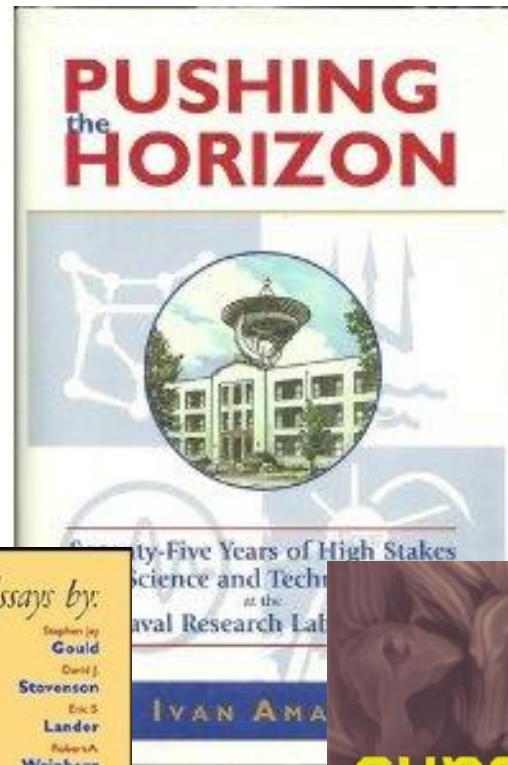
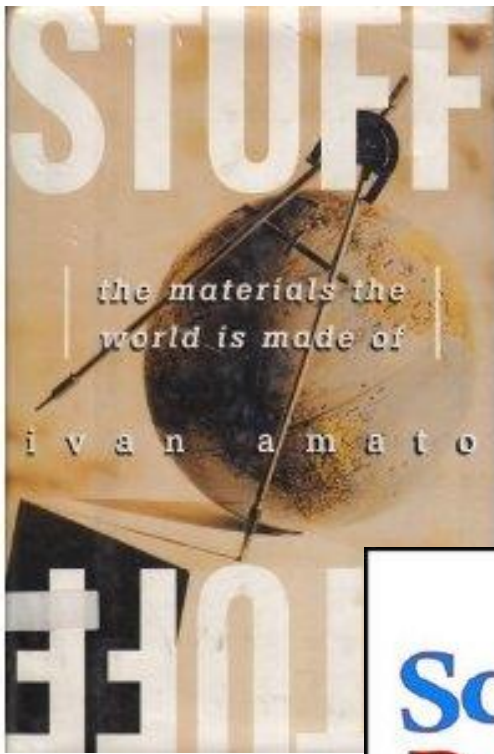


...then extended to a national reach...





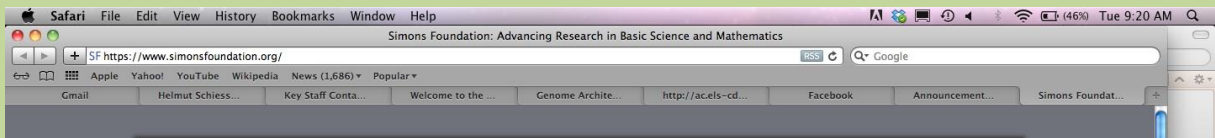
...then beyond the scientific choir...



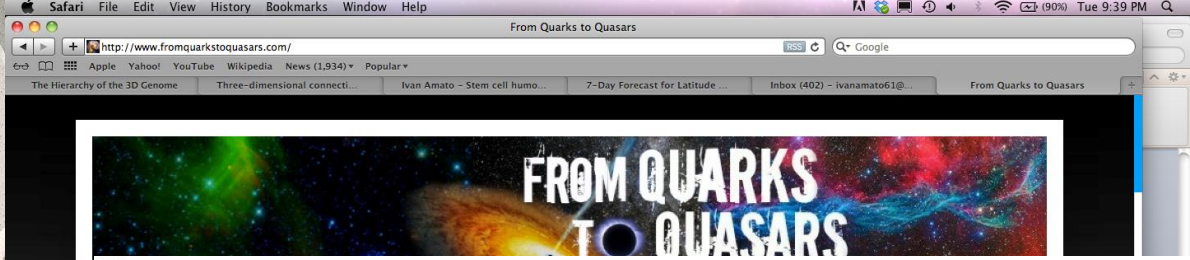
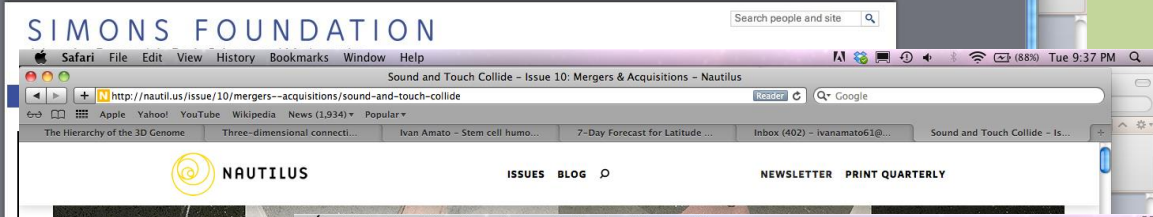
...beyond articles...

...beyond print...





The Internet foists historic change into the world of journalism...




