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Harry R. Lewis' *Baseball as a Second Language* is a charming and charmingly short book. It is essential for those who are unfamiliar with the great American pastime, and it is enjoyable for those who are fans of the game. A guided tour through the use of baseball as metaphor in business, politics, and everyday life, it was apparently born out of a desire by Lewis to enable foreign students to appreciate his own use of baseball as a mirror for the world.

However, *Baseball as a Second Language* is not our book for this month; however helpful to software engineers it may be, it's not really prime *Passages* material. Nor are Lewis' personal qualifications as a man known to treat undergraduates with dignity and as important individuals, his musings on the state of American education, and his classes emphasizing clarity and insight, in themselves, essential to our story.

Rather, this column proposes for your enjoyment and enlightenment Lewis' book, *Ideas that Created the Future; Classic Papers of Computer Science*. In this book, Lewis collects 46 key papers, drawing from the entire history of computer science, in order to present a concise, "in the original words" history of the idea of computation. And by this, Lewis means a real history, not starting with the Mark I he sometimes demonstrated to visitors, or even with Turing or Babbage. Lewis begins with an excerpt from Aristotle's *Prior Analytics*, showing how the roots of computer science lie in the idea of logic itself, first formulated more rigorously by history's most famous philosopher. Lewis follows this line through Leibniz, Boole, and Hilbert, before proceeding to more modern works. Of course, he does not skip Babbage, here well represented by Countess Lovelace's notes.

Each of the papers is preceded by a short introductory essay, giving readers context for the less-familiar works, and often adding some new insight into those that are well-known to most people likely to pick up this book.

Key papers in software engineering, broadly conceived, are well represented. Dijkstra has two papers, including the famous "Goto" paper; Hoare's axiomatic semantics is present, as is Royce's paper introducing, arguably, both waterfall and agile methods; Liskov and Zilles propose abstract data types; and, of course, Brooks' "The Mythical Man-Month" is included. Are there omissions? I would myself have added Lampson's "Hints and Principles" and Brooks' "No Silver Bullet," at least, and others have suggested their own favorite candidates. However, as Gardner Dozois commented in introducing his selection of *Modern Classics of Science Fiction*, that must wait for "the multi-dimensional, infinitely extensible version of this anthology."

As it is, the book is substantial, over 500 pages. It also gives "good value for the money" in that the set of papers includes famous ones hard to track down a copy of online, and Lewis' essays are not mere filler, but well worth reading. *Passages* originally intended to focus on works not only useful to software engineers, but that might be useful to give a picture of "what it is we do" to educated and interested non-engineers. Some works covered in this column have been

useful for that purpose, others less so (more “inside baseball” as Lewis might put it). None, however, have offered what Lewis provides here: a one-book broad education in the foundations of computer science, including enough material on system design, programming languages, and software engineering to allow a dedicated reader (with a decent mathematical background) to acquire a basic familiarity with our entire world. Furthermore, unlike many one-stop-shops for learning about an area of science or engineering, the reader is gifted with something better than an overly-popularized skimming of the surface, or a single point-of-view. By using the words of the creators, Lewis gives the reader a polyphonous vision. In his peculiar and foundational seventeenth century work *The New Science*, Giambattista Vico proposed in contrast to Descartes’ unmoored reason the idea of “*verum factum*,” where the maker of a thing is always best-prepared to know a thing; Lewis offers us the makers’ insights here, which lets us share in the understanding of the originators of these ideas that created our present, their future.

With Lewis as able cicerone, this tour is highly recommended.