HISTORICAL DICTIONARY OF LOGIC. By HARRY J. GENSLER, Lanham, Toronto and Oxford: The Scarecrow Press, 2006. Pp. xvii + 306. ISBN: 0810855311, hc. US$70.

This is a dictionary for students of logic. It covers a range of logical and logic-related topics which may be put in these four categories: (a) brief surveys of logical systems like propositional logic, quantificational logic, belief logic, deontic logic, mereology, modal logic, etc., (b) explanations of common logical terminology such as argument, contrapositive, entailment, fallacy, validity, etc., in addition to (c) very short sketches of the contributions of important logicians like Aristotle, Barcan Markus, Boole, Frege, Kripke, Quine, and Russell, and (d) some entries indicating the role of logic in fields outside logic proper, e.g., logic and God, logic and mind, logic and computers, and formal ethics. I think the entries are all reasonable, as far as they go.

Compared with Kneale and Kneale's *The Development of Logic* (1962), Gensler's *Historical Dictionary* is much less ambitious. The Kneales have much more detail and they often go deeper, but theirs is not a dictionary, and since their interest is in logic in the narrow sense (see below), they give us only a history of logic in the narrow sense. Boole's work, for example, gets over 10,000 words with the Kneales but only about 550 words in Gensler. Frege gets at least 20,000 words from the Kneales and about from 550 words, plus his own one-page bibliography, in Gensler. Gensler's interests, however, as mentioned range wider than do the Kneales', and he has the advantage over them of being able to report on the additional growth of logic during the last forty-five years. Unlike the Kneales' history, Gensler's *Dictionary* is extremely accessible and convenient for someone who just wants to know in outline what, say, deontic logic, or the continuum hypothesis, is.

There is something eclectic about Gensler's *Dictionary* that invites comparison with Quine's *Quiddities* (1987). In addition to what we expect (both books contain entries for *functions*, *Gödel's Theorem* and the *type/token* and *use/mention* distinctions, for example, they both have entries for *gender* and *rhetoric*. For *gender*, Quine gives us a discussion about French and German masculine and feminine nouns. Gensler, in about ten per cent as much space, debunks the argument that men are smarter than women. In their treatment of *rhetoric* they also differ markedly, although both see it as the art of persuasion that can be used for good or ill. Quine takes the opportunity to bring up the question of innuendo enabled by referentially translucent expressions, whereas Gensler uses his entry on *rhetoric* as a segue to kinds of debate in the Buddhist tradition. *Quiddities* has 83 entries, each averaging just under three pages; the *Historical Dictionary* has just under 300 entries, giving the average entry a smidgen more than a page. (These two books have approximately the same number of words per page.) Although Gensler does on occasion mention his own work, my impression is that he is trying to be neutral in his presentation of logical topics, as one would expect the author of a dictionary to be. With Quine, one gets Quine's view.

In Gensler's *Dictionary* there are one-sentence entries for, e.g., *enthymeme*, *inference rule*, and *anecdotal evidence*. Many entries, like the ones for *fuzzy logic*

and *de re/de dicto*, get somewhere around 100 to 150 words. There is also a good number of survey entries that are really little essays of about 1000 words; among these are the entries for *Gödel's Theorem*, *inductive logic*, *metalogic*, *modal logic*, *proof*, *quantificational logic*, and *set theory*. All these entries are accessible, clear, concise, and for the most part uncontroversial.

Given a general interest in logic, reading Gensler's *Dictionary of Logic* from front to back is really quite fun. One can learn that Russell adapted his logical notation from Peano (p. 162), that logic chopping is considered a fallacy (p. 124) and that, because she was a woman, Christine Ladd-Franklin's earned Ph.D. was held back by Johns Hopkins University for forty years (pp. 117-18).

The full title of this work is *Historical Dictionary of Logic*, and it is historical in three ways: (i) before the *Dictionary* proper, there is a worthwhile thirteen-page chronology of significant developments in the history of logic from pre-Aristotelian efforts up to notable work in the last ten years by Susan Haack and Ian Hacking; (ii) there are a number of historical survey entries in the *Dictionary*, including *ancient logic*, *medieval logic*, and *renaissance to nineteenth century logic*, and (iii) individual entries for historical figures like Aristotle, William of Ockham, etc. as mentioned in the opening paragraph. All these entries are satisfactory, but it appears that Gensler's strength lies in giving short, comprehensible accounts of aspects of logic, more so than in showing us the riches of history.

Inevitably the author had to make decisions about what to include and what to leave out, and given the projects limited scope, every reader is sure to find some favourites missing. This reader finds that the entries on *ethics* and *feelings*, for example, seem of only marginal interest in a dictionary such as this and that they might profitably have been replaced by entries on, say, *Montague grammar* and *presupposition*. Gentzen and Fitch are mentioned in places throughout but they really deserve their own entries as much as does Ladd-Franklin. And some entries are just too brief: *mathematical induction* needs more explanation, and the entry for *non-monotonic* should add to the observation that new premisses can weaken non-deductive arguments, that they can also strengthen such arguments ("Lo! Another white swan!"). The entry for *induction/deduction* should have mentioned the classical way of drawing the distinction (involving particulars and generalizations) and clear examples of the difference between narrow and wide would have helped the entry on disjunction.

