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Spatial geometry. The handbook. With the collaboration of Jean-François Calame. (Géométrie spatiale. Le vade-mecum.)

Enseignement des Mathématiques. Lausanne: Presses Polytechniques et Universitaires Romandes (PPUR) (ISBN 978-2-88074-945-3/pbk). 337 p. (2013).

This book is written primarily for students of architecture, engineering, and fine arts. It contains, in an attractive and beautifully illustrated manner, the essentials of the subject that is called "spatial geometry", and that may be duly called "practical descriptive geometry". The topics covered include axonometry, perspectivity, orthogonal projections, geometric transformations, surfaces of revolution, ruled surfaces, and regular polyhedra. The book emphasizes cultural and historical aspects, and contains hundreds of handsome and carefully drawn diagrams and reproductions of works of famous artists and architects. Besides being an excellent companion to textbooks of certain courses in architecture, engineering, and arts, the book can also be a great manual to practitioners. It can also be useful in supplementing textbooks of certain courses in mathematics, such as geometry, differential geometry, and even calculus. Students taking such courses would find the detailed chapter on Platonic solids, their properties, and how to construct them, and the chapters on conic sections, surfaces of revolution, and ruled surfaces especially illuminating. The book also provides etymologies of hundreds of the technical terms used in the discipline, an aspect that this reviewer found very delightful and informative. The book is very pleasant to skim through, and can make a good companion in a long bus, train, or plane trip. It can be recommended not only to students who master French, but also to those with only a modest knowledge of it. This recommendation is driven by this reviewer's sweet memories of the first mathematics book written in English that he, at an age when he knew little English, came to own, and by the great pleasure he had in learning more English and more geometry at the same time. It would be interesting to know whether pedagogists agree that such a two-fold learning process is more exciting and more efficient. *Mowaffaq Hajja (Irbid)*

Classification: G15
Keywords: spatial geometry; axonometry; perspectivity; shadow; orthogonal projection; geometric transformation; conic sections; Platonic solid; regular polyhedron