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## **Cogent Science in Context**

The Science Wars, Argumentation Theory, and Habermas

*William Rehg*

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## **Preface and Acknowledgments**

In this work I reflect on the cogency of scientific arguments. Although I approach that issue primarily as a philosopher, the issue itself is a matter of concern for many groups—not only the scientists who make arguments when they adduce evidence in support of hypotheses, but for anyone concerned about the basis of scientific claims or interested in understanding that basis: laypersons, policymakers, science journalists, scholars of science and technology studies (STS), critical social theorists, rhetorical scholars, and argumentation theorists. Although many members of these groups do not consider themselves philosophers, they nonetheless have an interest in the philosophical issues raised by scientific inquiry. I therefore address this book not only to professional philosophers but also to members of these other groups as well—in the hope that they do not find the philosophical terrain overly taxing. The growing importance of science for policy-formation and lawmaking, as well as the increasing need for interdisciplinary work, poses tough philosophical problems that are not well served by superficial treatment.

The approach I defend is both critical and contextualist in character. In calling the approach “critical,” I do not mean that it takes a dismissive, skeptical attitude toward the sciences and scientific argumentation; rather, “critical” here has the sense of a discriminating evaluation. In labeling the approach “contextualist,” I emphasize the sensitivity of such evaluation to the particular contexts—the particular experimental locales and subdisciplinary communities of discourse—in which arguments are made and assessed. At the same time, I formulate the critical contextualist approach as a comprehensive framework within which analysts from different disciplines can cooperate in the

critical evaluation of scientific arguments. The endless parade of case studies within STS has led some of its members to ask: to what end? The present study, I hope, provides an answer: a way to see how case studies can fit together within a larger vision oriented toward the assessment of cogent science that serves both the production of knowledge and the good of society.

This work is the product of engagement with many groups and individuals. I am thankful to a number of people who provided helpful feedback on earlier drafts: Garth Hallett, S.J., and three anonymous reviewers for going through the entire book, Kent Staley and Richard Blackwell for feedback on chapters dealing with the philosophy of science and physics, and Thomas McCarthy for his ever sage advice on the introduction and overall framing of the project. The History and Philosophy of Science reading group at Saint Louis University, organized with the help of Kent Staley, Aaron Cobb, and Scott Crothers, commented on two chapters. A number of people provided feedback on earlier versions of chapters or parts of chapters that appeared in talks and articles: Alison Wylie, Paul Roth, James Bohman, Peter Achinstein, Steve Fuller, Scott Berman, David Bogen, Douglas Marcouiller, S.J., Michael Barber, S.J., Walter Jost, Walter Ong, S.J., Matthias Lutz-Bachmann, Andreas Niederberger, Jean Goodwin, and J. Anthony Blair. I also thank participants in the following occasions for feedback on papers that eventually worked their way into book chapters: the 1999 and 2004 meetings of the Philosophy of Social Science Roundtable (St. Louis, 1999); the Science Studies Seminar at the University of Oslo (Oslo, Norway, 1999) and the STS Colloquium at MIT (2002); philosophy department colloquia at Saint Louis University (2000, 2004), the Goethe University of Frankfurt, Germany (2005), and Loyola University-Chicago (2006); the Critical Theory Roundtable (St. Louis, 2004); and the Society for the Social Study of Science (4S) (Pasadena, 2005). Finally, I am especially grateful to comembers of three interdisciplinary panels of which I was a member, and to the audiences for those panels. The first, at the 2002 meeting of 4S in Milwaukee, included William Keith, James Collier, and Steve Fuller. The second panel, held at the National Communication Association meeting in Chicago (2004), was organized by Jean Goodwin and included J. Anthony Blair and Robert Asen, with Lynn Clarke as chair. This panel proved especially important for chapter 8 of the book, and I thank Jean for inviting me into such a fruitful exchange that continues to this day. The third panel, organized by Kent Staley and including Henry Frisch and Deborah Tollefsen, dealt with scientific collaborations; it was held

at the 2004 meeting of the Philosophy of Science Association in Austin, Texas.

Research for the book itself began during my stay as a Visiting Scholar at the Science, Technology, and Society Program at MIT in 2001–2002, funded by a Saint Louis University SLU2000 Research Leave Grant. At MIT I found a very hospitable environment: as chair, Merritt Roe Smith graciously welcomed me into the STS Program, and Kenneth Oye of the MIT Political Science Department invited me into his colloquium on science and technology policy. For particular aspects of research, I owe thanks to Alison Wylie, who generously provided me with a copy of an article by Jean Gero, and to the Council for Agricultural Science and Technology (CAST) for a copy of their 1982 report on the National Academy of Science's *Diet, Nutrition, and Cancer*. For research assistance during the years I worked on the book, I thank Taki Suto, David Packman, Jonathan Nelson, Paul Leisen, and Yong Li.

There is, however, an older debt I would also like to acknowledge. I doubt that this book would have come about but for teachers who stimulated my interest in science and for the opportunity to work as a research chemist in the mid-1970s. For their stimulating teaching and mentoring, I am particularly grateful to Joseph Sens, Ruben Battino, and Michael Smith. For the opportunity to engage in professional research, I am deeply thankful to Robert E. Sievers, with whom I worked over an exciting two-year career transition that took him from Aerospace Research Labs and Monsanto Research Corporation in Dayton, Ohio, to the University of Colorado in Boulder. My gratitude extends not only to Bob for his professional leadership but also to his entire family for their gracious hospitality and friendship in Boulder.

This book incorporates some previously published material, most of it heavily revised. Material in chapter 5 first appeared as a chapter in *Rhetoric and Hermeneutics in Our Time* (edited by W. Jost and M. J. Hyde; Yale University Press, 1997). The postscript for Part II first appeared in *Philosophy of the Social Sciences* (March 2000). Earlier versions of chapter 7 appeared as a chapter in *Pluralism and the Pragmatic Turn* (edited by W. Rehg and J. Bohman; MIT Press, 2001) and then, after substantial revision, in *Economic Policy under Uncertainty* (edited by P. Mooslechner, H. Schubert, and M. Schürz; Edward Elgar Publishing, 2004); chapter 7 also includes material from an article published in the Canadian journal *Symposium* (2005). Some material in chapter 8 first appeared in the journal *Informal Logic* (2005). I gratefully acknowledge the work of the editors and referees of these venues.

Finally, there are a number of people whose support goes beyond the tangibles. Eleonore Stump has provided insistent and ongoing encouragement to bring the project to a conclusion. My Jesuit superiors Douglas Marcouiller, Ralph Huse, Timothy McMahon, and Frank Reale have all been supportive over the years—as have so many Jesuit brothers in communities that welcomed me as I worked on various phases of the project: at the Weston School of Theology in Cambridge, Massachusetts; at the Sankt Georgen community in Frankfurt am Main; at Loyola University-Chicago; and here at Saint Louis University. Finally, my department chair, Ted Vitali, C.P., has not only provided release time but has been a constant source of support and good humor. Without the moral support of these people, I doubt this project would have reached completion.