Medium
Everyone's stories and ideas

READING LIST TOP

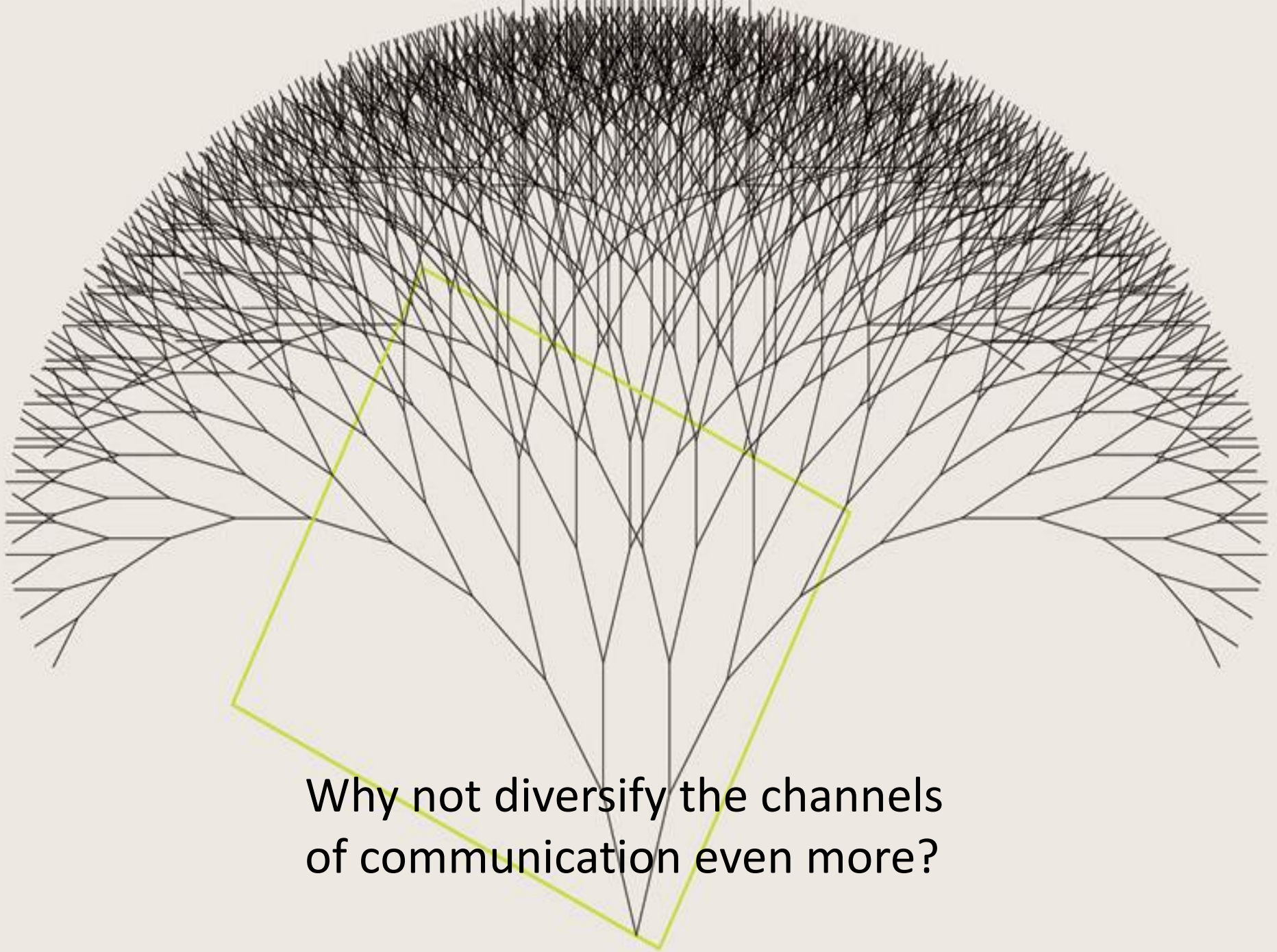
aeon

Philosophy Science Psychology Health Society Technology Culture

Taking Me with Mod
Exploring continuo

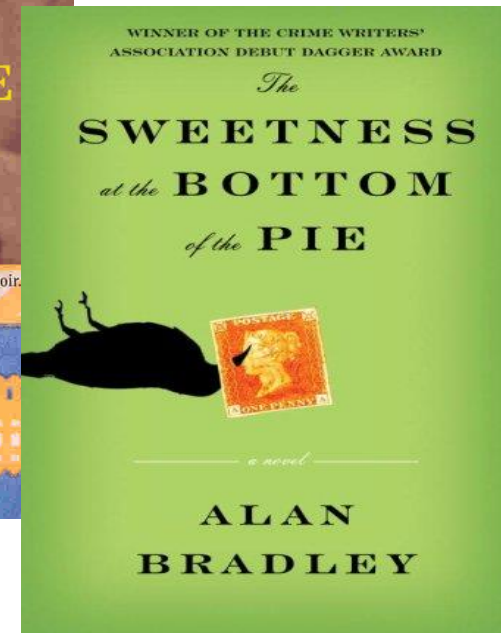
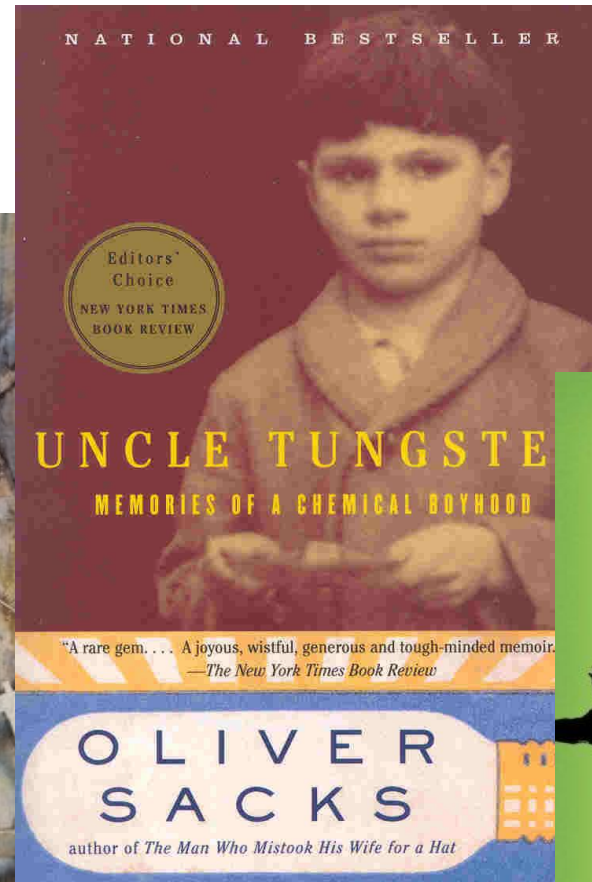
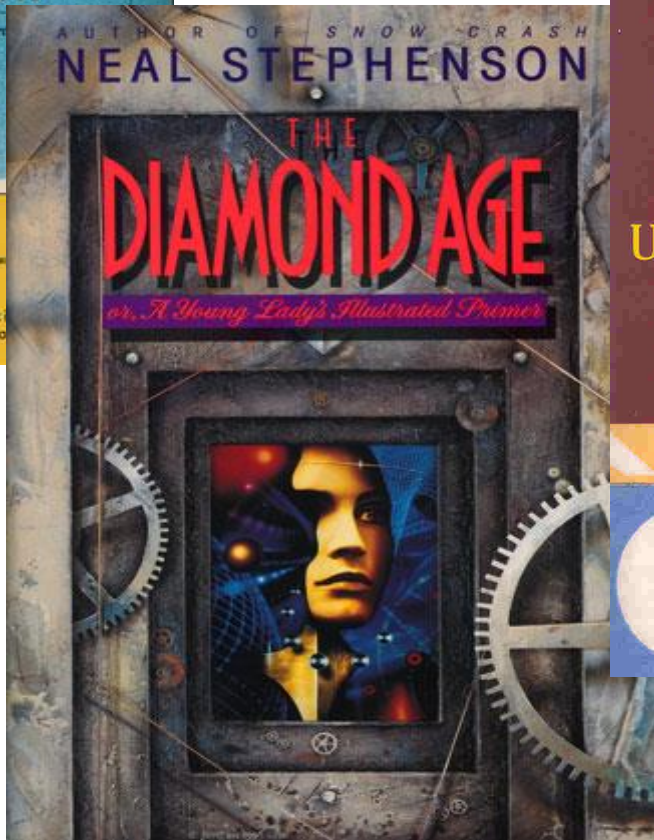
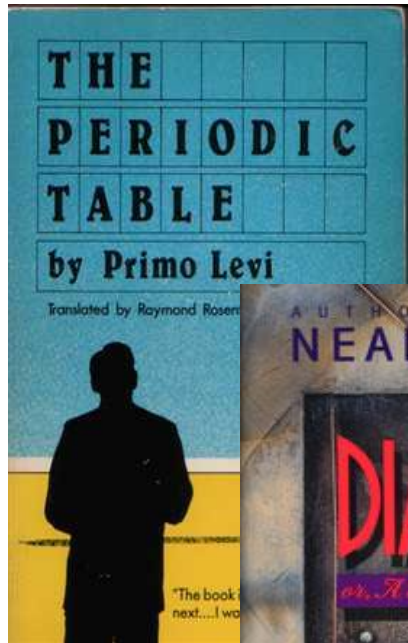


- Jamie Davies**
The feedback loop is a better symbol of life than the helix
- Mary Talbot**
In a secular age, what does it mean to die a good death?
- Claire Melamed**
