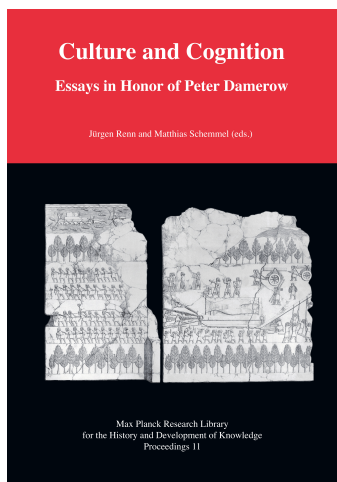


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Jürgen Renn:

Peter Damerow (1939–2011)



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Chapter 22

Peter Damerow (1939–2011)

Jürgen Renn

With contributions from Robert K. Englund, Christine Keitel-Kreidt, Peter McLaughlin and Diethelm Stoller, among others.

The mathematician, philosopher, educational researcher, and historian of science Peter Damerow was born on December 20, 1939, in Berlin.¹ On November 20, 2011, surrounded by his family in the University Clinic Benjamin Franklin, he succumbed to cancer. He was an unusually versatile scientific personality, a realist, and at the same time a visionary who was extraordinarily generous with his talents, including the talent to forge lifelong friendships.

Peter Damerow first trained as a chemical laboratory assistant, a job he practiced for several years, including a stint in Yugoslavia. Attending night classes, he prepared for the academic qualification exams needed to begin his studies in mathematics and philosophy at the Freie Universität Berlin. There he became involved in the student movement, rising to prominence as Wolfgang Lefèvre's co-chairman at the student union (ASTA) of the Freie Universität in 1965. He was one of the student representatives on the commission that investigated the death of student activist Benno Ohnesorg. His report of this investigation was published in *Kursbuch*, Hans-Magnus Enzensberger's influential political quarterly.

His interest in philosophy focused in particular on Kant, Hegel, and Marx. His formative philosophical experiences included a Hegel colloquium which he held for years with Peter Furth, Bernhard Heidtmann, and Wolfgang Lefèvre. But even at that time, he was also interested in religious studies (as taught by Klaus Heinrich), the didactics of mathematics, and the cultural and social contexts of science.

In mathematics, he was fascinated by the systematically abstract. In 1969, Peter Damerow submitted his master's thesis in mathematics on a topic from category theory. In 1977, he was awarded his doctoral degree at Bielefeld University with a thesis titled *Die Reform der Lehrpläne für den Mathematikunterricht*

¹This obituary was first published in German in *Archiv für Orientforschung* 52 (2013): 390–393.

der Sekundarstufe I in den Ländern der Bundesrepublik Deutschland 1963–1974 (“The reform of curricula for mathematics instruction in lower secondary education in the states of the Federal Republic of Germany 1963–1974”). His academic tutor was Karl-Peter Grottemeyer, who had founded the second institute for mathematics at the Freie Universität in 1967. This institute opened up new perspectives for university education, such as introducing discussions to the lecture hall and establishing tutorials. It was the age of what we then called the “education catastrophe.” Because of his dedication to university education, Grottemeyer was often asked to apply himself above and beyond this project to improve education in mathematics and the natural sciences. He assigned to Peter Damerow and Christine Keitel-Kreidt the task of drafting an application to the Volkswagen Foundation in order to set up a central research institute for the didactics of mathematics in Berlin. The application was successful, but by the time it was approved, Grottemeyer had accepted an appointment at the new Bielefeld University. The proposed institute was founded in Bielefeld, but Peter Damerow remained in Berlin.

There were reasons for this. When a new professor was sought in 1975 for the chair of mathematics at the College of Education in Lower Saxony, Lüneburg campus, Peter Damerow was placed at the head of the list, despite the fact that he had not submitted a post-doctoral thesis to qualify for a professorship and had still to defend his doctoral thesis. Aside from his outstanding critical writings, especially on the reform of mathematics instruction, on theories of learning, on measuring performance, and on equal opportunity, it was his application lecture, titled *Didaktische Probleme der Verwendung des Rechenstabs im Schulunterricht* (“Didactic problems in the use of the slide rule in school instruction”), which drew particular attention. In taking up an apparently outdated issue, his lecture initially provoked scepticism, but the reaction turned to excitement as they came to see how Damerow had brought a fresh perspective—forward-looking, intelligent, and didactically grounded—to an apparently uninspiring topic. Although Peter Damerow was the university’s first choice, in the end he was not appointed, apparently as a consequence of Lower Saxony’s change from a social democratic (SPD) to a conservative (CDU) government. Nevertheless, he did give an introductory lecture in Lüneburg on the study of modern mathematics, which guided the students in cogent steps from their everyday experiences into higher mathematics and its language. Lectures followed on subject-related topics, as well as on basic historical problems. The work he performed with his colleagues in Lüneburg, especially that with Diethelm Stoller on the development of project- and student-oriented mathematics instruction, was carried out in collaboration with comprehensive school teachers in the state of Hesse as part of the KORAG (*Konkretisierung der hessischen Rahmenrichtlinien für Gesellschafts-*

