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The bidual of $C(X)$. I, by S. Kaplan, Mathematics Studies, vol. 101, North-Holland, Amsterdam, The Netherlands 1984, xvi + 424 pp., $57.75 US/Dfl. 150.00. ISBN 0-444-87631-6

A *Riesz space* is a (real) linear space E endowed with a partial ordering $\leqslant$ which is translation-invariant (i.e. $x \leqslant y \Rightarrow x + z \leqslant y + z$) and a lattice (i.e. $x \vee y = \sup\{x, y\}$ and $x \wedge y = \inf\{x, y\}$ exist for all x and y), and such that $\alpha x \geqslant 0$ whenever $x \geqslant 0$ in E and $\alpha \geqslant 0$ in $\mathbf{R}$. Write $E^+ = \{x\colon x \geqslant 0\}$. A *Riesz norm* on E is a norm $\|\ \|$ such that $\|x\| \leqslant \|y\|$ whenever $|x| \leqslant |y|$, where $|x| = x \vee (-x)$. A *Banach lattice* is a Riesz space with a Riesz norm under which it is complete.

From the beginnings of functional analysis it has been recognized that many of the most important normed spaces are endowed naturally with Riesz space structures. The interactions of the three aspects of a Banach lattice—its linear, metric and order structures—lead to a rich and delightful, if not particularly deep, tapestry of interwoven motifs. We can study these either in the general, setting up an abstract theory, or in the particular, concentrating on well-known spaces of special importance. The book under review takes the latter course, though fully committed, in language and spirit, to the wider theory of normed Riesz spaces.

An *M-space* is a Banach lattice E in which $\|x \vee y\| = \max(\|x\|, \|y\|)$ whenever $x, y \in E^+$; an *L-space* is a Banach lattice E in which $\|x + y\| = \|x\| + \|y\|$ for all $x, y \in E^+$. There are effective representation theorems for both classes. A Banach lattice is an M-space iff it is isomorphic, as normed Riesz space, to the space $C_0(X)$ of continuous real-valued functions vanishing at infinity on some locally compact Hausdorff space X; it is an L-space iff it is isomorphic to the space $L^1(X)$ of equivalence classes of integrable real-valued functions on some measure space X. Among the M-spaces we naturally wish to identify those corresponding to compact spaces X; these are precisely the M-spaces with a *unit* e such that, for any x, $\|x\| \leqslant 1$ iff $|x| \leqslant e$.

Corresponding to the rich internal structure of Riesz spaces is an appropriately elaborate theory of morphisms between them. If E and F are Riesz