

for $p > p_0$, but can diverge almost everywhere for $p = p_0$. Again, for an L^2 function f , the Fourier series with respect to a complete orthonormal system converges to f in L^2 , and so if it converges almost everywhere it converges to f . However, for $p < 2$, even for a complete bounded orthonormal system, the Fourier series of an L^p function can converge to some function other than f ; indeed, it is possible to rearrange it (or to take a subsequence of its partial sums) so that it converges to any measurable function we like, or to ∞ .

The theory of trigonometric series has given us (for better or worse) many gifts, notably Dirichlet's concept of a function, the Riemann integral and the theory of sets. It remains to be seen whether the general theory of series of orthogonal functions will be as fruitful. Meanwhile we can take comfort from Hermann Weyl's dictum that "special problems in all their complexity constitute the stock and core of mathematics."

The book has not been published in Russian. Unfortunately the translation reads, in uncomfortably many places, like a translation: that is to say, too often for the reader's comfort it preserves Russian word order or sentence structure.

R. P. BOAS

BULLETIN OF THE
AMERICAN MATHEMATICAL SOCIETY
Volume 82, Number 6, November 1976

Hewitt-Nachbin spaces, by Maurice D. Weir, North-Holland/American Elsevier, Amsterdam, 1975, 270 + vii pp., \$15.50.

What does it mean to say that a completely regular, Hausdorff space X is realcompact? To Edwin Hewitt, who introduced the class of realcompact spaces under the title Q -spaces [18], it means that for every maximal ideal M in the ring $C(X, \mathbf{R})$ of continuous real-valued functions on X , either $M = \{f \in C(X): f(p) = 0\}$ for some $p \in X$ or the linearly ordered field $C(X, \mathbf{R})/M$ is non-Archimedean. To a point-set topologist, it means that for some cardinal α the space X is homeomorphic with a closed subspace of the power space \mathbf{R}^α [34], [9]. To a category-theorist, that X is an object in the epi-reflective hull generated in $\mathfrak{T}_{\text{hch}}$ by \mathbf{R} [16], [17]. To a topological linear space theorist, that $C(X, \mathbf{R})$ is bornological in the compact-open topology [31], [32], [35], or that for every nontrivial multiplicative linear functional Φ on $C(X)$ there is $p \in X$ such that $\Phi(f) = f(p)$ [18], [8, Problem 3W(b)], [19, p. 170]. To a descriptive set theorist, that X is the intersection of Baire subsets of its Stone-Ćech compactification βX [24, Theorem 9], [33, Corollary 3.11]. To a uniform spaceman, that X is complete in the uniformity defined by $C(X)$ [30], [18, p. 92], [34]. And so forth. The ubiquity with which the concept appears, and the elegance of the characterizations available in quite diverse contexts, justify both its introduction into the literature over 25 years ago and the present undertaking of a comprehensive survey.

In his Introduction, Professor Weir sets forth briefly and to good effect the historical data which led him to adopt the name "Hewitt-Nachbin spaces" for the classes he studies here. It is an elementary courtesy due the author that today's remarks in review follow his lead in this respect, but I reserve the