lehre: “Concretization of the framework directives of the State of Hesse”) and the SUGZ (*Systematische Umsetzungen gesamtschulspezifischer Zielsetzungen*: “Systematic implementations of objectives specific to comprehensive schools”). It yielded several extensive collections of instruction materials. Peter Damerow remained in close contact with his circle of friends in Lüneburg for his entire life.

In 1974, Peter Damerow became a research fellow at the Max Planck Institute for Human Development in Berlin, where he worked on the development of a mathematics curriculum. In designing instruction materials, he always remained committed to overcoming social barriers, including those limiting the propagation of mathematical and scientific knowledge. This emphasis soon directed him toward questions about the historical development of the mathematical sciences. At the Max Planck Institute for Human Development, Peter Damerow worked first under Peter M. Röder, and later in the research area dealing with development and socialization, headed by Wolfgang Edelstein, where he supervised a project on culture and cognition. He was a representative in the Humanities Section of the Max Planck Society and, for a time, even a member of the MPG Senate.

For many years, Peter Damerow and Wolfgang Lefèvre co-directed the *Begriffsentwicklung in den Naturwissenschaften* (Concept development in the natural sciences) research colloquium, a program held jointly by the Max Planck Institute for Human Development and the Freie Universität Berlin. This colloquium became, not least through Wolfgang Edelstein’s initiative, one of the nuclei of the Max Planck Institute for the History of Science (founded in 1994), the proponent of a context-related, theoretically oriented historiography of science. Two of its later directors belonged to the colloquium (Jürgen Renn and Hans-Jörg Rheinberger), as did a number of the institute’s staff (among them Jochen Büttner, Jörg Kantel, Hartmut Kern, Ursula Klein, Wolfgang Lefèvre, Peter McLaughlin, Staffan Müller-Wille, Jochen Schneider, and Urs Schoepflin). The book co-authored by Peter Damerow and Wolfgang Lefèvre, *Rechenstein, Experiment, Sprache: Historische Fallstudien zur Entstehung der exakten Wissenschaften*, published in 1981, blazed the trail for some of the later research projects of the institute.

In his article for the book, Peter Damerow was particularly concerned with the emergence of counting techniques in early high cultures. This soon became a central emphasis of his work, one which made him known throughout the world: the emergence of writing and counting in Mesopotamia. Starting in 1982, Peter Damerow worked closely with the archeologist Hans Nissen and the philologist Robert K. Englund on archaic texts and proto-cuneiform script. Peter Damerow was one of the pioneers of what are called today the “digital humanities.” When he met Robert K. Englund in 1982, who had just begun to work as a research assistant to Hans Nissen at the time, he noticed a pile of punch cards in his office,

which he brought right away to the Max Planck Institute for Human Development. His colleagues from the Near Eastern Archeology department had lost their technical support and could not find a way to make use of any of the data stored on these punch cards. Peter Damerow, in contrast, had a mathematician's confidence that there must be a way of solving this problem. He had access to the computing center of the Max Planck Institute for Human Development and the necessary programming skills in LISP to process and evaluate the data. This was the beginning of the electronic Uruk project. Even back then, Peter Damerow was deploying computer-aided methods of analysis to decode the domain-specific counting systems of early Babylonian mathematics, yielding a resounding success. This work led to his co-founding, along with Robert K. Englund, of the "Cuneiform Digital Library Initiative" (CDLI), the world's most important digital cuneiform library, which contains not only high-resolution reproductions of cuneiform tablets, but also transcriptions, catalog data, and tools for electronic publication.

Thus Peter Damerow also became one of the early advocates of the principle of "open access" for research data and publications in the humanities. Up to the very end of his life, he remained fascinated by the possibilities of new technologies for innovative research. In the end, with support from Jörg Kantel, he became one of the protagonists of applying three-dimensional scanning technologies in the institutes of the Max Planck Society dedicated to the humanities. The digitization of the famous Hilprecht collection cuneiform scripts in Jena, which he undertook with Manfred Krebernick, served as his pilot project.

