

groups, incorporating a number of his own refinements and simplifications. The finer points will not be of interest to all readers, but the main line of development should appeal to anyone who is curious about what lies beyond Tannaka duality.

REFERENCES

1. C. Chevalley, *Theory of Lie groups*. I, Princeton Univ. Press, Princeton, N. J., 1946.
2. G. Hochschild, *The structure of Lie groups*, Holden-Day, San Francisco, Calif., 1965.
3. G. Hochschild, G. D. Mostow, *Complex analytic groups and Hopf algebras*, *Amer. J. Math.* **91** (1969), 1141–1151.
4. A. R. Magid, *Lie algebras with the same modules*, *Illinois J. Math.* **25** (1981), 611–621.
5. T. Tannaka, *Über den Dualitätssatz der nichtkommutativen topologischen Gruppen*, *Tōhoku Math. J.* **45** (1938), 1–12.

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Convex sets and their applications, by Steven R. Lay, Wiley, New York, 1982, xvi + 244 pp., \$29.50.

Steven Lay teaches at an undergraduate institution and he wrote this book with his students in mind. Because of its title, the book invites comparison with the well-known book *Convex sets* by Lay's teacher, F. A. Valentine [9]. But Lay's intended audience calls for a different kind of book. He works not in a linear topological space, but in R^n . He motivates and clarifies his material with numerous diagrams and an occasional apt analogy. He follows each section with a carefully graded set of problems. And, as the title implies, he offers some applications; perhaps the best example is a chapter on optimization. In summary, Lay aims to do for convex sets what the authors of this review tried to do for convex functions [7].

Lay says in his preface that "there is no text at this level which has convex sets and their applications as its unifying theme"—a bit of an overstatement, we think. There are two fine books by Russian authors: *Convex figures* by Yaglom and Boltyanskii [10] and *Convex figures and polyhedra* by Lyusternik [9], though it could be argued that they are not textbooks in the American tradition. Benson's *Euclidean geometry and convexity* [1] is definitely a textbook but is oriented toward plane and solid geometry. Kelly and Weiss cover much the same ground as Lay in *Geometry and convexity* [5] but their book is more topological and probably more difficult for undergraduates. And of course, there is a host of advanced books, of which Grünbaum's *Convex polytopes* [3], Eggleston's *Convexity* [2], Rockafellar's *Convex analysis* [8] and the aforementioned book of Valentine are worthy of note. There are, then, other books that are developed around the theorem of convex sets. But all of