

Structures, captures both the philosophy and technique of Forth. I would have liked this material expanded, but the book would have lost its valuable conciseness.

By basing a book upon the Forth-79 Standard, Winfield has a less rich vocabulary to draw upon than Brodie does with polyFORTH. However, the greater availability of Forth-79 compatible versions over polyFORTH may make *The Complete Forth* a more easily used text than *Starting Forth*. In any event, it is heartening to see a text successfully present Forth from this vantage. Like Brodie, he is considerate of the reader and points out Forth-79 departures to be wary of in other Forths. In other places Winfield directs the reader to where he has previously defined a non-Standard word. With the exception of FIND and EXECUTE, which use code field rather than parameter field address, this book appears to follow the 79-Standard. Similarly, only a few places like VOCABULARY and ' will need to be changed to reflect the adoption of Forth-83, since FIND and EXECUTE as described are Forth-83 Standard.

There are few improvements which could have been made to the book. The index might have included non-Standard words developed in the text and a narrower, pocket-sized reference card would have been convenient. The use of { } to delineate Forth words in the text is awkward, and would have been better served by bold-face. The useful and infrequent footnotes were typeset too small and are difficult to read.

Winfield's text was required reading in my course this past summer along with optional readings from Brodie and collected papers. My class of 16 was primarily made up of continuing education students, ranging from a musician to a C programmer and including physicists and engineers. The students' preferences were evenly divided between Brodie and Winfield. The major disadvantage perceived with Winfield's book was its terseness. One student remarked that he had only to read 10 pages of Winfield to get what Brodie covers in 40, but that he often had to reread Winfield. My view is that Brodie is superior for self-study, but that Winfield is better as a lecture companion or if a tutor is available. *The Complete Forth* is direct and concise, and I recommend it highly for novice and intermediate users.

Lawrence P. Forsley  
University of Rochester

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## Books

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- Chirlian, Paul. *Beginning FORTH*, Matrix Publishers, Inc., Beaverton, Oregon. 1983.
- McCabe, C. Kevin. *FORTH Fundamentals, Volume 1 Language Usage, Volume 2 Language Glossary*, dilithium Press, Beaverton, Oregon. 1983.
- Hofert, David, editor. *A Bibliography of Forth References*, 1st Edition. The Institute for Applied Forth Research, Inc. Rochester, New York. 1983.
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- Proceedings: *1983 Forth Modification Laboratory*, FORML, Palo Alto, California. 1983.
- Dr. Dobb's Journal, Annual Forth Issue, #83* September 1983.