Book Reviews
(originally written for Amazon.com)

Has Science Found God? The Latest Results in the Search for Purpose in the Universe by Victor J. Stenger

To spoil the "surprise", the answer to the title's question ... is an emphatic: NO!

I should first note that (a) I would rate this book 4.5 stars if I could and that (b) I was a commentator on the author's drafts of this book.

It does with precision and lucidity what it sets out to do, survey current (mis)interpretaions of science that purport to give solace to religious beliefs and theisms of various kinds and show why they are mistaken.

That said, I do not rate it perfectly as it is (in some places) more bibliographical in character. It is useful to have references to all matter of refutations available on the books theme (prayer as healing, Intelligent Design, etc.) but sometimes reading references to refutations elsewhere gets tedious. (For another book on a different subject where this is also done, see my review of Carl Mitcham's book on the philosophy of technology.)

That said, some of Stenger's arguments, particularly concerning details of cosmology are novel and interesting.

How the Mind Works by Steven Pinker

An important, but somewhat flawed book. Strengths of Pinker's work are his engaging style, his breadth of coverage and his summarizing of much research. Alas (as many reviewers have pointed out), the book has a few flaws.

The most glaring one is the computationalism section. Pinker attempts to defend the notion that brains are computers. While this was orthodoxy in cognitive science and philosophy of mind, it is somewhat less popular these days. This reviewer still thinks the approach has

merit, but Pinker does not do justice to this issue.

Nor, realistically, could he - the book is long enough as it is. Arguably, the book could be then done in two volumes: one on computational cognitive psychology, and one on evolutionary psychology, with each drawing on the other volume as needed.

Another issue which is important for popularizations but not for academic volumes is the question of materialism. A perusal of the other reviews shows that materialism offended / turned off many readers. While this is the metaphysical position necessary for scientific research, many members of the public may not realize it and need to be brought up to speed.

This yields another point: Pinker's tome is intended as a popularization - but it does at times flirt with being an academic review, or a textbook. This makes some of it seem a bit unfocused.

Finally: Evolutionary psychology is a bit underdeveloped for the reasons also pointed out by many reviewers - it does not make much contact with neuropsychology. This is unfortunate for the field, but in my view does not detract from Pinker's volume which is summarizing. Taking the book as a monograph would definitely result in this being a limitation.

From Frege to Godel: A Source Book in Mathematical Logic, 1879-1931 by Jean Van Heijenoort

Essential reference in the history of logic and computing.

The second part of my review title may shock some, but the excellent collection of papers that Van Heijenoort has edited (and in many cases translated!) is also an excellent reference in the history of computing. Everyone appreciates that mathematical logic gave rise to computer science; the papers in this collection from Hilbert, Herbrand, Gödel, and others will show why.

If your interest is instead the history of logic, all the classics in the range specified by the work's title are here, complete with their own ideosyncratic notation. van Heijenoort's wonderful introductions to

each piece will interelate the works, provide references to other literature and situate everything in a wonderful intellectual climate.

Be warned, however, that the foundational papers in this still growing field continue for another 15 years or so; these are reprinted in Davis anthology *The Undecidable*, which has (as far as I understand) been recently reprinted by Dover. I have not come across this reprint yet.

This collection will keep you busy and wet your appetite for the sequel!

Science, Truth, and Democracy (Oxford Studies in the Philosophy of Science) by Philip Kitcher
Well written, engaging, but with a fundamental oversight.

Philip Kitcher again shines as a well informed philosopher of science. This book can be regarded as a sequel to his magnum opus *The Advancement of Science*. It deals with the relativists and antirealists quite well, though does presuppose some familiarity with these debates.

However, I find that Kitcher's new position on the nature of science and its relations to society at large suffers from an apparently glaring oversight. He tells us that those who have a stake in the outcome of scientific research should have a say in how it should proceed, be funded, etc.

Since we have long known (and Kitcher himself is aware of the fact) that the outcome of basic scientific research is unknown, i.e. we do not know what position (if any) it will affect, we cannot realistically adopt Kitcher's suggestion. His proposal is emmently sensible in technology, where the goal is not to know but to change or prevent change. But the history of science shows that the proposal of making basic science sensitive to people's interests **that** way will not work. Further, it is vague, even if it could be done: how do we determine the effect? Christian conservatives like Philip Johnson would curtail or slow research into evolution because he feels it is socially undermining; biologists and other scientists (rightly) regard this as distressing. Science **should** puncture illusions, as Kitcher points out happens. On the other hand, if the "say" is simply to be a sort of

"gripe session" where people can say their piece to scientists, this is a recipe for squabble, or worse, just ignoring people, which is the (perceived) problem in the management of science now.
(I think actually that the insistence from some that science is alienating because it is undemocratic is wrong, but that's another story.)

