

Why is science “Western”?

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Science Communication Society of Japan

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What I'll be talking about:

1. Historical reasons
 - (a) Eurocentrism
 - (b) Global geographies
2. Identity Theory
3. Implication for science communication

“Isaac Newton, Charles Darwin, Albert Einstein (and William Harvey). The chances are that if you try to remember which scientists you were taught about at school, these names will be on your list. But how many students will learn about scholars from non-Western civilisations, such as Ibn al-Haitham, a Muslim scholar of optics who first developed the laws of light reflection and invented the pinhole camera in the 11th century? Or Ibn Nafis, who first recorded observations on pulmonary blood circulation, a theory attributed to William Harvey 300 years later?... And how many would know of Zeng He, the Chinese Muslim admiral who used refined technology to construct fleets of massive non-metal ship vessels five centuries ago.”

Khan, 2006 (*1000 years of missing science*: p.1)

“It was the Europeans, rather than the Chinese, who created a new kind of market economy, exploiting comparative advantages between continents... A chain of intellectual breakthroughs followed, generating better ways of measuring and counting, and cracking the codes of physics, chemistry and biology. This fuelled a scientific revolution in Europe (p.34)

Morris, I. (2010). *Why the West Rules - For Now: The Patterns of History, and What they Reveal About the Future*. New York: Farrar, Straus & Giroux.

“One conspicuous characteristic of medieval culture was its belief that everything knowable could be expressed in a manageable and rational whole. Whether it appeared in stone or technical prose (Thomas Aquinas) or in poetry, the medieval mind saw hierarchy, order, intelligibility, and, above all, God in all of observable creation. This hierarchy expressed itself in its emphasis on advancing steps of understanding...In the theology of Aquinas we move from the plane of natural reason to a fuller truth taught by revelation. In all of these cases the emphasis is on harmony and gradation and a final purpose of all knowledge, which is to become aware of God.”

Cunningham & Reich, 2005 (*Culture and Values*: p.245)



Triumph of St. Thomas Aquinas and the Allegory of the Sciences
by Andrea da Bonaiuta at Santa Maria Novella Florence (Source: Web Gallery of Art)



Figure on the certificate of the Amalgamated Society of Engineers 1869, celebrating James Watt
(Source: Bridgeman Art Library, courtesy of Powerhouse Museum Sydney)

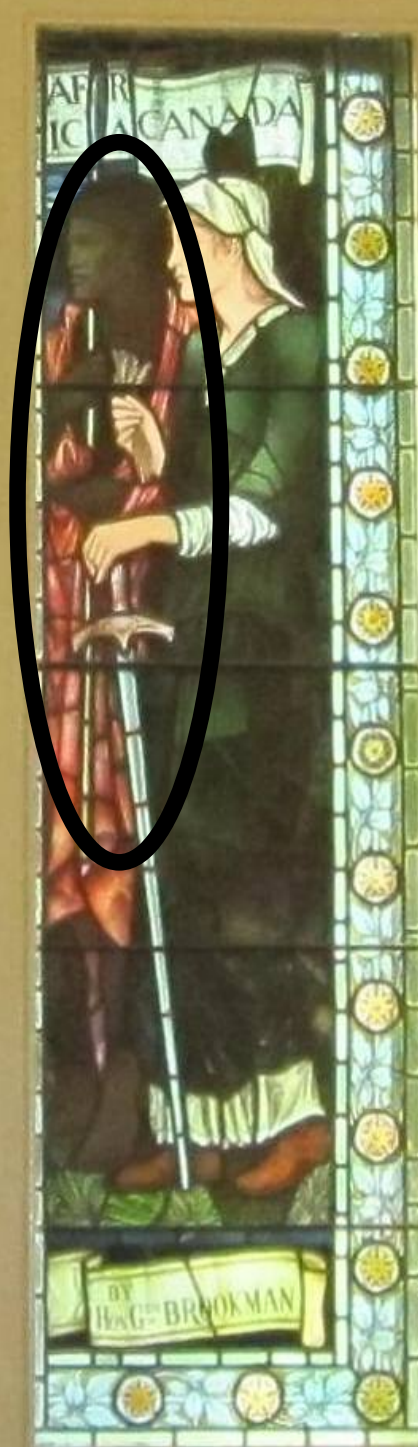
Eurocentrism

Reference:

Harding, S. (1998). Voyages of discovery, In *Is science multicultural*. Indiana University Press. (pp. 39-54)

RiAUS Adelaide





Global Geographies

Reference:

Mark, R.B. (2007). The Rise of the West?, In *The Origins of the Modern World*. Rowman & Littlefield Publishers. (pp. 1-21)

Contingency

Accident

Conjuncture

Identity Theory

Reference:

Geijsel, F. & Meijers, F. (2005).
Identity learning, In *Educational
Studies*, 3(4): 419-430.

“the ever-changing configuration of interpretations that individuals attach to themselves, as related to activities they participate in.” (Geijssel & Meijers, 2005: p.423)

Discursive meaning giving

Intuitive sense giving

Boundary experience

What does all of this mean for
Science Communication?

Example 1:

Hwang, K. (2005). Korean science and technology. *Science Communication*, 26(4): 390-427.

“This becomes a social structural problem because the acquisition of English is a prerequisite for non-native English-speaking scientists and engineers. Furthermore, the rare use of English for knowledge production in the Korean setting causes severe difficulties for them in getting their scientific knowledge accepted and recognised at the international level.” (p. 420)

Example 2:

Goonatilake, S. (1987). Aborted Discovery: Science and Creativity in the Third World. *Technology and Culture*, 28(4): 899-901.

“Third World scientists are led to speak and write primarily to and for an audience of Western listeners and readers; the intellectual and technological world systems make it unreasonable for them to be primarily interested in Third World audiences.” (p.890)

Example 3:

Oquendo, M.A., Canino, G., Lehner, T., & Licinio, J. (2010). Genetic repositories for the study of major psychiatric conditions: What do we know about ethnic minorities. *J. Molecular Psychiatry* 15: 970-975.

“The problem of population stratification has led most investigators to confine their studies to populations of Caucasians, or even more narrowly to Caucasians of European descent.” (p.971)

“Non-Caucasian groups are being relatively understudied in terms of genetic antecedents to psychiatric disease.” (p.970)

Example 4:

Sjøberg, S., & Schreiner, C. (2005). How do learners in different cultures relate to science and technology? *Asia-Pacific Forum on Science Learning and Teaching*, 6(1): 1-17. Retrieved August 2006, from <http://folk.uio.no/sveinsj/APFLT-foreword-Sjoberg-schreiner.pdf>





“We never think that what we learn for science could relate to daily-life, let alone using it to entertain people at a party... It may be okay to do stuff like that in their culture.”

A science teacher from Sri Lanka

SCOM Across Cultures

- Culture is dynamic, transitional and complex, so don't assume to know *everything* about your audience
- Be inclusive, science communication is not an integrative or assimilative anthropological exercise
- There is always a dominant culture, so crossing cultural borders is hugely challenging

Point to Ponder

Is it the *communication of science*, rather than the *science* itself, that is culture-sensitive?

What do you think? E-mail sean.perera@anu.edu.au