To end inequality we must understand how poverty works
- Steven Poole**
We are more rational than these



Why not diversify the channels
of communication even more?

Science in literature...fiction and nonfiction



Science in podcasts



<https://youtu.be/9SMSgaRe8zQ>

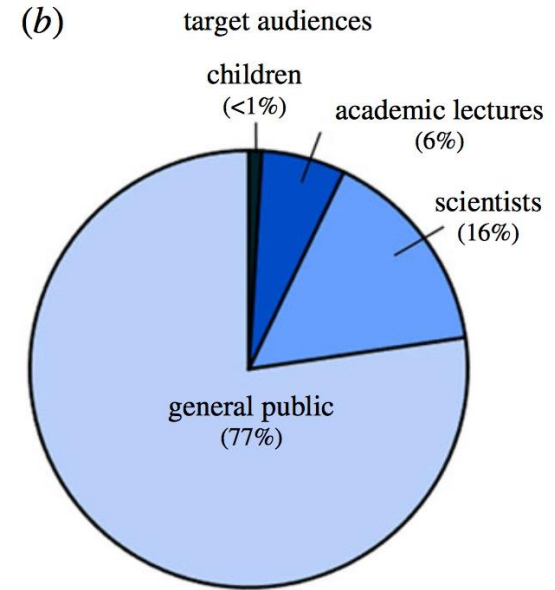
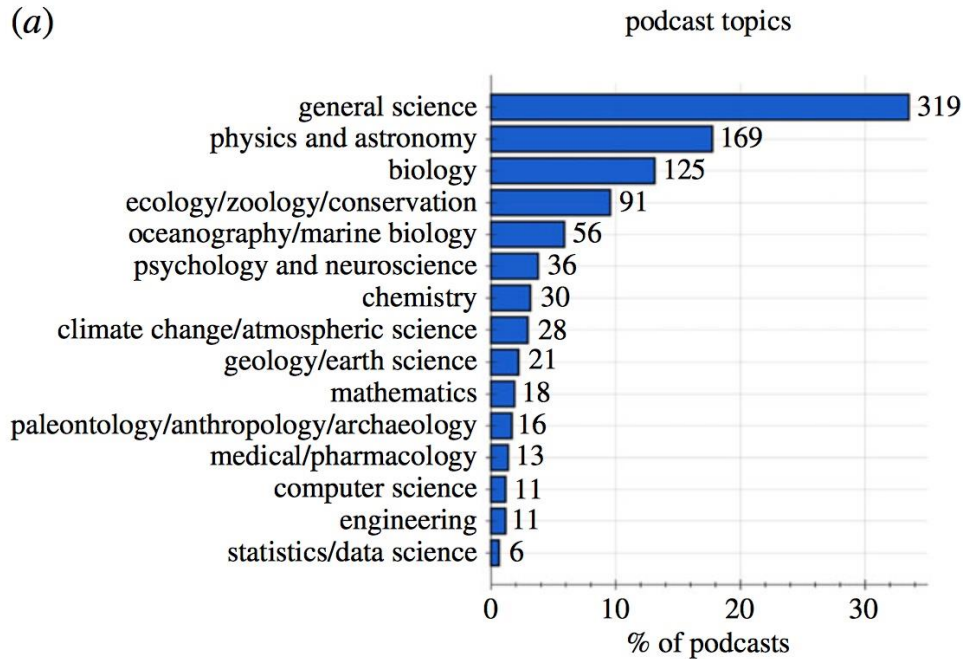


Figure 2. What are the scope and aims of science podcasts? (a) The proportion of science podcasts dedicated to various scientific topics. (b) The target audiences of science podcasts.

