The fourth chapter addresses Kant's treatment of idealism between 1781 and 1787, that is, between the first and second editions of the *Critique*. The analysis is focused on the anti-skeptical arguments found in the *Prolegomena* and in the Metaphysics Mrongovius lectures. Caranti proposes to show that, despite appearances, in these writings Kant does not go back to the phenomenalistic position of the pre-critical period.

The fifth chapter analyzes the Refutation of Idealism—namely, the anti-skeptical argument of the second edition of the *Critique*—while the sixth chapter examines the various anti-skeptical arguments found in "Reflexionen zum Idealismus" and in "Vom inneren Sinne." Contrary to the view of most interpreters, Caranti argues that the Fourth Paralogism is much superior to these later arguments.

Caranti's style is clear and readable, and his hermeneutical analyses are by and large rigorous and plausible. However, I sometimes have the impression that he has to struggle a lot to explain away some texts or facts that run counter to his interpretation. It would perhaps be preferable to accept the possibility that, at times, Kant may be confused or inconsistent or hesitant regarding what strategy is the best to refute so-called Cartesian skepticism.

As Caranti makes clear in the introduction, his interest is not exclusively, or even primarily, historical. Indeed, the reason for offering a critical examination of Kant's responses to Cartesian skepticism is that this provides the necessary framework for his project of showing that transcendental idealism is the *only* philosophical perspective which makes it possible to respond to that type of skepticism, thus being a serious alternative for contemporary epistemologists. Although I strongly sympathize with this approach which is both historical and systematic, I think that Caranti makes an overstatement. First, he himself sometimes recognizes that his is not a full-scale defense of transcendental idealism and that he has only shown that this position is less flawed and outdated than usually thought. Second, he does not offer a detailed discussion of present-day epistemological debates about external world skepticism, but rather a brief examination of the anti-skeptical strategies found in Guyer, Carnap, Dummett, and Putnam and concludes that they are inferior to Kant's. Of course, such defense and discussion would require a book of its own, but this is precisely why I find Caranti's avowed aim too ambitious.

All in all, this is a most interesting book in which specialists in Kantian philosophy will find much to ponder and discuss.—Diego E. Machuca, *Consejo Nacional de Investigaciones Científicas y Técnicas, Argentina.*

CHAKRAVARTTY, Anjan. *A Metaphysics for Scientific Realism: Knowing the Unobservable.* Cambridge: Cambridge University Press, 2007. xvi + 251 pp. Cloth, $85.00—Anjan Chakravartty describes and to some extent argues for a version of scientific realism according to which our

best scientific theories approximately correspond to the causal properties and kinds that are in the world. He describes this position as "semirealism" since it is more sophisticated than earlier realisms. His book differs from much of the literature in the philosophy of science by focusing more on the metaphysical rather than epistemological implications of realism.

The book has three parts. The first part begins with the role of unobservables in science. Some unobservables are detectable through instruments at least in principle, such as distant bodies and neutrinos, whereas others cannot be detected, such as universals and causal necessity. Although Chakravartty is concerned with the way in which scientific theories are about both observables and unobservables, the thrust of his metaphysical concern is with undetectable unobservables.

He provides a good account of debates over the reality of such unobservables in the past thirty years. He primarily argues against Bas van Frassen's "constructive empiricism," according to which empiricism is a kind of voluntary stance which rejects speculation about unobservables. Chakravartty argues that van Frassen's stance is itself a metaphysical position. But since van Frassen regards his own constructive empiricism as a voluntary stance, he cannot defend it with arguments. Chakravartty's method here recalls the familiar dictum that one must practice metaphysics even to argue against it.

In the remainder of the first part, Chakravartty develops "semirealism," which is meant to incorporate the strengths and avoid the weaknesses of two major contemporary realisms, namely entity realism and structural realism. One realist worry here is that scientific theories change over time and consequently do not seem to describe the world. Entity realists point out that even though scientific theories change, causal interaction with entities requires that there be mind-independent entities. But what are these entities and how do we know them? Structural realists argue that scientific theories tell us not about the entities in the world but rather a mind-independent structure. But what is being structured? Chakravartty combines aspects of the theories by holding that entities are known through their causal interactions. Consequently, entities and structures cannot be separated. When scientific theories change, the detection properties, such as causal processes, remain, even though auxiliary properties, such as phlogiston, may vanish. This continuity makes semirealism possible.

The second part of the book begins with a defense of causal realism, which Chakravartty understands as the view that causal necessity is real even though it is unobserved. He holds that the traditional understanding of causation as a relation between events is entirely misplaced. But he does not turn to agent causality. Instead, he emphasizes causal processes, which are about entities and their dispositions. Even though dispositions to behave cannot be observed, the dispositions themselves are real. Objects, events, and causal properties can be truly described by laws because they fall under kinds. Chakravartty rejects what he understands as the traditional notion of essences and replaces it with the "sociability" of properties. There are no traditional essences because such an essence would require the possession of at least some properties which are exactly the same by each member of the kind. But biology

and other sciences do not allow for such essences. For instance, not every pig has four legs. Nevertheless, causal laws and other description are about mind-independent kinds, which are grouped together not by chance but by what Chakravartty describes as "sociability."

The third part of the book shows how Chakravartty's semirealism understands the relationship between theories, models, and the world. He argues that the truth of scientific theories and models cannot be merely syntactic, but must be semantic, that is, the theories must correspond to the world. This commitment to the correspondence of approximately true theories to the world is not the same as a commitment to the correspondence theory of truth, but is compatible with different approaches to truth.

Chakravartty states that scientific theories can be approximately true in different ways. For instance, some theories and models abstract from the world, whereas others stipulate ideal conditions. Abstraction and idealization are both necessary for science, but the second does not describe the world as it is. Abstractions are true insofar as they describe the world, but idealizations are true in part because of their utility.

Most of Chakravartty's arguments are clear and seem at least plausible, although I wish that certain discussions were carried on with greater depth, such as his rejection of essences and his description of idealization. The book shares common but questionable prejudices about the centrality of causal necessity and the priority of scientific theories over pre-theoretical knowledge. Nevertheless, it is an excellent introduction to many central issues in the philosophy of science and provides some novel arguments for a version of scientific realism.—Thomas M. Osborne Jr., *University of St. Thomas at Houston.*

DASTON, Lorraine, and GALISON, Peter. *Objectivity.* Brooklyn, N.Y.: Zone Books, 2007. 542 pp. Cloth, $38.95—It is rare in a treatise that runs 500 pages to conclude that not a single page could be deleted except at the reader's expense. The concept of objectivity is so foundational in contemporary thought as to go unnoticed as a concept. As now widely understood it grounds what aspires to be a thoroughly depersonalized epistemology. To be objective is to record nature in the raw, unfiltered, uninterpreted, accepted for what it is. How surprising, then, that the concept thus understood is largely a creation of the 19th century.

The earlier standard was truth-to-nature, requiring investigator to go beyond the mere physical attributes of the object of inquiry and to locate that object correctly in its natural setting. The botanists who first benefited from the development of the microscope were then able to present specimens at an extraordinary level of detail. This, however, was not the conclusion of the undertaking. Rather, the specimen now had to be presented in the settings in which it is found. The truth of the thing includes its context. With instructive extracts from Linnaeus and Goethe, the authors provide an insight into Enlightenment