

Laboratory Life – The Construction of Scientific Facts

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Chapter 4 – The microprocessing of facts

The topic of this book, is how science is practiced and conducted. Through Latour's studies of the researchers of a neuroendocrinological laboratory in California, the authors attempts to discern how science is conducted, and what this means for scientific facts. In chapter four, which is the focus of this abstract, Latour and Woolgar (L&W) investigates how scientific facts are microprocessed in the laboratory. This microprocessing is exemplified through excerpts of conversations between scientists, where scientific facts are discussed and assessed. Through these examples, it is shown how the construction of scientific facts is a process of negotiations between scientists, where heterogeneous elements, that are not all scientific, interact. In the course of relatively brief conversations, scientific facts are created or destroyed.

One example of these non-scientific elements in the process of construction, is the status of a certain scientist in scientific circles: Here, one scientist reports certain findings regarding a substance, but because of a prior incident, where the scientist misinterpreted the result of an experiment, the fact is disregarded by the other scientists. Seemingly, the person who made the statement, is as important as the statement itself. Another example is excerpts from a conversation, where two scientists discuss what amount of a certain substance, can be said to sufficient evidence, to falsify a theory. The amount of the substance necessary for it to be accepted as evidence, is negotiated between the scientists, rather than being established objectively. Several other examples are presented, including one where the time that a scientific statement has been accepted as a fact, determines whether or not the statement is accepted by the scientists.

As such, the above examples point to scientific reasoning as not being dissimilar to common sense reasoning. Whether evidence is accepted as such, depend on factors that are not necessarily scientific. Thereby, the scientists are not discussing objective truths, but rather negotiating. They are constructing and deconstructing statements, and thereby determining whether or not these statements can be stabilised as scientific facts. It is only through stabilisation, that a statement becomes a scientific fact.

Interestingly, in this process of negotiation, the social elements of the statement are slowly removed, until only the scientific fact remains visible. Thus, analogical reasoning such as "A is similar to B", "A could be B", which are frequently used in the daily work of the scientists, are changed to logical connections, where other scientific facts are brought in to stabilise the statement. Similarly, complex local circumstances that led to the scientist thinking of the possible connection, are changed to flashes of intuition, where the scientist understands the problem in a new way. In this process of making the statement non-social, the distinction between reality and the local circumstances are created, whereby the statement further stabilises into a fact. This happens in a process of splitting and inversion. First, the statement is presented. This statement is then mirrored into a real and a theoretical part, through splitting, in the laboratory work that scientists perform. Through the negotiations described above, where heterogeneous elements are included and excluded from the network surrounding the statement, it is stabilised into a fact. This happens in a process of inversion, where the original statement, having no component in reality, becomes the fact, and thereby establishing it as objective. When this has happened, no traces remain of the theoretical statement, and only the real element of the statement remains. Thereby, the objective

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nature of scientific facts have been constructed, and the distinction between fact and local circumstances are manifested.

The point that is being made, is that it is not possible to make a clear distinction between the work of science and its socio-technical components. The traditional view of scientists engaged in scientific discussions, using objective facts and proven arguments, does not hold. Instead, scientists use common sense arguments in assessing what they see. They enter into a process of negotiation, where heterogeneous elements of both social and technical nature, play a part. Through this negotiation, statements are constructed and deconstructed, until the statement is stabilised in the network. Thereby, scientific facts can not be said to be objective truths, dislodged from their surroundings. The scientific facts are the product of science, and only through the process of science, do they show themselves as such.

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Reference:

Bruno Latour and Steve Woolgar (1986): *Laboratory Life – The Construction of Scientific Facts*, Princeton University Press, 2nd edition