

## SOME QUESTIONS RELATED TO THE EPISTEMOLOGICAL PURITY OF SCIENCE?

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### Summary

In the 1960s Snow suggested the need to bridge the two cultures between the arts and the humanities on the one hand and the natural sciences on the other. The problem with bridging the two cultures is related to the difficulties of transcending prevailing academic ethos, organisation and professional interests and communicative languages which are not accessible to those within the other disciplines. Finding linkages or bridging languages which make it possible to communicate and translate across closed language worlds of the disciplines is hard to create and even harder to learn. The problem raised by Snow some thirty years ago is still with us. What Snow suggested in the 60s to bridge two cultures between the arts and humanities on the one hand and the natural sciences on the other may have contributed to the creation of what M. Gibbons called Mode 2 knowledge production largely referring to the interdisciplinary programme known as the social studies of science and technology. The chasm between the two cultures has not been attenuated. In fact in recent times S. Fuller suggests that Snows' two cultures still exist and seem to be played out between science vs. sociology; the debate continuing more between practising scientists and those who are engaged in the social study of science rather than literary intellectuals and scientists. Far from the gap between the two cultures narrowing, a third culture seems to have emerged. That is, it is between natural scientists reacting against those with critical research programmes on science and an array of philosophers, sociologists, historians, feminists, radical environmentalists and those who acknowledge contributions to science from non-western cultures. There is also continuity between ancient science from Egypt, India and China to the rise of science in Greece and subsequently the enlightenment. Those who wish the two cultures to remain apart and stress the importance of Greece for demarcating the birth of science have entered the science war debate. The science wars have taken polemical tones based on those who wish to guard the “epistemological purity” or privilege of science and those who think science cannot be disengaged from its social

and cultural context.

### **1. The Science Wars debate and its problems**

During the 1990s there was an academic quarrel related to questioning the whole field of "science studies." Scientists appeared worried that public support for science may be undermined by the relativism about science introduced by "science studies." The science wars appears to suggest that the scientists were anxious that funding to science may be affected by the spread of ideas of relativism about science as one belief system or culture amongst many others. The most dramatic turn to the science wars was a hoax article written by Alan Sokal in the journal *Social Text* in 1996. By using the post-modern jargons from cultural studies, Sokal appeared to get around the reviewers/editors to get his article published on a social-cultural interpretation of the theory of quantum gravity. The science wars turned nasty after that hoax. It made "science studies" scholars vulnerable and the science wars have since been debated in seminars, conferences, books and journals. The latest is an attempt to change science war into science peace with the edited volume on: *One Culture? A Conversion about Science* by a symbolically co-edited by a natural scientist, J.A. Labinger and a sociologist, H. Collins (University of Chicago Press, 2001).

Despite this peace-making deal, the science wars will continue to be replayed for years to come. Part of the reason is that the new critics think those engaged in science studies dislike science despite the fact that the latter as a group have not elaborated a shared and well-defined theoretical position with respect to science. In spite of the variety of approaches within science studies, these scientists claim that social studies of science have managed to achieve a shared tone, which is unambiguously hostile to science. These natural scientists can be said to constitute a distinct culture by their mission to rescue science from this hostility and by the alternative social, moral, philosophical statements they often pronounce in the process. These scientists can be distinguished from other scientists who are interested in positively engaging within the debates of science studies. Whether the reaction by these "alarmed" scientists and the response from science studies can constitute a third culture is open to debate.

Social scientists and some socially minded natural scientists like J.D. Bernal in the 40s and 50s and Thomas Kuhn in the 60s have tried to produce historical and social theories of science. Generally most scientists do not seem to show anxiety over the issue of the study of science as a social or human phenomenon. Where it begins to touch their nerves is when such studies extend their scope to the epistemic terrain. Scientists seem to worry when social scientists arrogate to themselves the intellectual capacity to evaluate empirically scientific epistemic content, and when they think able to produce theories purporting to deny the objectivity and truth-claims of scientific knowledge. They oppose relativism and social constructivism to the epistemology and ontology of science. A large number of scientists have mixed feelings particularly about social and human scientists who bring such critical challenges to science. They openly disparage social scientists finding them unqualified to study scientific knowledge and often find them irritating hanging around their work places presuming to excavate the contamination of science with the social from a close scrutiny of their laboratories and their science. How can sociologists with no training in specific scientific knowledge make valid judgements both on the discovery of scientific knowledge, scientific cognition and its validation? The scientists query with

bewilderment.

Social studies of science have accumulated an impressive amount of knowledge over the last thirty years since the Rede lecture on “The Two Cultures and the Scientific Revolution” by C.P. Snow. Scientists appeared to have been alarmed by the phenomenal growth of science studies scholarship. They fear that ideology; politics and sectional interest motivate much of the science studies' scholarship. Most science studies scholars preach that all scientific knowledge is subject to doubt and is not neutral to social context. In fact post-modernists reject the possibility of enduring universal knowledge holding that all knowledge is local or situated narrative. The post-modernist stance is viewed as either liquidating scientific knowledge itself or merely reducing it to the level of stories or "narratives".

Distinguished scientists on both sides of the Atlantic have been engaged in the science wars debate. These views have been prominently featured by the Times Higher Education Supplement in the U.K. and the Chronicle of Higher Education in the U.S.A. Some of these prominent scientists accuse science studies scholars for propagating the "de-legitimation of science". In the USA, a Nobel Laureate Max Perutz castigates philosophy and sociology of science as irrelevant to science. Another Nobel Laureate Winner Stephen Wienberg has written a book dismissing science studies as cynical and pernicious to science. At the Science Social Standing Conference in Durham in 1994 where I participated as a speaker, Peter Aitkins, Frank Close and some other less well-known scientists repeated the irrelevance of philosophy and sociology to the actual process of scientific practice.

