Justifying molecular imagery in cell biology: Goodsell vs Roberts

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Abstract

SourceURL:file://localhost/Users/patriciaserpente/Desktop/Montpelli%20Abs%20July%202013.docx @font-face { font-family: "Times New Roman"; }@font-face { font-family: "Calibri"; }p.MsoNormal, li.MsoNormal, div.MsoNormal { margin: 0cm 0cm 10pt; line-height: 115%; font-size: 11pt; font-family: Calibri; }table.MsoNormalTable { font-size: 10pt; font-family: "Times New Roman"; }div.Section1 { page: Section1; }
A common assumption held by philosophers of science and implicitly by most scientists is that claims of a scientific nature (hypothesis, theories) need to be justified. A set of criteria is proposed to specify the validity and/or productivity of such claims chiefly among them: a) their correspondence to experimental data; and b) the capacity to predict the behaviour of the system in different conditions (productive deductions and testable consequences).

On the contrary, scientific images have customarily been exempt from questions concerning justification.

This assertion however, turns problematic, when images are conceptualised as 'self-sufficient modes of thought', that is, as having an independent or almost independent role on scientific reasoning and theorising.

A reconstruction of the process of image production in molecular cell biology since it emerged in the early 1980s could provide us with some insights for this paradox.

Key questions to be addressed in this paper are:

How much justification goes into image creation in this field of knowledge? And, when producing images of a molecular nature are elements of justification already in place?

This paper explores the justification process (if any?) of the use of molecular images in cell biology through the work of David Goodsell and Keith Roberts, two well-known molecular designers.
I will be arguing that an exploration of the production of molecular imagery places images closer to discovery rather than justification and that they are crucial for a distinction between generating and securing knowledge a distinction that is perhaps more productive than the classic dichotomy of discovery and justification, for it allows incorporating other key elements for the production of knowledge such as pedagogy and aesthetics.

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