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Surfing Through Hyperspace: Understanding Higher Universes  
in Six Easy Lessons (review)

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## **SURFING THROUGH HYPERSPACE: UNDERSTANDING HIGHER UNIVERSES IN SIX EASY LESSONS**

by Clifford A. Pickover. Oxford Univ. Press, New York, NY, and London, 1999. 239 pp., illus. US\$25.00. ISBN: 0-19-513006-5.

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Do we really need another book on hyperspace, a topic ubiquitous in the popular science genre? Clifford Pickover, a prolific author, realizes that there is a plethora of books on higher-dimensional worlds but he wrote this book to fill a lacuna: although most books focus on the geometrical features of the four-dimensional world, there is little discussion of four-dimensional beings—i.e. how they may appear and behave, and the possible religious implications of such creatures. Accordingly, this book is a fascinating exposition of what such beings may be like, and how they could penetrate our world. I should think that readers who were never exposed to such ideas would find all this quite fascinating. The idea of beings in different dimensions is, of course, not new. Non-Euclidean and four (and more) dimensional geometry was created (or discovered) in the nineteenth century, and by the latter decades of the century, popular books were written on the topic. One of these was Edwin Abbott's *Flatland*, first published in 1884, which is still in print today. Many people cite this book as their first introduction to ideas about other dimensions and other-dimensional beings. (However, I clearly remember that for myself it was George Gamow's *One, Two, Three . . . Infinity*, which I read as an undergraduate student in the 1960s.) *Flatland* certainly had an impact on Pickover, as is seen in his many references to it in this book.

Pickover begins each chapter with a fictional narrative modeled on the TV show *The X-Files* in which two FBI agents in the year 2012 come in contact with four-dimensional beings. This leads into discussions of a wide range of topics: the concept of degrees of freedom, wormholes in space, Möbius worlds, how a whale could be stuffed into a marble-sized four-dimensional sphere,

the possibility that four-dimensional creatures could perform bloodless operations on humans, how such creatures would appear if they penetrated our world, what sounds they might make and so forth. Although I am quite certain that Pickover is serious about the implications of such imaginative creatures, I am not sure how to take his discussions of the religious possibilities of these speculations—he implies that spirits, angels or gods (or even God) may have an extra-dimensional existence. This seems to be presented tongue-in-cheek, but he brings up the matter so often that he may really believe it.

The book is pitched to both the novice reader and those more familiar with hyperspace. In addition to the six main chapters there are nine appendices directed to advanced students of the subject. I found some of the latter material more interesting, such as the question of whether beings could even exist in worlds greater than our world, which consists of three dimensions of space and one of time; there is some evidence that other such worlds (or universes) may be “dead.” Pickover also presents exercises for advanced readers and computer programs that illustrate some of the concepts developed in the book, and there are extensive bibliographical references. Although sometimes repetitive, the book is highly entertaining and informative, with marvelous and thought-provoking illustrations.