One should not read this book, however, without a grasp of some of the issues this review sort of brings up. As another reviewer said it is sort of for the academic. I wish that weren't so: but sometimes we academics have to debate amongst ourselves a bit first, before popularizations come out. Of course this is just some of the same concerns again ... and around we go.

Prometheus Bedeviled: Science and the Contradictions of Contemporary Culture by Norman Levitt

The book deserves 4.5 stars - it would be five, if it went beyond mostly exposition and started to do more analysis on how to overcome the problems expounded in it. Many of the problems discussed in _Prometheus Bedevilled_ (as the book itself points out) may have similar roots, so a first approximation to a solution to the woes might address these similar roots.

As someone who feels that science can be used to better social conditions, it is imperative that science itself be used solve (paradoxically, and here's the problem) the issues surrounding the public view of science (and technology, it must be added) raised in this book. Some might be put off by the vocabulary level in the book, however, this is simply the sign of yet another problem in public policy.

Functional Neuroanatomy: Text and Atlas by Adel K. Afifi, Ronald A. Bergman

I am not a bioscience or medical type, so this text is rather out of my field. However, with that said, I have an interest in nervous system functioning and have found *Functional Neuroanatomy* a very useful reference. It is slightly poorer as a textbook as it suffers from insufficient internal cross referencing (some exists, and a physiology

book would no doubt have more). The index is reasonably complete in this regard, but relying on it can be awkward, particularly when it comes to looking up structures which have different names in different texts.

Logic of Scientific Discovery by Karl R. Popper
While much work has gone on in the philosophy of science (progressive and otherwise) since Popper wrote his magnum opus, this work still stands as a survey of central issues in the philosophy of science. It analyzes concepts central to science itself (e.g. probability) and attempts to characterize science itself. That the latter analysis is incomplete is well known by now. This does not detract much from the book's well deserved reputation - but does result in this book having a 4 star review from this reviewer. It should be noted that Popper's criterion is ultimately a sort of "negative rationalism" - and from there it is not far to irrationalisms. Be warned. Works of Bunge, Kitcher and Laudan (for example) attempt to deal with this latter problem. The student or curious individual studying this work for current (rather than historical) interest is well advised to keep these later works in mind, as well as the later works of Popper himself.

Cultural Boundaries of Science : Credibility on the Line by Thomas F. Gieryn

Dual possible purposes make part of book worthwhile.

Gieryn's stated purpose in this book is to show how the notions of what science is like are flexible and changing, and provides several case studies where the "boundaries of science" were supposedly at issue. These case studies are developed in a meticulous and careful manner. Nevertheless the case studies are never substantially interpreted to illustrate the book's thesis. No attempt is made to compare the approach of one view at a given time with another to speak of; merely the two sides (at best) are presented. For example, his presentation of the phrenology disputes in the 19th century focus **merely** on social factors (as one might expect from a sociologist) - however, that cannot by itself explain the boundaries involved without showing other factors (epistemic, etc.) were NOT relevant to whatever degree. This said, the cases are presented quite well and

clearly as far as they go.

Also, it should be noted that the epilogue where Gieryn discusses his take on the so called "Science War" is riddled with inaccuracies. For example: he accuses the philosopher Mario Bunge of saying that feminists should be excluded from science. This is complete nonsense - as anyone who reads his remarks in context will see. (Bunge was merely denouncing what could be called "radical feminists" who claim quantification is masculine, and so on: Sandra Harding, etc. The article in question makes this clear.)

Essays on Actions and Events by Donald Davidson
This is the standard collection of Davidson's early writings on events, action, and some of his work on the philosophy of mind and psychology. Some of the papers are very good ("The Logical Form of Action Sentences" is rightly regarded as a classic) whereas some other papers (e.g. "Mental Events") are obscure and confused. The latter suffers from (apparently) a lack of contact with how psychology (and in particular, cognitive neuroscience) is practiced. I nevertheless recommend the volume as a good collection of papers by one of the 20th century's more influential philosophers. I should note in passing that Davidson's current views on the individuation of events are not discussed in any of the papers. For that, see *Actions and Events: Perspectives on the Philosphy of Donald Davidson* and his article "Reply to Quine on Events" therein.

