

From An Idea To Acceptance – How Knowledge Makes Its Way Into Our World

Science philosopher studies how knowledge is created at the German Cancer Research Center.

How do sensational ideas become commonly accepted knowledge? How does a hypothesis turn into certainty? What are the ways and words that bring results of scientific experiments into textbooks and people's minds, how are they "transferred" into these domains? Science philosopher Dr. Rainer Becker has recently started dealing with such questions. Over the next three years, Becker will accompany the work of Professor Dr. Frank Rösl's department at the German Cancer Research Center (Deutsches Krebsforschungszentrum, DKFZ), which studies cancer-causing viruses. He is one of three scientists in an interdisciplinary joint project which is funded by the German Ministry of Education and Research (BMBF) with a total sum of approximately € 790,000.

Becker's mission in Heidelberg is part of a research project entitled "Transfer knowledge – knowledge transfer. About the past and present of the transfer between life sciences and humanities." The project is carried out by DKFZ jointly with the Center for Literary and Cultural Studies (Zentrum für Literatur- und Kulturforschung, ZfL) in Berlin. Project leaders are Professor Dr. Frank Rösl of DKFZ and Dr. Falko Schmieder of ZfL. It comprises three individual projects in which forms of knowledge transfer related to three different constellations of science history are studied in a cultural-scientific approach.

The first project is pursued in Berlin and is devoted to the work of medical doctor and science theorist Ludwik Fleck. In 1935, he published his book *"Entstehung und Entwicklung einer wissenschaftlichen Tatsache"* (later translated into English: "The Genesis and Development of a Scientific Fact"), which is a sociological history of the concept of syphilis in the context of bacteriology. The second project, also carried out in Berlin, deals with French biochemist and geneticist Jacques Monod, who introduced new concepts of gene regulation in molecular biology in the 1970s – and later developed a much discussed philosophy of nature on this basis.

The third and final project, which is pursued by Rainer Becker at DKFZ, deals with the question of the relevance of current knowledge concepts such as the one that understands and experimentally studies cancer as a consequence of viral infections.

"I am pleased that we will explore the relevance of tumor virology across disciplinary borders and I hope we will gain fundamental insights into how scientific discourses develop and how they are ultimately accepted in scientific thought collectives," said departmental head Frank Rösl about the relevance of the current project.

Rainer Becker wrote his doctoral thesis while he was employed at the Institute of Philosophy of Darmstadt Technical University. There he made parallel studies of the social history of the computer and the "universal science" of cybernetics. Back then he already chose a topic that transcends borders between humanities and natural sciences. "While I was working on my doctoral thesis, I explored the question of 'transfers' – namely between technology, natural sciences and philosophy in the 1940s: The development of computers and cybernetics would not have been possible without prior conceptual and metaphorical 'transfers' between life sciences and technical sciences."

In his future project, the philosopher will study in real time, so to speak, how natural science data are being obtained, processed and communicated. As a “researcher of science”, he will observe the laboratory work from the perspective of the humanities and cultural science, he will do research in archives and will interview scientists. It is for good reason that the project is located at DKFZ, because this is the place where findings from basic biological research become relevant for medicine and the public. Thus, the Nobel Prize-winning discovery by DKFZ's former Scientific Director, Professor Harald zur Hausen, that particular viruses cause cervical cancer has led to a vaccine against this type of cancer.

A picture of Rainer Becker is available on the Internet at:
www.dkfz.de/de/presse/pressemitteilungen/2010/images/pm_roesl.JPG

The German Cancer Research Center (Deutsches Krebsforschungszentrum, DKFZ) is the largest biomedical research institute in Germany and is a member of the Helmholtz Association of National Research Centers. More than 2,000 staff members, including 850 scientists, are investigating the mechanisms of cancer and are working to identify cancer risk factors. They provide the foundations for developing novel approaches in the prevention, diagnosis, and treatment of cancer. In addition, the staff of the Cancer Information Service (KID) offers information about the widespread disease of cancer for patients, their families, and the general public. The Center is funded by the German Federal Ministry of Education and Research (90%) and the State of Baden-Württemberg (10%).

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