K. Brad Wray

Introduction: Collective Knowledge and Science

The literature on collective belief and collective intentionality has grown rapidly and is now quite extensive. Philosophers have applied the concepts of "collective belief" and "collective intentionality" in a variety of contexts, including political and legal contexts as well as scientific contexts, specifically to model the behavior of research teams and scientific specialties.

Margaret Gilbert's "Collective Belief and Scientific Change" (2000) was the first published attempt to explain aspects of the epistemic culture of science in terms of collective intentionality. Gilbert argues that theory change in science is often slow because it requires that one not only change the views of individual scientists, but also the views of the research community or specialty. She argues that the views of a scientific specialty, like bacteriology, are not reducible to the views of the individual members of the specialty. Gilbert bases her argument on an example of strong resistance to a tradition-shattering discovery in medicine, specifically the discovery that many stomach ulcers are caused by bacteria. Gilbert initially encountered this case in a presentation by Paul Thagard (1999, part 2). Thagard's example is of special interest to social epistemologists for other reasons as well. This important discovery, Thagard notes, involved scientists trained in different fields working collaboratively (ch. 11), and its dissemination to medical practitioners was facilitated by the convening of government-sponsored consensus conferences (ch. 12).

Since the publication of Gilbert's paper, interest in applying the concepts of collective intentionality and collective belief to science has spread. Gilbert's attribution of collective beliefs to scientific specialties has been the object of critical debate (see Wray 2007 and Rolin 2008). The concepts of collective belief and collective intentionality have been applied in a variety of other contexts in science, including collaborative research teams (see Bouvier 2004; Staley 2007; Wray 2006, 2007) and committees of scientists that have been given the responsibility of contributing to social policies based on scientific knowledge (see Beatty 2006). This research program has thus gained considerable momentum.

Most of the papers in this issue address Gilbert's work in one way or another. Some of the papers seek to develop and refine Gilbert's account (Bouvier, Beatty

Episteme 7.3 (2010): 181–4
DOI: 10.3366/E1742360010000924
© Edinburgh University Press
www.eupjournals.com/epi

https://doi.org/10.3366/epi.2010.0201 Published online by Cambridge University Press

and Moore, and Andersen). Some seek to challenge it (Thagard). And others merely take her account for granted in an effort to explore important but hitherto unexplored epistemic implications and applications of collective intentionality to the culture of science (Beatty and Moore, and Rolin). Together, the papers in this issue advance our understanding of collective intentionality, its relevance to philosophy of science and social epistemology, and the epistemic culture of science.

In "Passive Consensus and Active Commitment in the Sciences," Alban Bouvier proposes some modifications to Gilbert's influential account of collective belief (1989). He argues that we need to distinguish between different types of phenomena that Gilbert fails to distinguish between. Specifically, he insists that we need to distinguish between (i) consensus and explicit joint commitments to a view (which involve a vote to determine what the group's view will be), and (ii) two forms of implicit joint commitments to a view. Bouvier demonstrates the importance of drawing these distinctions through an analysis of three case studies, one involving the Austrian School of economists, one involving the Copenhagen Interpretation of quantum mechanics, and one involving the discovery of the bacterial theory of ulcers. Though he recognizes the value of the concepts of collective intentionality and collective acceptance in understanding science, Bouvier expresses skepticism about any form of joint commitment that relies on the notion of common knowledge (see Lewis 1969). Bouvier argues that the conditions required for common knowledge are almost impossible to satisfy.

In "Should we Aim for Consensus?" John Beatty and Alfred Moore also argue that we need to distinguish between different kinds of "collective acceptance." They believe that we need to distinguish between what they call "deliberative acceptance" and what Gilbert calls "joint acceptance." The former involves a commitment to deliberating the merits of competing views before determining what view will stand as the group's view. Views that are deliberatively accepted are often formed as a result of voting. Beatty and Moore also argue that when scientists participate in government appointed advisory committees, they really aim for deliberative acceptance, not joint acceptance. Importantly, they believe the authority of scientists depends not on their speaking with unanimous agreement, but on transparency. Letting the public know that scientists do not fully agree on some issue of importance is not a threat to their epistemic authority. The problem is hiding this fact behind a false image of unanimity.

In "Group Justification in Science," Kristina Rolin considers the issue of collective or group *justification*. She defends a non-reductive joint account of group justification, similar to the account developed by Frederick Schmitt (1994). Unlike Kay Mathiesen's (2006) account of group justification, Rolin's account stresses the value of consistency. A group's pursuit of a consistent set of beliefs, Rolin argues, may sometimes require a group to disregard or override conflicting beliefs that some individual members of the group have. According to Rolin, when research teams are working under the pressures that characterize modern science, including the pressure to publish quickly before another research team beats them to a

https://doi.org/10.3366/epi.2010.0201 Published online by Cambridge University Press

discovery, this is precisely what they are forced to do. Journal editors and referees expect consistency even when papers issue from large collaborative research teams.

