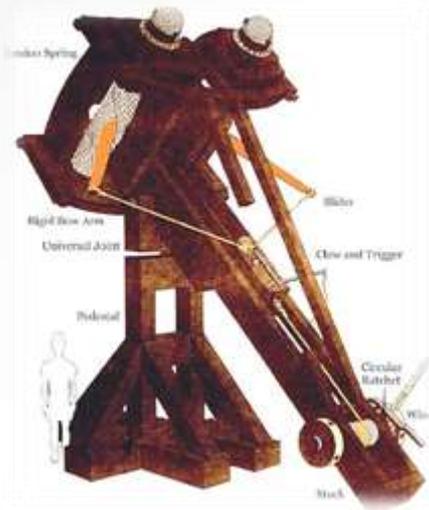


Bridging Cultures in Academia



What is/Should be the Relationship between Science and Technology and the Humanities?

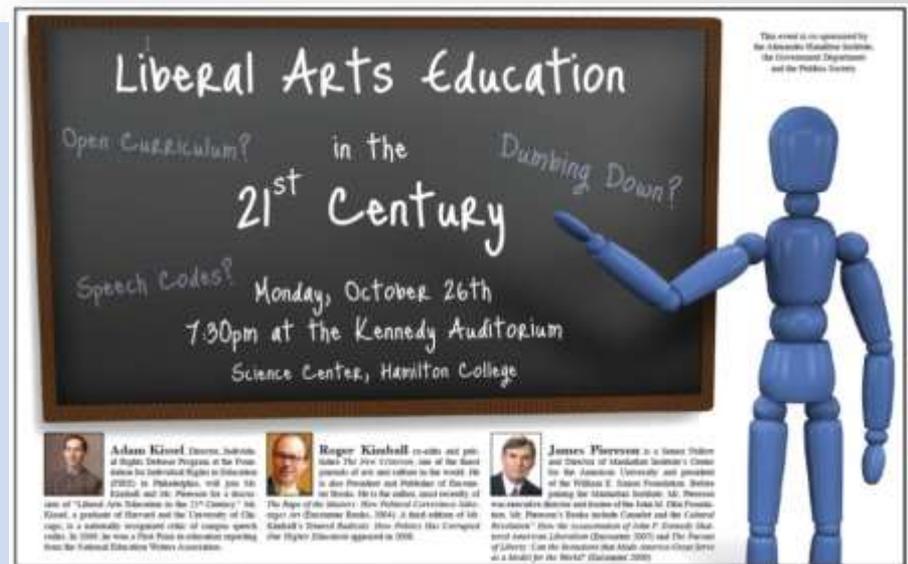
What Does it Mean to be Human?

Question: Is this question better answered in isolation with each discipline contributing its “ideological” perspective resulting in power structures with political and economic agendas, or in an integrated effort that creates broader, more pragmatic, and useful tools for students, tools they will need to navigate the workforce and political and ethical landscape of the future?

Two levels of STEM-Focused English composition courses.

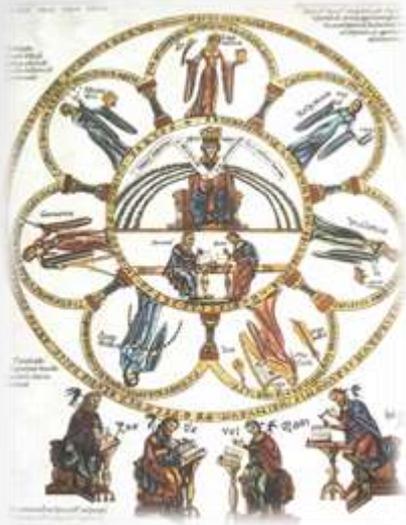
Purpose of the courses:

- Offer a writing curriculum alternative that is more germane for students in science and technology certificate and degree programs or transfer options;
- Provide reading content and writing assignments concentrated in science and technology;
- Better prepare students for upper level STEM course work and specific job requirements that include writing;