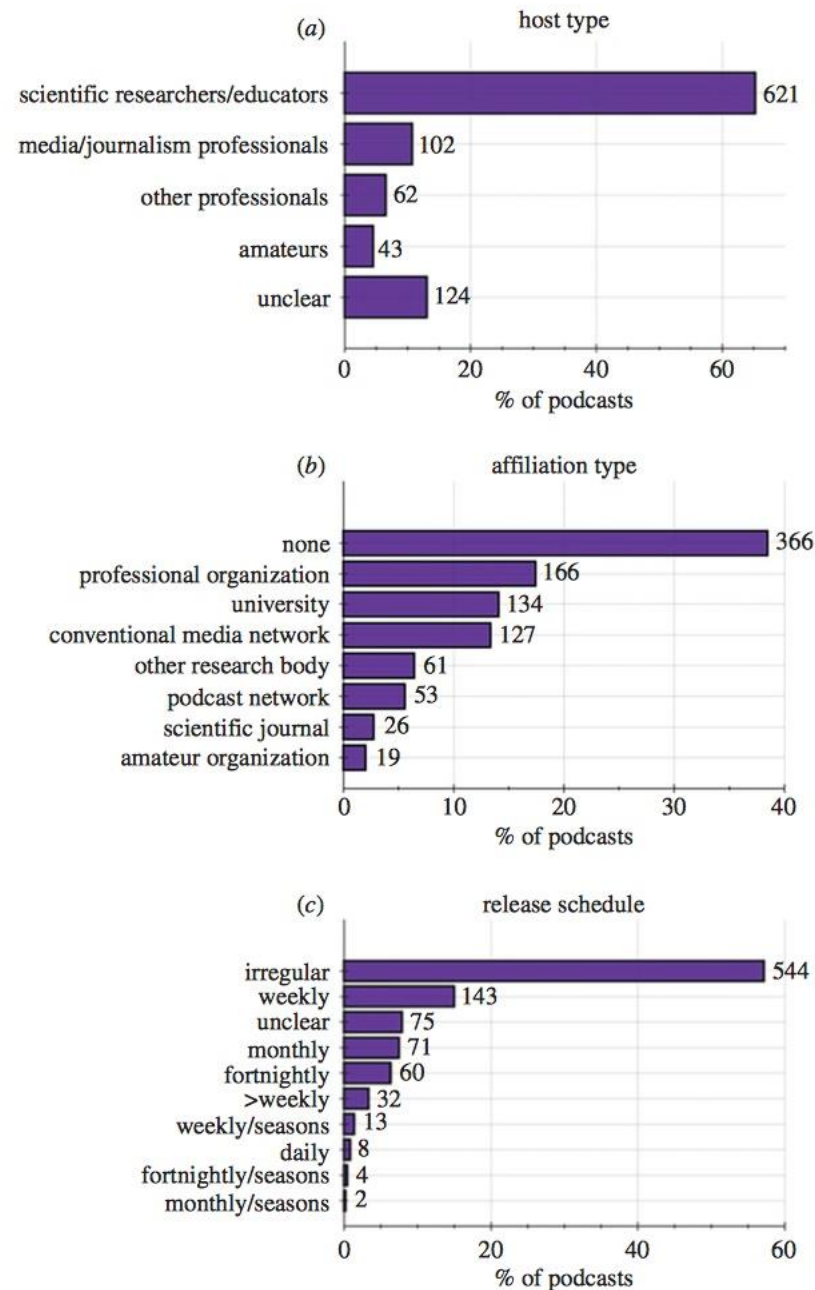
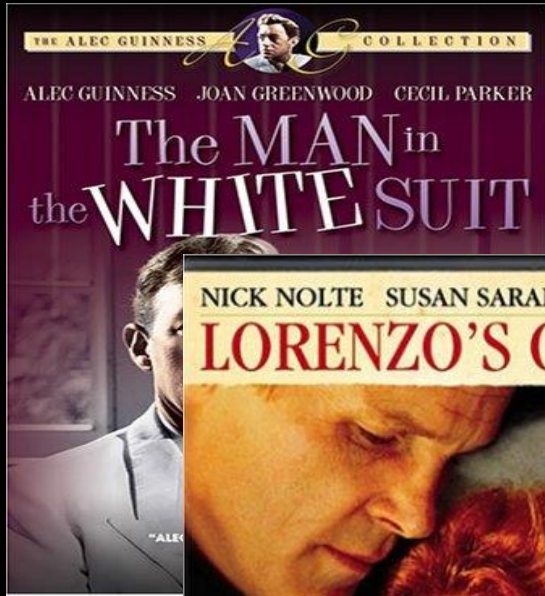


Figure 3. Who produces science podcasts? (a) The backgrounds of science podcast hosts. (b) The organizational affiliations of science podcasts. (c) The release schedule of science podcasts.