Causation and Persistence: A Theory of Causation by Douglas Ehring
Ehring's book is an interesting attempt (in part) to solve the question of what allows ordinary objects to persist through time. He defends a "causal trope" account to this end. His development criticizes (amongst others) the views of Donald Davidson on events, and does not do adequate justice to exploring them for his purposes. His references to this part of the metaphysics literature are woefully underdeveloped. The issues he raises are important and interesting, but appear to be muddled. Like much metaphysics these days, it fails to do much contact with science and technology which would (if done well) no doubt improve its content.

The Advancement of Science: Science Without Legend,

Objectivity Without Illusions by Philip Kitcher
Kitcher's work is a masterpiece of using historical evidence to show the nature of scientific investigation. Science may be a fallible, human activity, but as Einstein put it, it is the most precious thing we have. Kitcher's book will show how and why, and elegantly refutes many arguments to the contrary, including most notably the strongest readings of Kuhn's famous *The Structure of Scientific Revolutions*. In particular, Kitcher's analysis of Lavoisier's experiments is outsanding. My only complaint is that the book does strike me as having a bit of retreading the same points several times.

Thinking through Technology : The Path between Engineering and Philosophy by Carl Mitcham
A good introduction to some issues in the philosophy of technology; however it is more of a heavily annotated bibliography on the subject. One can use it well as a "jumping off point" to learn about in outline the views of many others, which are amply referenced and documented. A warning: his characterizations of Mario Bunge's philosophy of technology - "technology as applied science" is incorrect. (See Bunge's _Treatise on Basic Philosophy_, volume 7.)

The Significance of Free Will by Robert Kane
Kane surveys the relevant issues in free will with precision and fairness. However, his positive account relies heavily on dubious appropriations from chaos theory and quantum mechanics which are (at best) grossly unsupported by current evidence.

Knowledge in Flux: Modeling the Dynamics of Epistemic States by Peter Grdenfors
This ambitious book attempts to model belief dynamics. It is largely formal in character and includes sections devoted to applying the modeling to specific kinds of beliefs and is thus quite complete in that sense. However, the modelling is at best a (to speak metaphorically) a 'zero-order' approximation. In particular, the notions of minimality discussed seem to suffer from vagueness.

On the Contrary: Critical Essays, 1987-1997 by Paul M. Churchland, Patricia Smith Churchland
A good collection of essays by recognized leaders in a burgeoning field of philosophy. Some are only useful if what the article is

discussing is quite familiar to the reader. This holds in particular for some of the articles on qualia and the article on R. Penrose. It could also be said that the article on Dennett could have been marginally better if the last part, concerning his motivations, were snipped.

Manifesto of a Passionate Moderate : Unfashionable Essays by Susan Haack
A decent collection of essays, ranging on pertinent current topics in philosophy such as pragmatism, relativism, feminism, and so on. There is a bit of unevenness in Haack's approach; some of the essays could have been slightly more focused. Also, I generally prefer collections which have some tying together done as part of an introduction. The introduction does not do enough stage setting - though not by much.

The Structure of Scientific Revolutions by Thomas S. Kuhn
Kuhn's book is eminently popular and with good reason - it surveys a large number of important historical developments in science.

Unfortunately, his main thesis for which the book is famous, namely that science occurs in incommeasurable revolutions, is very dubiously supported. A more careful investigation of cases (see, for instance, P. Kitcher's book *The Advancement of Science* and *The Norton History of Chemistry*) suggests Kuhn is wrong. A logical analysis suggests the strongest reading of his thesis is logically false (see Bunge's *Philosophy of Science*). Read these and decide for yourself case by case; it may be that some scientific developments are "more Kuhnian" than others.

A House Built on Sand: Exposing Postmodernist Myths About Science by Noretta Koertge
Another wonderful book in the so-called "science wars" which demonstrates that many of the critics of science, rationality, objectivity, etc. don't have a leg to stand on intellectually.

Passion of the Western Mind by Richard Tarnas
I have to agree with the other amazon.com reviewers that noticed the sudden change of tone and scholarly level as this book comes to a close. While it is true that intellectually the 20th century has been one of a retreat from reason, no where does the author mention the great successes that have come along with that. I also find the "end

times'' message very distressing; to those who are unfamiliar with the current antiintellectualisms this part will strike one as odd. The rest of the book is a tour de force in every way - I wouldn't have thought one could do a history of ideas of western civilization in one volume. There is one slight oversight in the discussion of Descartes, too. Tarnas labels Descartes an atomist - not true - Descartes' cosmology was plenist.