In "Evidence and Justification in Groups with Conflicting Background Beliefs," Kent Staley also examines the issue of group justification. His analysis concerns the practice of science, specifically the interpretation of data. Staley argues that groups of scientists who collaborate together may be epistemically justified in the interpretations of the data reported in their co-authored publications even when the individual members of the group do not accept the same background assumptions. What makes such a group epistemically justified is the fact that the group can address reasonable challenges to their published interpretation of the data. Part of Staley's concern is to show that the notion of epistemic justification must be relativized to the epistemic situation of the knowing agent. Thus, objective theories of justification are in some sense deficient.

In "Joint Acceptance and Scientific Change: A Case Study," Hanne Andersen argues that we need to develop a better understanding of the structure and dynamics of the groups in science that are capable of jointly accepting a view. Only then, she claims, can we hope to understand how a consensus about an accepted theory is broken, and how a new consensus is able to emerge. Andersen's analysis focuses on an examination of the introduction of a new concept, fission, in nuclear physics in the 1930s. On the one hand, she believes that Wray (2007) and Rolin (2008) are correct to claim that there is a functional division of labor in research communities. Scientists defer to each other and recognize their colleagues' expertise. On the other hand, the groups have a far more complex and complicated structure than has hitherto been recognized. They are composed of teams of collaborating scientists that overlap in membership. Andersen also urges us to explore the relationship between joint acceptance and distributed cognition.

In "Explaining Economic Crises: Are There Collective Representations?" Paul Thagard aims to defend a novel interpretation of ascriptions of collective beliefs and intentions, one quite different from Gilbert's popular joint commitment account (2000). Thagard argues that ascriptions of collective intentions are best understood as metaphorical pointers that draw attention to complex multilevel mechanisms. He illustrates his view through an examination of recent social scientific explanations of economic crises. The plausibility of these social scientific explanations, Thagard argues, depends on a correct identification of the social, psychological, and neural mechanisms that give rise to the phenomena one seeks to explain. Thagard thus sees ascriptions of collective intentions as serving a heuristic role in the discovery of the various causal mechanisms that bring about complex social phenomena.

Together, the papers in this special issue advance our understanding of both the explanatory power of the conceptual resources of collective intentionality and the challenges we face when we apply these concepts to the culture of science. Some of the papers are principally concerned with developing a better descriptive account of the epistemic culture of science (Bouvier, Andersen, and Thagard),

https://doi.org/10.3366/epi.2010.0201 Published online by Cambridge University Press

whereas others address normative issues (Beatty and Moore, Staley, and Rolin). There are also important points of contact between these essays and the research of social epistemologists more generally. The critical reflections on the concepts of "expertise" and "consensus" in the papers in this issue will be of interest to anyone working in social epistemology.

REFERENCES

Beatty, J. 2006. "Masking Disagreement among Experts." *Episteme, A Journal of Social Epistemology* 3(1–2): 52–67.

Bouvier, A. 2004. "Individual Beliefs and Collective Beliefs in Science and Philosophy: The Plural Subject and the Polyphonic Subject Accounts." *Philosophy of the Social Sciences* 34(3): 382–407.

Gilbert, M. 1989. *On Social Facts*. Princeton: Princeton University Press.

Gilbert, M. 2000. "Collective Belief and Scientific Change." In M. Gilbert (ed.), *Sociality and Responsibility: New Essays on Plural Subject Theory*, pp. 37–49. Lanham, MD: Rowman and Littlefield Publishers.

Lewis, D. 1969. *Convention: A Philosophical Study*. Cambridge, MA: Harvard University Press.

Mathiesen, K. 2006. "The Epistemic Features of Group Belief." *Episteme, A Journal of Social Epistemology* 2(3): 161–75.

Rolin, K. 2008. "Science as Collective Knowledge." *Cognitive Systems Research* 9(1–2): 115–24.

Schmitt, F. F. 1994. "The Justification of Group Beliefs." In F. F. Schmitt (ed.), *Socializing Epistemology: The Social Dimensions of Knowledge*, pp. 257–87. Lanham, MD: Rowman and Littlefield Publishers.

Staley, K. W. 2007. "Evidential Collaborations: Epistemic and Pragmatic Considerations in 'Group Belief.'" *Social Epistemology* 21(3): 321–35.

Thagard, P. 1999. *How Scientists Explain Disease*. Princeton: Princeton University Press.

Wray, K. B. 2006. "Scientific Authorship in the Age of Collaborative Research." *Studies in History and Philosophy of Science* 37: 505–14.

Wray, K. B. 2007. "Who Has Scientific Knowledge?" *Social Epistemology* 21(3): 337–47.

K. Brad Wray is an Associate Professor of Philosophy at the State University of New York, Oswego, and the Assessment Coordinator for the College. He has published numerous papers on the social epistemology of science, collective intentionality, Kuhn's philosophy of science, the anti-realism/realism debate in philosophy of science, and the sociology of science.

https://doi.org/10.3366/epi.2010.0201 Published online by Cambridge University Press