In the framework of the research colloquium mentioned above, which met regularly for years on Monday evenings at the Max Planck Institute for Human Development, Peter Damerow also pursued a plethora of other history of science projects. Indeed, it is difficult to overestimate his contribution to promoting the history of science, by urging others along in heated conversation, through his critical reading of texts submitted to him for review, and through the inexhaustible energy he brought to ongoing research projects. In all of this, he was guided by the vision that from the history of science a historical, empirically based theory of the development of knowledge could be extracted, a vision discussed today in connection with "historical epistemology." His own works in this vein include exemplary studies on the development of the number concept, which were not only based on a wealth of empirical material, but also elaborated the theoretical foundations for a historical epistemology of this kind. To take one example, consider the essay "Individual Development and Cultural Evolution of Arithmetical Thinking," in: S. Strauss (ed.), *Ontogeny, Phylogeny, and Historical Development*, of 1988.

This perspective emerged not least due to his insights into the ways culture and cognition are connected, which were the focus of the research area headed by

Wolfgang Edelstein at the Max Planck Institute for Human Development. These insights involve the connections between individual learning processes, as they were studied in an extended version of Jean Piaget's genetic epistemology; the development of concepts as investigated in epistemology and logic, especially in the work of Hegel; and historical transformation processes like the ones at the core of Marx's social analysis. Peter Damerow examined these connections and their many facets to develop his own notions of a historical epistemology, which he depicts in detail in his 1995 collection of essays, *Abstraction and Representation*.

Another of Peter Damerow's central areas of interest was the history of physics. In the 1980s, the Monday colloquia in Berlin focused not only on the Scientific Revolution of early modernity, but also on the emergence of modern physics. The discussions that took place there resulted in a long-term collaboration between Peter Damerow, Gideon Freudenthal, Peter McLaughlin, and Jürgen Renn. The book they co-authored, *Exploring the Limits of Pre-Classical Mechanics*, first appeared in 1992, using concrete case studies to analyze fundamental characteristics of the development of concepts in the natural sciences. This approach later yielded the research program on the History of Mental Models of Mechanics, pursued at the Max Planck Institute for History of Science, which continues today in the work of Jochen Büttner, Matthias Schemmel, and Matteo Valleriani in collaboration with such scholars as Rivka Feldhay. In 1994, Peter Damerow obtained his postdoctoral qualification in philosophy at the University of Konstanz. There he held a number of research seminars on the development of concepts in the natural sciences—often with Peter McLaughlin and Jürgen Renn.

In the history of physics, too, Peter Damerow was active in promoting the deployment of new information technology in order to open up new perspectives for research. Together with such scholars as Jürgen Renn, Jochen Büttner, Simone Rieger, and Martin Warnke, and supported by the Florentine Institute and Museum for the History of Science, he developed the concept of an electronic representation of Galileo's manuscripts on mechanics to be made freely available on the Internet. Building on this success, further digital research libraries were developed later at the Max Planck Institute for the History of Science, in collaboration with Jochen Büttner, Jörg Kantel, Jürgen Renn, Simone Rieger, Urs Schoepflin, and Dirk Wintergrün, among others, especially the broadly designed ECHO (European Cultural Heritage Online) environment, which has been joined by developments like the Europeana and the Deutsche Digitale Bibliothek. In 2003, along with Jürgen Renn and Robert Schlögl, he was one of the spiritual fathers of the Max Planck Society's Berlin Declaration for open access to information on science and cultural heritage. In 2010, Peter Damerow developed the idea of an open access, print-on-demand publication platform, which he then realized – along with Jürgen Renn, Bernard Schutz, and Robert Schlögl, supported

by Lindy Divarci, Jörg Kantel, and Matthias Schemmel, among others – as the “Max Planck Research Library for the History and Development of Knowledge,” the very platform on which this book has been published.

Peter Damerow never considered the history of science to be a specialized discipline, but a research area that was part of his comprehensive interest in the development of human cognition. In this he was also a pioneer of an interdisciplinary conception of the history of science. Even his early works on the emergence of script and counting had made clear that the emergence of abstract concepts can be understood only if we take seriously the role of those material representations of thinking that are given in concrete historical cases, and the potential for actions and reflection they enable, as for instance the specific role played by cuneiform script tablets in the administration of Babylonia. This insight allowed him to contribute to completely different kinds of fields, for instance to cultural anthropology. Together with Wulf Schiefenhövel, and building on the materials Wulf collected about the life of the Eipo in Papua New Guinea, Peter Damerow investigated those culture-specific cognitive structures and their representations that allowed the Eipo to achieve astonishing mental performances in areas like house construction, setting traps, and spatial orientation. He then applied these research findings to other projects at the Max Planck Institute for the History of Science, especially to a project conceived with Jürgen Renn on an epistemic history of architecture, and to a project on the historical development of spatial thinking pursued by Matthias Schemmel.

