The 2-gap case (where κ and κ' are two cardinals apart from λ and λ' respectively) the situation without $V=L$ is less decided and even GCH and λ' regular can not guarantee the existence of a (κ', λ') model (Silver). But again $V=L$ implies the existence of (κ', λ') model of T using the existence of a combinatorial creature named morass (well deserving its name). That there are morasses, in L is shown in Chapter 13, and in Chapter 14 morasses are used to get the 2-gap result in L. Similar arguments by sinking deeper into the morasses can give an n-gap two cardinal result in L. These results (due to Jensen, of course) set a record in their technical subtlety and it is the first time they are published anywhere. Devlin is doing an important service by publishing them.

The book now explores the implications of the existence of large cardinals on L. The most remarkable fact is that L is inconsistent with very large cardinals (due originally to D. Scott) and if we assume the existence of these cardinals $V=L$ is very badly violated. Again, one of the theorems, of Silver this time, is published here for the first time.

The book concludes by a study of relative constructibility and by showing that the class of sets constructible from a given set is similar in many respects to L and more so if we consider the sets constructible from a normal measure on a measurable cardinal. (In particular, we get a Souslin and Kurepa tree in such a universe.) The Herbacek-Vopenka Theorem, claiming that if there exists a strongly compact cardinal then the universe is not even constructible from a set, is proved.

The aims of the Springer-Verlag Lecture Notes in Mathematics states that "The timeliness of a manuscript is more important than its form, which may be unfinished or tentative." Devlin did not use this option: the standard of exposition in this book is high, and the presentation is very coherent and clear. Though there are places (like the definition of the projection) where more intuitive motivation is highly desirable, the book is an important source for any mathematician seriously interested in the subject.

REFERENCE

1. Gian-Carlo Rota, *Review of mathematical thought from ancient to modern times*, Bull. Amer. Math. Soc. **80** (1974), 805.

MENACHEM MAGIDOR

Analyse convexe et problèmes variationelles, by I. Ekeland and R. Teman, Dunod, Gauthier-Villars, Paris 1974, ix+340 pp.

This book gives a systematic exposition of the modern theories of the calculus of variations and optimal control. Of course the theory of convex sets and functions plays a very important role and the book begins with an elegant exposition of the theory of convex functions. A relatively new notion is that of the *polar* (or *conjugate*) *function* of a given (usually convex) function. The