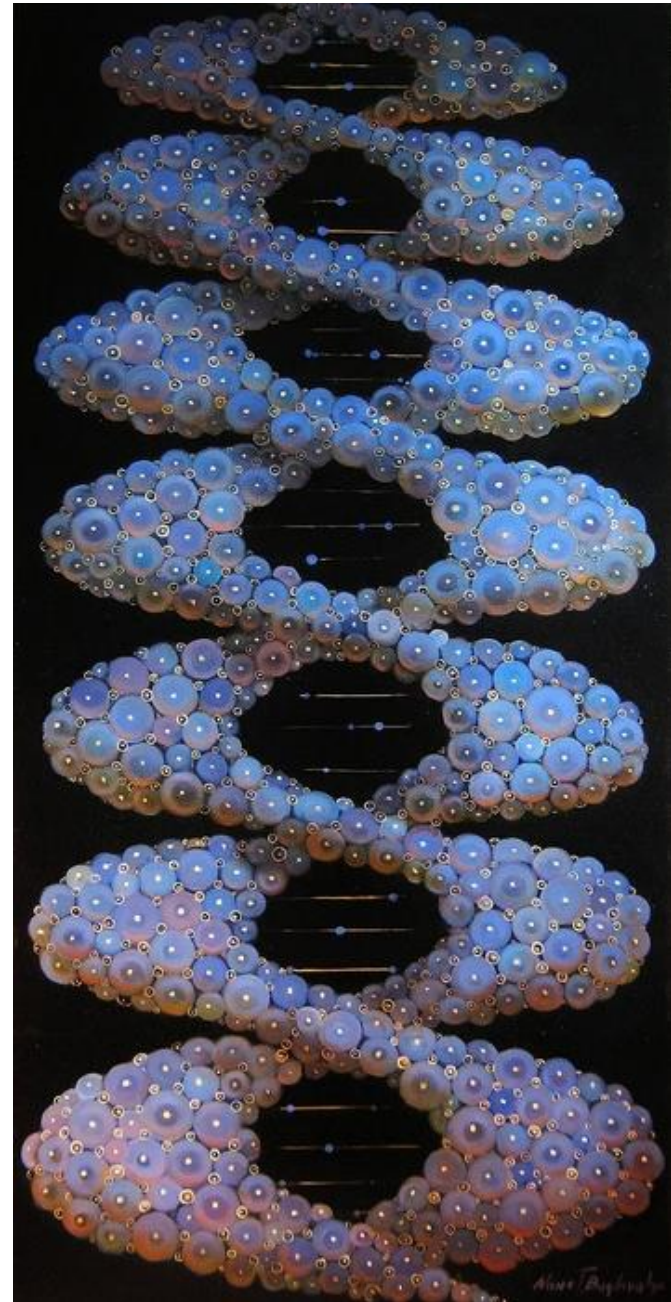
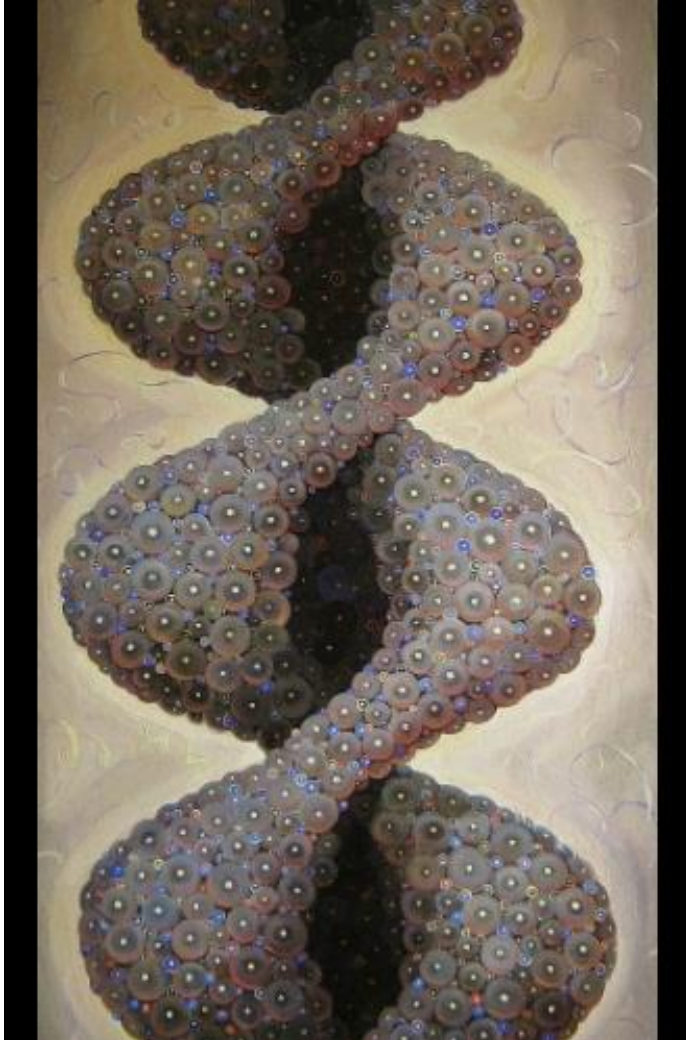
Science and technology in the movies....