- Reinforce rhetorical principles/strategies found in the conventional English composition canon and that ALSO ask the questions humanities asks;
- Split writing/research assignments designed to emulate those required in science and technology professions, e.g. reports, manuals, articles, essays, case studies, presentations with assignments designed to apply humanities thinking to science and technology;
- Globalize assignments; and
- **By offering a historical overview of science and technology writing, philosophy of technology and science, and the impact of technology on culture, bridge any misconception that liberal arts and humanities are somehow antithetical to natural/social science disciplines and vice versa.**

History: In the classical world ...



The 7 liberal arts of the classical world included math and science.

The Trivium (The three roads):

- Grammar
- Rhetoric
- Logic

The Quadrivium (The four roads):

- Arithmetic --
Number in itself
- Geometry --
Number in space
- Music,
Harmonics, or
Tuning Theory
-- Number in time
- Astronomy or
Cosmology --
Number in space and time

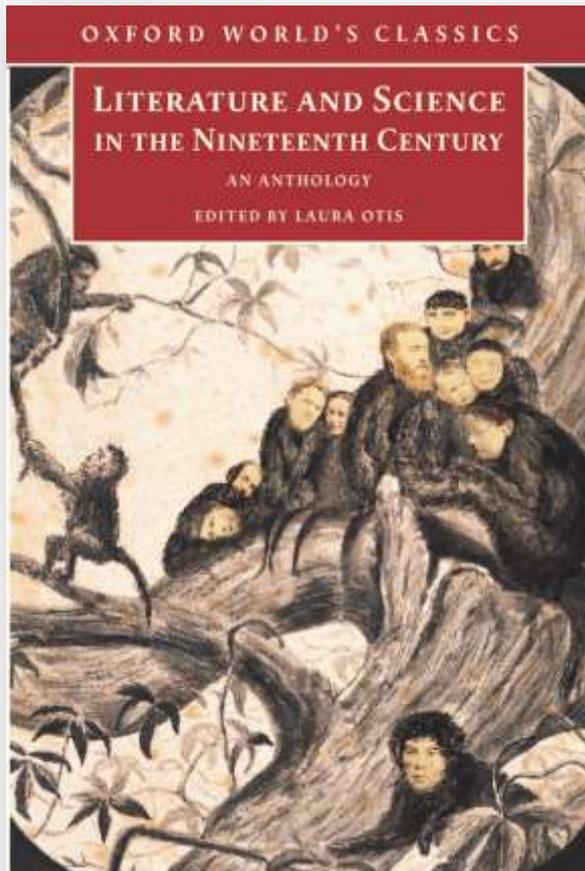


Apollo was the god of both poetry AND medicine



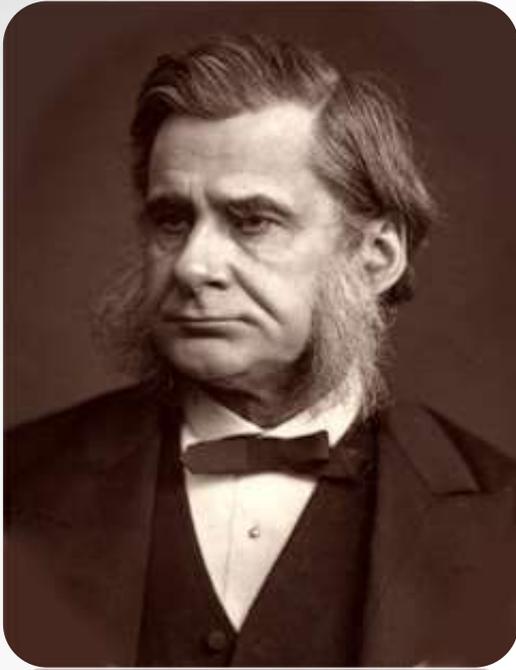
Art and Technology share a common ancestor, *techne'* the Greek word for art, skill, craft.