Non-European knowledge traditions played a prominent role in Peter Damerow’s thinking and actions. His close relations with Brazilian scholars go back to the mid-1980s during his work as an educational researcher, when he worked within the framework of the UNESCO, teaming up with Christine Keitel-Kreidt, Paulus Gerdes, Ubiratan d’Ambrosio, and Circe Silva da Silva Dynikoff to promote a contextualized mathematics. This, in principle, would open up to everyone the access to mathematic knowledge. These collaborations resulted in what is still a quite vibrant, regular academic exchange between the Max Planck Institute for the History of Science in Berlin and various academic institutions in Brazil, and also a concrete aid project for mathematics education in Brazil. Later, as part of his work at the institute, Peter Damerow helped establish academic relations with China and Spain. In collaboration with Zhang Baichun, Tian Miao, Jürgen Renn, and Matthias Schemmel, works on the history of mechanics in China emerged, even including a documentary film, thanks to the support of Richard Röseler. To all of these cooperative projects, Peter Damerow contributed his experience in the development of digital research environments, thus providing concrete help to overcome the “digital divide.” Digitization centers were set up in La Orotava on Tenerife and in Beijing, with

assistance from Urs Schoepflin and Simone Rieger, which even today continue to secure our cultural heritage, to make it available for research, and to edit it for the broader public.

Over and again, Peter Damerow's interest in a propagation of scientific knowledge also brought him to participate enthusiastically in exhibition projects. His interest in archaic cuneiform writing led in part to the Berlin Senate's 1988 bid to acquire the private Erlenmeyer collection of archaic cuneiform tablets. The Senate, using lottery funds, had teamed up with an international museum consortium to acquire the tablets when they went up for auction at Christie's in London. Since government officials seldom have experience with auctions, Peter Damerow worked out bidding tactics with a consultant experienced in such matters, and with their success, practically the entire collection ended up in public institutions—part of it is still preserved at the Pergamon Museum in Berlin. This acquisition was the foundation for Peter Damerow's first large-scale exhibition project in the late 1980s, which culminated in a widely acclaimed exhibition about the emergence of writing in Charlottenburg Palace. The accompanying catalog, co-authored with Hans Nissen and Robert K. Englund, is still used as a textbook for Assyriology, especially the English version. Later, Peter Damerow teamed up with Jochen Schneider to develop parts of the conception of the Nixdorf Computer Museum in Paderborn, which also featured an exhibit on early Babylonian calculation techniques.

In 2005, which was International Einstein Year, Peter Damerow played a key role in the major Einstein Exhibition in Berlin. His long years of cooperation with Jürgen Renn, Tilman Sauer, Giuseppe Castagnetti, Werner Heinrich, Hubert Gönner, Matthias Schemmel, Michel Janssen, John Stachel, and other Einstein scholars built the foundation for this involvement. In the late 1980s, Peter Damerow and Jürgen Renn headed the Albert Einstein working group funded by the Berlin Senate at the Max Planck Institute for Human Development, which soon became a center for international Einstein scholarship. With his eye for overarching connections, his comprehensive experience with historical issues concerning the development of concepts in the natural sciences, and not least his unerring critical inquiries, Peter Damerow made a weighty contribution to understanding the emergence of the theory of relativity, albeit one that is easily underestimated by specialized scholars. The conception and realization of this major Einstein Exhibition would have been inconceivable without his ingenuity and persistence. The idea for a virtual exhibition (not only guiding the mode of presentation but enabling the long-term storage of the exhibition's contents) can be traced back to Damerow's ideas and works, which were implemented in collaboration with Jürgen Renn, his daughter Julia Damerow, and with Malcolm Hyman, who also died too young.

In Peter Damerow we have lost a visionary teacher, a colleague, and a friend. He challenged us intellectually, radically, and without compromise—and was unconditionally loyal and helpful in all human endeavors. He left his mark on many a biography and pointed out new paths for many research institutions. For years to come, books and articles will appear that were influenced by his thought and to which he contributed decisive ideas. He had inconceivable strength and endurance, in both his work and his commitment to people. He was at once a brilliant spirit and the most cooperative person imaginable, despite or perhaps because of his unbending character. His direct manner occasionally offended, but he never refused a conciliatory conversation. Those of us who were privileged to be close to him are grateful. Peter Damerow is survived by his wife Ingrid and his two daughters, Julia and Sophie. To them we offer our condolences and support.