Science on TV



Nana Bagdavadze

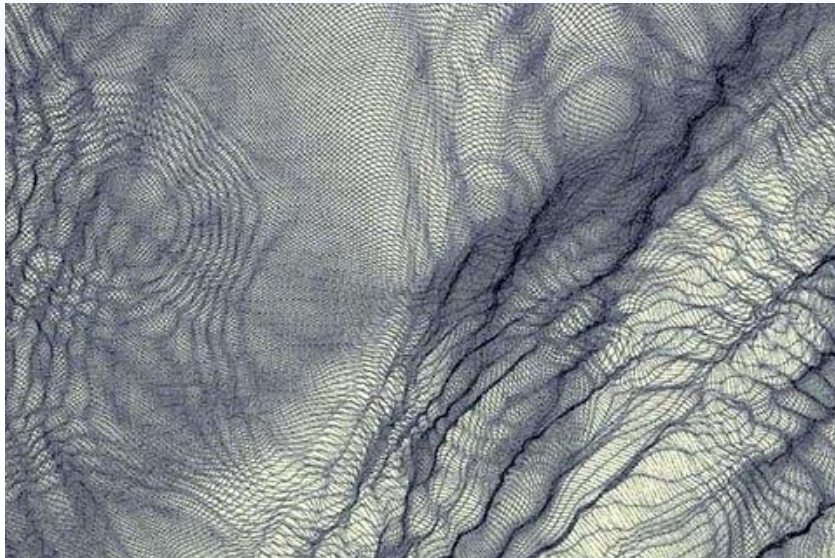


The Science-Art Connection



Teach an artist—in this case Michael Oliveri of the University of Georgia—how to use a scanning electron microscope and this might happen.

The Science-Art Connection



Jean Paul Hebert
A founder of the Algorithmists in 1995
Kavli Institute for Theoretical Physics



SciArt Center

where the sciences and arts converge

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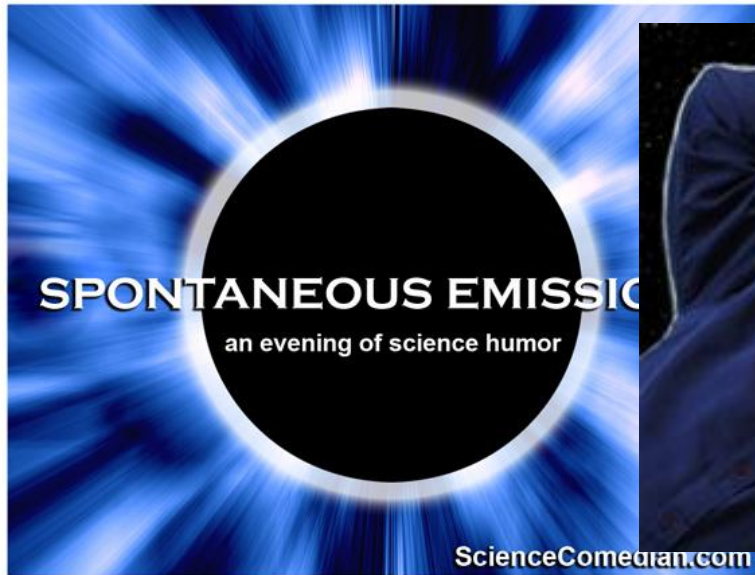
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The Science-Comedy-Storytelling Connection



Science Comedian Brian Malow

"It's as much about expanding the mind as it is tickling the funny bone."
- The Washington Times

8pm, Wednesday, February 9, 2011

Punch Line Comedy Club

Tickets \$15 415-397-4337

444 Battery St
San Francisco

18 and over
2 drink minimum

www.punchlinecomedyclub.com



Story Collider

COME TO THE FIRST EVER PHILLY

NERD NITE

THE FIELD HOUSE 1150 FILBERT ST
DEC. 9TH 7:30 PM



\$5 GETS YOU THE COMPANY OF OTHER PRESENTATIONS

Robotic Field Work and the Search for Life on Mars: Who (or What) Else Is Out There??!
- Alexandra Davatzes
Ph.D., Temple U.

Lingua Francas, Pidgins, and Creoles: What's the Deal?
- Reese Heitner
Ph.D., Drexel U.

ENTERTAINMENT

A little music with Brett Cohen • Comedic storytelling from Malv

BE THERE AND BE SQUARED

philadelphia.nerdnite.com

Nerd Nite Orlando
It's Like the Discovery Channel, With Beer!

"Growing Weed In Space: Can You Get Too High?"
by Dr. Luke Robertson

"High Frying: Biofuel Is Not Just For Hippies Anymore"
by Carol Rogerson

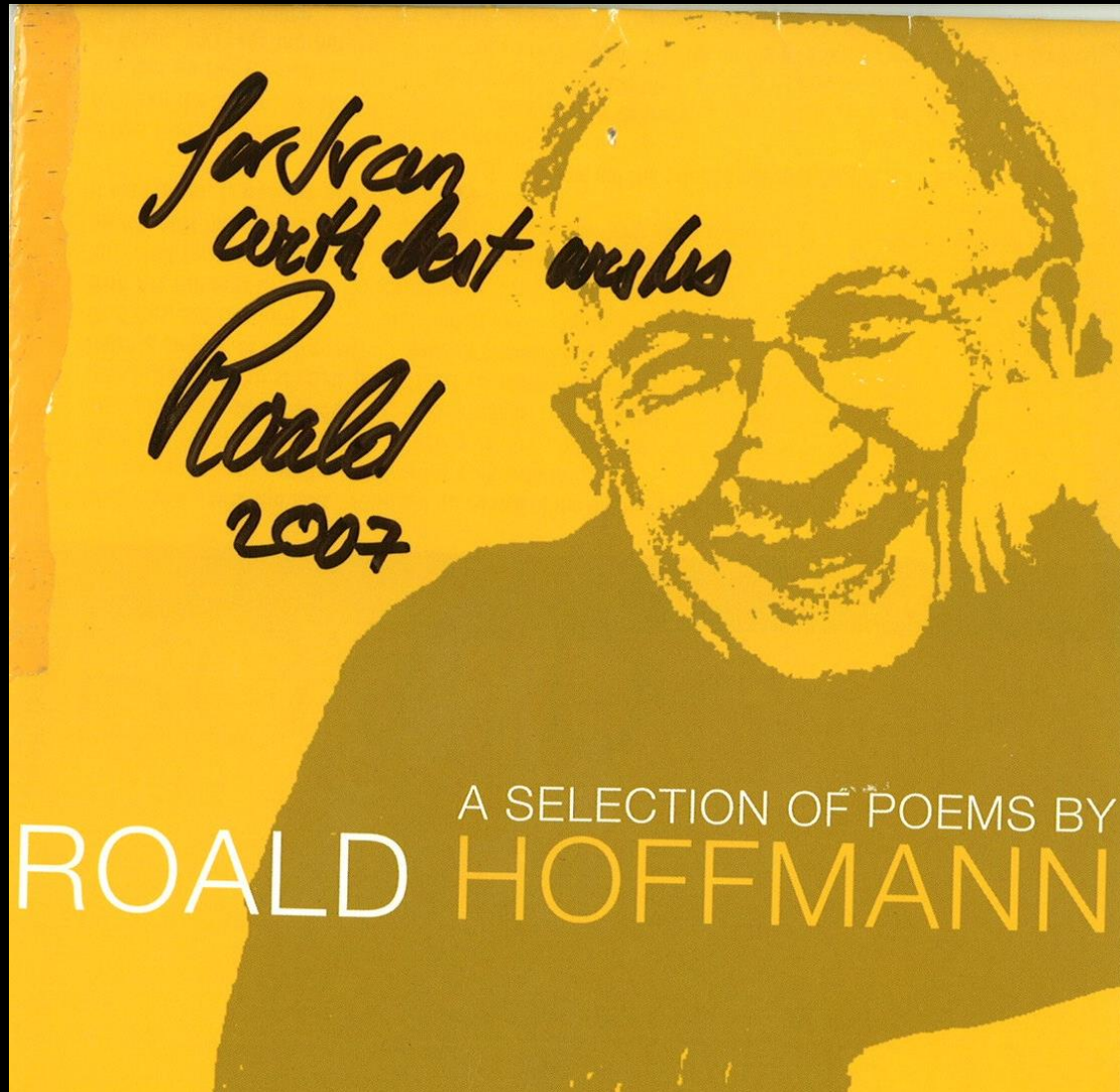
"How To Survive the Robot Apocalypse: Cyborgs > Humans"
by Lance R. Vick