History, how we got here:



“Although we are used to thinking of science and the humanities as separate disciplines, in the nineteenth century this division was [still] not recognized. As the scientist John Tyndall pointed out, not only were science and literature both striving to better "man's estate", they shared a common language and cultural heritage. The quest for "origins", the nature of the relationship between society and the individual, and what it meant to be human were subjects that occupied both the writing of scientists and novelists.”

—Laura Otis, *Literature and Science in the Nineteenth Century*



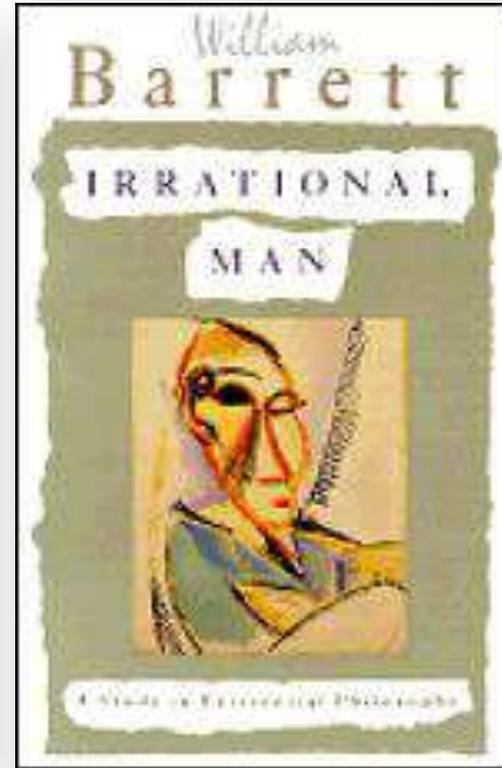
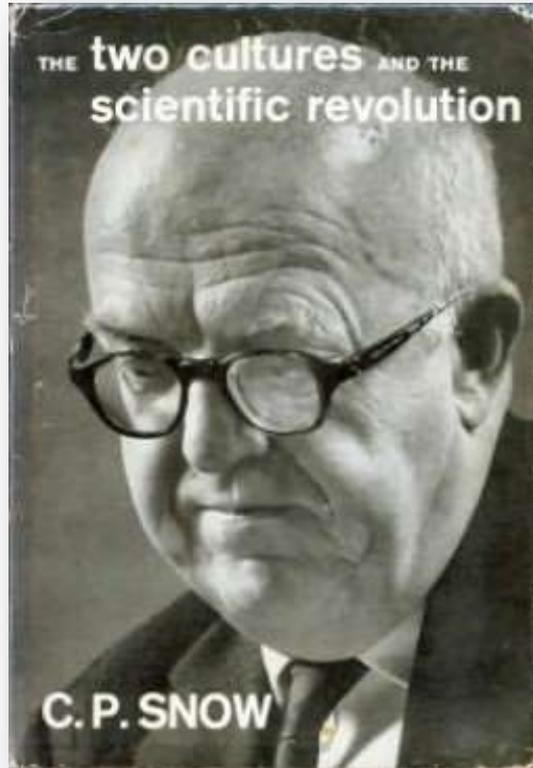
Thomas Huxley, 1825-1895, biologist, "Darwin's Bulldog," advocated natural selection, called for the predominance of education to "pass from letters to science," to transition from "mere literary instruction and education" to "sound, extensive and practical scientific knowledge."

Whose the
science
person and
whose the
literature
person?



Mathew Arnold, 1822-1888, English poet, literary and social critic. Author of *Literature and Science* (1882), rebuked Huxley. Claimed "all knowledge is interesting" but that "when we set ourselves to enumerate the powers which go to the building up of human life, and say that they are the power of conduct, intellect and knowledge, beauty, and social life and manners, he (Huxley) can hardly deny this scheme, though not pretending to be scientific."