A biological scientist Paul Gross and mathematician Norman Levitt have undertaken a critique of all the trends within science studies. They bring to task leftists, feminists, Afrocentrists, post-modernists and cultural constructivists for "science bashing" by spreading wrong ideas about scientific knowledge, objectivity and truth. Their book, by and large, has posed the most serious challenge to science studies scholarship. It launched the science wars with a big burst of energy. Their work continues the critique of sociologists of scientific knowledge (SSK) by Lewis Wolpert's “Unnatural Nature of Science”. Wolpert wrote his criticism earlier and complements the critique mounted by Gross and Levitt's work. However, as an earlier statement, Wolpert's account can be said to signal the birth of this new 'culture' between scientists reacting to the social studies of science and sociologists and philosophers defending the social account of science.

The work of these scientists like Wolpert, Levitt and Gross as far as I am aware, has not been scrutinised or blessed with comment regarding their treatment of sciences influenced by non-western cultures. The absence of commentaries on it is all the more surprising since amongst these scientists the earliest; Lewis Wolpert expressed his position on non-western cultures with Manichean simplicity. According to him, all non-western cultures are pre-scientific, and they could not have been anything else. We can take his position as a representative of the views shared in some variant perhaps implicitly or explicitly by many in the scientific community in the west and those in the non-west influenced by western education or prejudice. That is why the analysis of his text can be read as a comment on the condescending beliefs of others sharing his views to one degree or another. The hope is that a critique of his text may help to debunk generally any form of epistemological ethnocentrism and exceptionalism which is peddled under the guise of upholding the

epistemological purity of science.

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### Bibliography

- Ashman, K. and Baringer, P. (eds) (2000) *After the Science Wars*. London & New York, Routledge.
- Bernal, M. (1969) *Black Athena: the Afroasiatic Roots of Classical Civilisation, Vol I*. London, Free Association Books.
- Fuller, S. (1994) 'Review of Unnatural Nature of Science', *Social Studies of science* and Wolpert's Reply.
- Fuller, S. (2001) "Strategies of Knowledge Integration" in M. K. Tolba (ed.) *Our Fragile World: Challenges, Opportunities for Sustainable Development*. Oxford, EOLSS Publishers, for UNESCO, pp. 1215-1228
- Gross, P. and Levitt, N. (1994) *Higher Superstition: The Academic Left and its quarrels with Science*. Baltimore & London, John Hopkins University Press.
- Gross, P.; Levitt, N. and Lewis, M. (eds) (1997) *The Flight from Science and Reason*. Baltimore & London, Johns Hopkins.
- Jasanoff, S. (1995) *Handbook of Science and Technology Studies*. London, Sage Publications.
- Labinger, J. & Collins, H. (eds) (2001) *The One Culture? A Conversation about Science*. Chicago, University of Chicago Press.
- Lynch, M. (1994) The Unphilosophical Philosophy of Science. Paper presented at the Science Social Standing Conference, Durham, and December 2-4, 1994.
- Mudimbe, V. Y. (1988) *The Invention Of Africa: Gnosis, Philosophy, and the Order of Knowledge*. Bloomington and Indianapolis, Indiana University Press.
- Needham, J. (1969) *The Grand Titration: Science and Society in East and West*. Toronto, University of Toronto Press.
- Needham, J. (1993) "Poverties and Triumphs of the Chinese Scientific Tradition", in S. Harding (ed.) *The "Racial" Economy of Science: Toward a Democratic Future*. Bloomington, Indiana University Press, pp. 30-46.
- Sagan, C. (1983) *Broca's Brain: Reflections on the Romance of Science*. New York, Ballantine Books.
- Sardar, Z. (ed) (1988) *The Revenge of Athena: Science, Exploitation and the Third World*. London, Mansell.
- Sardar, Z. (1994) Conquests, Chaos and Complexity: The Other in modern and postmodern science, *Futures*, Vol. 26, No. 6, pp. 665-682 .
- Seshadri, C. V. (1982) *Development and Thermodynamics*. Madras: Murugappa Chettiar Research Centre.
- Seshadri, C. V. and Balaji, V. (1982) *Towards a New Science of Agriculture*. Madras: Murugappa Chettiar Research Centre.
- Snow, C. P. (1993) *The Two Cultures*. Canto Edition, Cambridge, Cambridge University Press.
- Summer, C. (1994) *Classical Ethiopian Philosophy*. Los Angeles, Adey Publishing Company .

THES (1994) *The Times Education Supplement (THES)*, Nov.23 & 25. THES, carried articles throughout autumn, 1994, Wolpert vs. Harry Collins leading to the Conference on Social Standing, December 2-4,1994. Later others such as sociologists like Hilary Rose made additional commentaries from feminist perspectives of science!

*The Chronicle of Higher Education (1994)*, At the same time in the U.S. A. *The Chronicle of Higher Education* was carrying out similar debates between scientists and sociologists of science, Autumn, 1994.

Wienberg, S. (1993) *Dreams of a Final Theory: The Search for the Fundamental Laws of Nature*. New York, Pantheon Books.

Wolpert, L. (1992) *The Unnatural Nature of Science*. London & Boston, Faber & Faber.

### **Biographical Sketch**

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