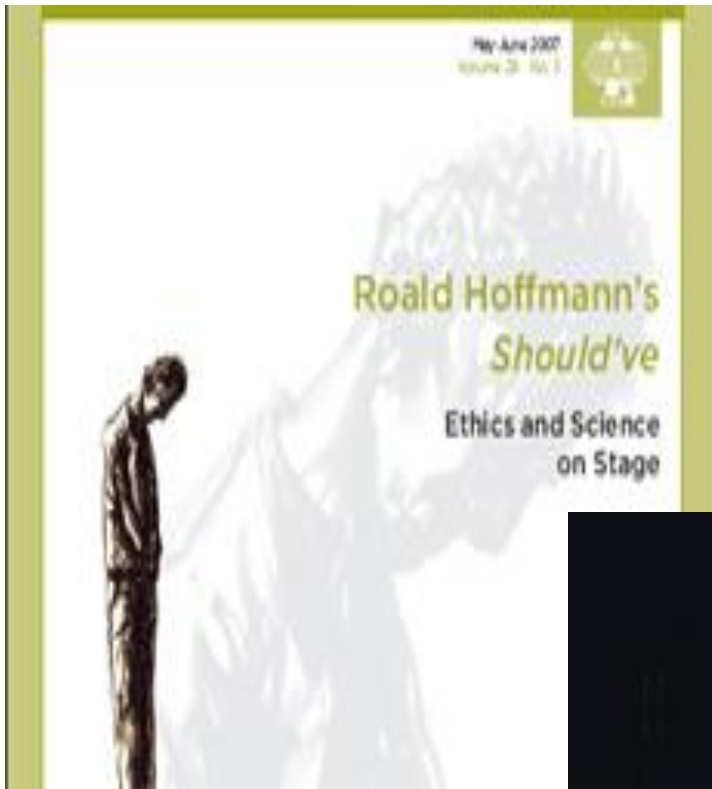
March 14, 7:00pm
Beers and Coffee
84 Wotac Park, FL 32903
NERDNITE.COM



nerdnite.com

Roald Hoffman tells science stories by way of poetry...in a gargantuan expo hall during a scientific meeting in 2007





...and theater



Michael Frayn's Copenhagen



A Matter of Origins: Liz Lerman tells science and technology stories in a live format



A Matter of Origins, Act II: “provocateurs” leads discussion around banquet tables

A DC Science Café Event...

Gravity, or an homage to the mysteries of universal attraction

Without gravity, there would be no up. No down. No falling. No planets with moons. No solar systems. No galaxies. No any of us. Gravity is one of the fundamental forces that governs all that is and how it all came to be over the past 13.8 billion years. Join science writer Ron Cowen and University of Maryland astrophysicist Cole Miller for a gripping tour of gravity that will take you from a 1919 eclipse that really made Einstein's day, out to the surfaces of neutron stars and the event horizons of black holes, and back again to the gravitational attraction that keeps you planted on the ground and ever-so-subtly pulled toward every other human being on the planet.



Ron Cowen



Cole Miller

Tuesday, April 23, 2019, 6:30 - 8:30 pm

Busboys and Poets

450 K Street, NW, Washington, DC

For info, contact Ivan Amato: DCScienceCafe@dcswa.org

Free and open to the public.

A DC Science Café Event

Versed in Science: An Evening of Poetry



Science and technology are behind many of our time's great ongoing narratives and so these categories of human endeavor offer rich fodder for the analytic and synthetic powers of poetry. Join us to hear the work of two featured poets, Myra Sklarew and Michael Salcman, and several other local poets. Myra Sklarew studied biology at Tufts University, bacterial genetics and viruses at Cold Spring Harbor Biological Laboratory and frontal lobe function and memory in Rhesus monkeys at Yale's School of Medicine. Former president of the artist community Yaddo and professor emerita of literature at American University where she began teaching in 1970, Sklarew is the author of three chapbooks and seven poetry collections. Michael Salcman, a neurosurgeon, studied liberal arts and medicine in the combined six-year program at Boston University, neurophysiology of vision and motor function at the National Institutes of Health, and neurosurgery at Columbia University's Neurological Institute. He has served in the past as chairman of neurosurgery at the University of Maryland and president of Baltimore's Contemporary Museum. Salcman has written six books of poetry and a forthcoming anthology of poems about doctors and diseases.