Question: By the mid-20th century, did the battle for specialized training in education win out? At what cost to humanities? Are the questions the humanities ask obsolete? Or needed now more than ever?



“Specialization is the price we pay for the advancement of knowledge. A price, because the path of specialization leads away from the ordinary and concrete acts of understanding the terms of which man actually lives his day-to-day life.” --Barrett

The Future is Here ...

The Questions in the context of the “either/or” dichotomy-driven media culture.

Conventional/Popular View of Science =

deductive reasoning, reductionism, positivism/empirical evidence, overwhelming objectivity, abstractionism, either/or, black and white, finite, cause and effect, concrete, left brain, “all the answers,” consciousness is a byproduct of neural activity, a human being is no more than a highly sophisticated computer, science is not relativistic, the immediate end to the “animating principle.”

Vs.

Creative “Humanistic” view of science = inductive reasoning, subjectivity, exploration, innovation, imagination, creativity, gray matter, infinite, entrepreneurial, art, “mystery embraced,” right brain, “answers are always and forever suspect and susceptible to reinterpretation,” consciousness is a synthesis of brain, body, and environment that is always in flux, science is not value free, Feyerabend’s *Against Method*, Kuhn’s *The [Real] Structure of Scientific Revolutions* .

Should these two types of thinking be mutually exclusive when it comes to training, educating the next generation of scientists, engineers, and health professionals to think and write?

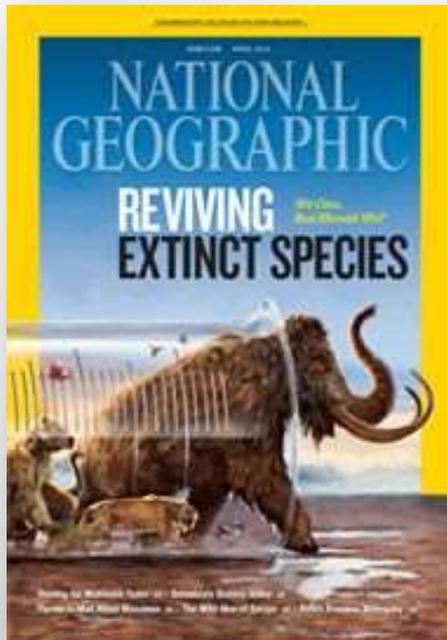


Will math help determine the Iliad's historic accuracy? Image credit: G. V. Tischbein, public domain, Wikimedia Commons

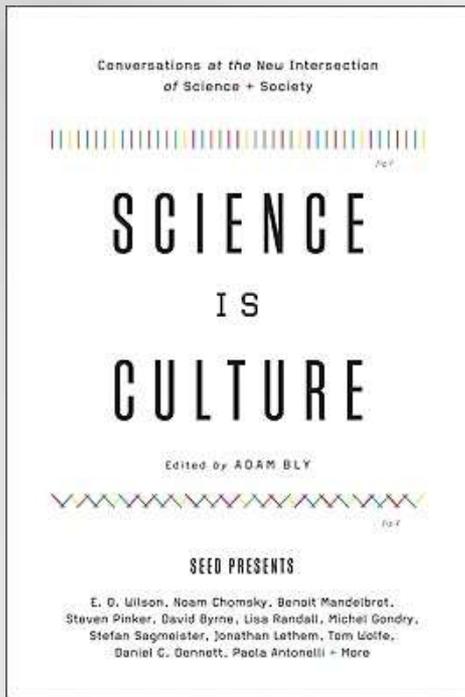
Question: What will it mean to be human in the future? Where will humanities fit?

Challenges to what it means to be human?

- The exponential growth of technology;
- Life extension/transhumanism;
- Creating life forms in the lab;
- Genetic engineering;
- Tissue engineering;
- Human/machine interface;
- Artificial intelligence/robotics
- Nanotechnology;
- Information technology/big data interpretations.