Most entries are cross-referenced. This is accomplished by the use of bold in the text to indicate that there is separate entry for the mentioned item. Thus the entry for *Russell* sends us on to other entries for *Frege*, *Peano*, *Cantor*, *Boole*, *classical logic*, *arithmetic*, *inference rules*, *set theory*, *definite descriptions*, *metaphysics*, *Wittgenstein* and *logical constructs*. The same entry ends by advising us to see also other entries for *Gödel*, *names*, *nothing*, *philosophy and logic*, *proof*, *quantified modal logic*, *second-order logic*, *twentieth-century logic*.

Following the 250 pages of alphabetically arranged entries in the dictionary proper is a fifty-page bibliography about logic which is organized into seven parts: General Materials, History of Logic, Textbooks, Beyond Text, Interdisciplinary, Individual Figures and Topics, and Other. With the exception of the last part, they are all subdivided into further sub-sections. It is especially interesting to look further at the Interdisciplinary part, it is sub-divided into seven sections: Computers

and Artificial Intelligence (32 entries), Physics (5 entries), Biology (1 entry), Psychology and Other Social Sciences (16 entries), Linguistics (6 entries), Rhetoric, Communication, and Debate (7 entries), and Pre-College Teaching (7 entries). In other parts of the Bibliography Aristotle, Gödel, Russell and Quine all get their own sections, with Quine having the most entries (21). Having worked on bibliographies, I appreciate the huge amount of work that has gone into the organization and editing of the Bibliography in this *Dictionary*. One way in which Gensler's *Dictionary* could have been improved, however, would have been to establish a link between the entries in the *Dictionary* and items in the Bibliography. This could have been done economically by giving each item in the bibliography a number and then, at the end of each entry, referring to items in the bibliography by number. Perhaps the first two numbers listed could take the reader to elementary accounts of the subject, and the following numbers would indicate more advanced or historically important pieces.

Under the general heading "Individual Figures and Topics" in the Bibliography is a section on Fallacies, Informal Logic and Critical Thinking. It might be of interest to the readers of this journal to have an indication of how these topics are viewed in Gensler's *Dictionary*, and so I will end with a review of the entries on these topics.

There is no entry for critical thinking in the *Dictionary* and the bibliography lists only two resources for critical thinking, both of them internet sites. However, neither site could be accessed on May 29 or June 14, 2006.

The entry for fallacy (p. 74) names a half-dozen formal fallacies, and then mentions some twenty-one informal fallacies, most of them familiar. Elsewhere, in less than the space of a full page, Gensler deals with the Appeals to Authority, Emotion, Force, Ignorance, and the Crowd (pp. 14-15). Other fallacies are dealt with in their alphabetical places in the book, but no entry takes more than half a page. It thus turns out that what Gensler has to say about the fallacies here is not discernibly different from the characterizations of fallacies that Hamblin called the Standard Treatment (in his *Fallacies* (1970)). Surprisingly, the entry for fallacies overlooks the fact that it is a subject with a history. Nothing is said of the fact that Aristotle started with a list of thirteen fallacies, that these have been modified, or that the list has been added to.

Finally, the entry for informal logic must be understood against the background of Gensler's distinction between logic in the narrow and the wide sense. "Logic in the narrow sense is the study of deductive reasoning, which is about what logically follows from what. Logic in the broad sense includes also various other studies that relate to the analysis and appraisal of arguments; these include areas like informal logic, . . ." (p. 123). So, informal logic is part of logic in the wide sense, not the narrow sense. What further characterization is given of informal logic?

> Formal logic focuses on systems of deductive logic . . . and on determining whether a conclusion follows validly from a set of premises. Informal logic includes other skills that relate to the appraisal of arguments–including things like locating the premises and conclusions in a passage that contains reasoning, supplying implicit premises, symbolizing English arguments, appraising the plausibility of premises, clarifying the meaning

> of a statement, and recognizing informal fallacies. (entry for Informal/ formal logic, p. 113; see also xlii)

The way that many informal logicians present their subject it, does include the skills that Gensler lists. But he excludes informal logic from considerations of validity, which he takes to be the concern of formal logic, or logic in the narrow sense. This view of informal logic is that it is an auxiliary to the most central of logical questions; it helps prepare the specimen for dissection, but wields no knife itself. On the assumption that questions of deductive validity belong to the larger question of premiss sufficiency, one alternative to the auxiliary view is that in addition to the roles Gensler assigns informal logic, it is also concerned to give an account of premiss sufficiency (call this the broad sense of informal logic which will include logic in the narrow sense). Another alternative is that informal logic is concerned only with the question of premiss sufficiency, the leftovers are dealt to pragmatics and the philosophy of language (this may be called the narrow sense of informal logic). Most informal logicians who I know accept some version of the broad sense of informal logic.

Many people who work in informal logic and argumentation studies also have students in symbolic logic courses. These students will benefit from access to Gensler's *Historical Dictionary of Logic* because it will give them a reliably clear–albeit brief–account of key logical concepts and systems and help them see how the many aspects of logic intertwine. The *Dictionary* may also be appropriately placed in high school, college, and community libraries. However, if people in the informal logic or argumentation communities feel the need for a useful historical dictionary of their subject, they will have to wait a while yet.

HANS V. HANSEN *University of Windsor*