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Tilings and patterns, by Branko Grünbaum and G. C. Shephard. W. H. Freeman and Company, New York, 1987, ix + 700 pp., \$59.95. ISBN 0-7176-1193-1.

From time immemorial artisans and artists have constructed ingenious tilings and ornaments using repeated motives. This is demonstrated in the introduction of the beautiful volume under review by numerous examples from widely separated cultures. However, the importance of tilings and patterns in crystallography and some related branches of science was recognized only towards the end of the last century. From this time on many crystallographers, chemists, physicists, architects, engineers, and mathematicians have been working in this field. Although they accumulated a vast literature in books and periodicals, “much effort has been wasted duplicating previously known results.” When the authors started collecting material for this book, they were surprised to find “how little about tilings and patterns is known,” and how many errors were made because of “badly formulated definitions and lack of rigor.”

For more than a decade the authors were busy critically revising the earlier results and making significant contributions to the theory of tilings and ornaments in a series of papers of their own. Their effort is crowned by the unique comprehensive monograph *Tilings and patterns*, which lays a solid foundation for one of the most attractive fields in geometry.

The book gives evidence of the sound didactic sense of the authors. The introduction of new concepts is carefully prepared, often supported by convincing intuitive arguments, and most formal definitions are richly illustrated by figures or some other means. The exposition is informal, but always clear and exact. Most sections contain carefully selected exercises, which often