Wednesday, September 19, 2012

6:30 - 8:30 pm

Busboys and Poets, 5th and K St., NW, Washington, DC

www.busboysandpoets.com/about_5th.php

For info, contact Ivan Amato: DCScienceCafe@dcswa.org

This, the twelfth of an ongoing series of DC Science Café events, is brought to you with support from DC Science Writers Association and encouragement from Busboys and Poets. Donations are welcome.

Café KITP Presents...

Music of the Spheres: The Secret Songs of Stars

Staring up at the night sky is one of life's great pleasures. For **Matteo Cantiello**, an astrophysicist with the Kavli Institute for Theoretical Physics, the stars are also singing astonishing songs. In them, he finds hidden messages about how stars live and die, and about other distant planets, perhaps with their own inquisitive beings listening for clues that they might not be alone in the universe. Over happy-hour food and libations, join Matteo in an expansive discussion about how the NASA satellite Kepler has been recording oscillations from thousands of stars and how these stellar movements are adding a new dimension to the science and beauty of the night sky.



Free and open
to the public



Wednesday, April 2, 2014, 5:30 - 7:30 pm

SOHO Restaurant and Music Club

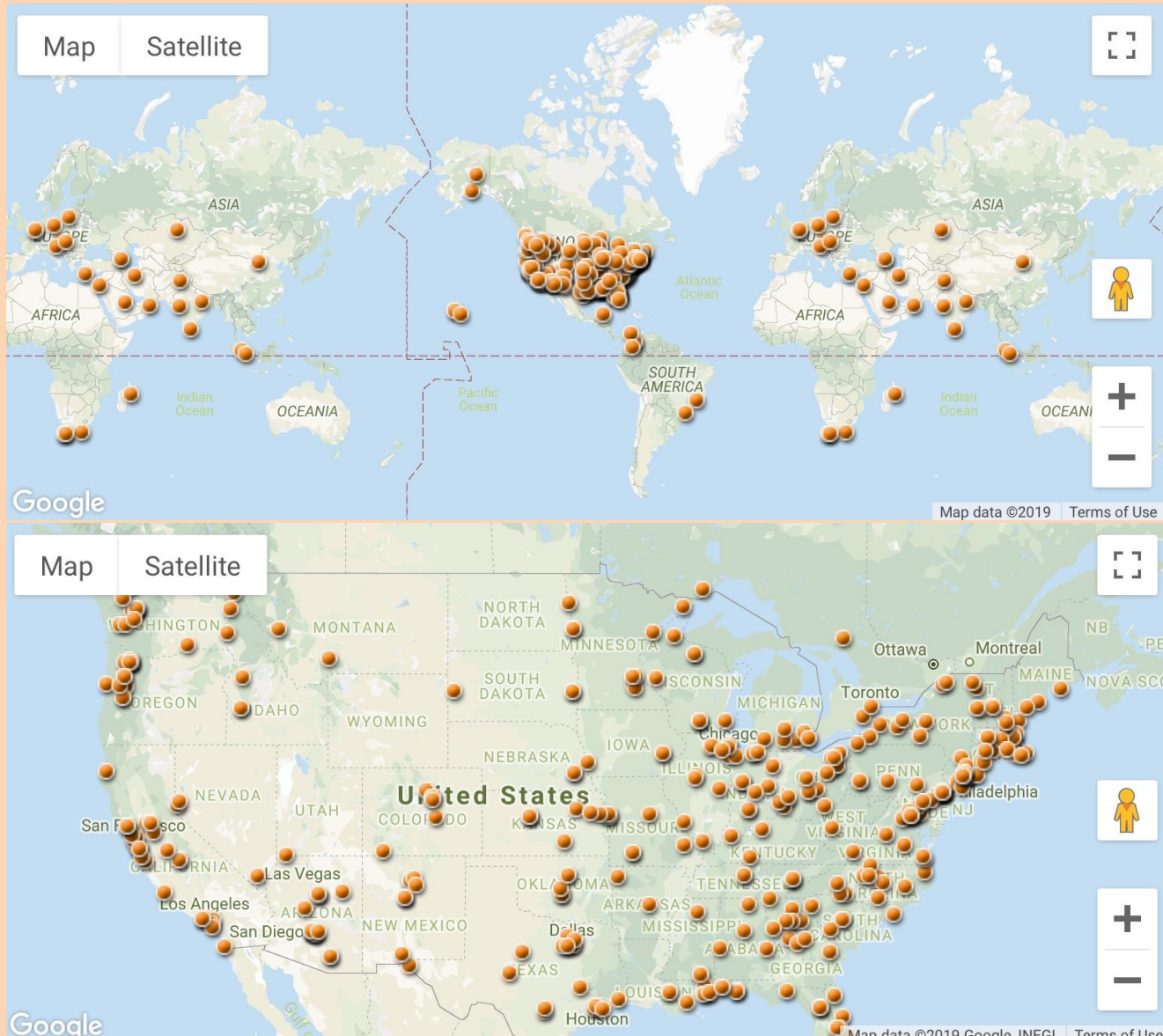
1221 State Street (upstairs), Santa Barbara, CA, 93101

<http://www.sohosb.com/>

For info, contact Greg Huber (huber@kitp.ucsb.edu)



The Science Café Landscape



Maps prepared by sciencecafes.org

And now for your stories...

Most engaging stories have this same simple **WOW*** structure:

- A protagonist **W**ants something.
- The protagonist must overcome **O**bstacles to get what he/she wants.
- The protagonist **W**ins or loses.

*A concept derived from children's book author Mary Amato.



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