“The first synthetic cell, a cell made starting with the digital code in the computer, building the chromosome from four bottles of chemicals, assembling the chromosome in yeast, transplanting it into a recipient bacterial cell, transforming that cell into a new bacterial species. **This is the first self-replicating species we’ve had on the planet whose parent is a computer.**”



“We are on the cusp of a twenty-first-century scientific renaissance. Science is driving our culture and conversation unlike ever before, transforming the social, political, economic, aesthetic, and intellectual landscape of our time. Today, science is culture. As global issues—like energy and health—become increasingly interconnected, and as our curiosities—like how the mind works or why the universe is expanding—become more complex, **we need a new way [or a return to the 19th century] of looking at the world that blurs the lines between scientific disciplines and the borders between the sciences and the arts and humanities.**”

Adam Bly
Science is Culture

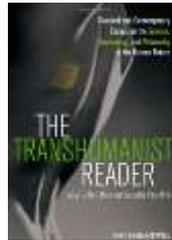
Question: Are we still dividing the academic and professional world up into turf-guarded camps?

Question: Should such focused discipline specialization drive our pursuits in humanities? Or should we attempt to integrate with science and technology to infuse the basic humanities questions?

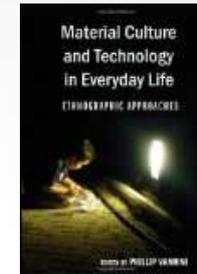


Recommended Reads

The Transhumanist Reader: Classical and Contemporary Essays on the Science, Technology, and Philosophy of the Human Future, Eds. Max Moore, Natasha Vita Moore



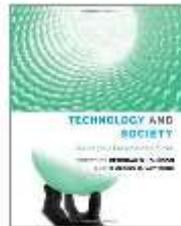
Material Culture and Technology in Everyday Life: Ethnographic Approaches (Intersections in Communications and Culture: Global Approaches and Transdisciplinary Perspectives), Ed. Phillip Vaninni



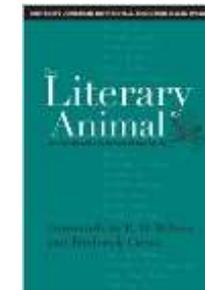
Introduction to Cognitive Cultural Studies, Ed. Lisa Zunshine



Technology and Society: Building our Sociotechnical Future, Eds. Deborah G. Johnson & James M. Wetmore



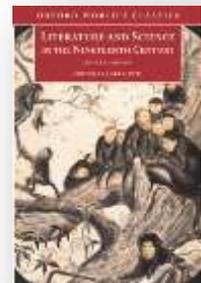
The Literary Animal: Evolution and the Nature of Narrative (Rethinking Theory) Eds. David Sloan Wilson & E.O. Wilson



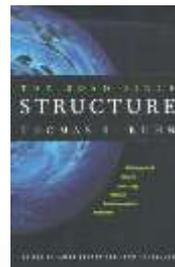
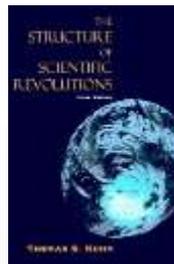
This Will Change Everything: Ideas That Will Shape the Future, Ed. John Brockman



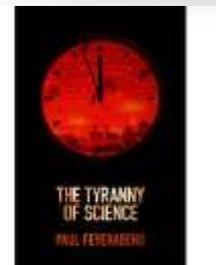
Literature & Science in the Nineteenth Century, Ed. Laura Otis



The Structure of Scientific Revolutions, and The Road since Structure: Philosophical Essays, 1970-1993, with an Autobiographical Interview, Thomas Kuhn



Against Method and The Tyranny of Science, Paul Feyerabend



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To arrive at the edge of the world's knowledge, seek out the most complex and sophisticated minds, put them in a room together, and have them ask each other the questions they are asking themselves.

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Thank You!

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