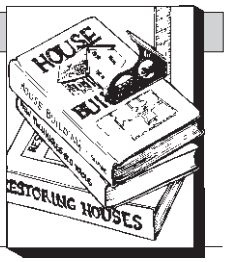
A Step Up



Stair Layout by Stanley Badzinski; American Technical Publisher, Homewood, Ill; 1971; 69 pages; $11.70.
Techniques of Staircase Construction by Willibald Mannes: Van Nostrand Reinhold. N.Y.; 1986 English edition; 112 pages; $32.95.

by Paul Hanke

***S**tair Layout* is a slim paperback covering the basics of stair design and construction in simple language and bland illustrations. Written as a trade school text, the first six chapters covers stair types, terminology, standard formulas, figuring stairwell sizes and headroom, and locating landings—complete with worked examples and review questions for self study. Chapter 7 is devoted to stairbuilding, including cutout, built-up, dadoed, cleated, and housed stringers; use of a story pole; stepping-off with a framing square, and adjusting the carriage for tread thickness at the bottom.

While adequate, this material was not, to my mind, presented as well as you might find in a typical carpentry book. In addition, how to determine where a "layout line" is located (anywhere from 3/4 inches to 2 inches from the stringer edge) during housed carriage layout was not clearly presented, leaving me in the dark on this important point. Similarly, I found the description of calculating "the run of the turn" on winding stairs very unclear, and I didn't understand the whys of winder layout sufficiently from the description to go out and build a set (even though I've done it before). Mr. Badzinski notes in his introduction that high status and "bonus salaries" await those who can do stair layout, but his book won't elevate you to that exalted level of the trade, and wouldn't necessarily be my first choice as a reference either.

In contrast to Mr. Badzinski's perhaps over simplified presentation, *Techniques of Staircase Construction* by German architect and cabinet maker Willibald Mannes ventures into the stratosphere of stairbuilding. Chapter 1 introduces general theory—stair types, parts, and railings (from rope and wrought-iron to molded-plywood and load-bearing rails. Also included are tread types and space-saving stairs (straight run with pie-shaped treads) which I found immediately useful in preparing drawings for my own house. All are accompanied by small but clear drawings and photos.

Chapter 2 gives a thumbnail sketch of German DIN building standards (similar to our model national codes), including exceptions for Berlin, for what this is worth. All dimensions are metric with no conversion tables.

Chapter 3 covers stair calculations with all metric tables, winder layout, effect of tapered steps on the handrail, and curved rails. Much of this material is hampered by unclear language such as designating treads and risers "A" and "S", referring to the "momentum"(?) of circular stairs, and using unfamiliar terms such as "string ramp." The chapter ends with six pages of photos and drawings of ornate Baroque Dutch staircases for true afficianados of the craft.

Manne's book is definitely not for beginners. It includes little on practical layout or construction, places much emphasis on curved, sculptural and carved stairs, and is hampered by metrics and terminology. But, if you're already advanced as a stairbuilder and want either inspiration or are seeking to add marginal gains to your knowledge and can afford the hefty price, you might find *Techniques* quite fascinating. ■

—Paul Hanke

A Treatise on Stairbuilding and Handrailing by William and Alexander Mowat; Linden Publishing, 3845 N. Blackstone, Fresno, CA 93726; 1985; 390 pages; $19.95.

Originally published in 1900, *A Treatise on Stairbuilding* remains perhaps the ultimate reference on stair design and construction. Written by two "science masters" at Barrow-in-Furness, the book aimed to make the mathematical system of stair-making originally developed by Peter Nicholson accessible to the common, but skilled, carpenter. The introduction calls the book the "most lucid, best illustrated, and authoritative" reference on the subject, and well it might be as we shall see.

From here, the authors set forth a "complete course of instruction" (or as near as they could make it) on wood stairs, handrailing, and even stone stairs, always presented in progressive order from the most simple and elementary to the most elaborate and esoteric. But before proceeding, the editors warn that the rather archaic 1900 text may not comply with modern code.

Chapter 1 begins with definitions, including common terms such as rise, run, nose, etc; the difference between a *stairway* and a *staircase*, and a few Anglicisms such as a *curtail* step and a *commode* step (the latter is not what you think). Then the reader turns to run types, including straight, quarter turn, 180-degree turn, plus winders, landings, side-flights, and ellipses.

Chapter 2 offers detailed advice on layout, dimensioning, and proportions to help the aspiring stairbuilder avoid building a narrow and steep "chicken ladder" instead of a proper stair. Here the authors go one better than Madzinski (review above) in praising the stature of stairbuilders. They quote the "eminent architect" Professor Barry as saying, "nothing marks more clearly the design of the staircase than the difference between an architectural composition and a builder's box." Just the kind of statement you might expect from an architect, but this is the level of design that the authors desire for their readers.

It is in this chapter, however, that the warning about modern dimensions first applies. The authors present a tread/riser formula (T = 66/R), which if applied to a riser height of 7 inches yields a tread of 9.4 inches, which although probably functional; misses the 7:11 mark enshrined in many codes today. But this is not the meat of the book, to which we now turn.

True to their word, the authors begin at the elementary level, with the construction of a straight flight of stairs, which they say is "Very common in the ordinary class of cottage houses." The layout method of first choice uses story (and run) poles plus a pitch block, although the authors note that use of a steel square is "very convenient" and they devote one paragraph and one illustration to this secondary method (while the heart of a modern carpenter perhaps sinks a bit).

Part Two repeats the above pattern with respect to handrailing theory and practice. Here as the authors note, "A knowledge of geometry (is) necessary to proficiency." An understatement if there ever was one. Topics include cylindrical versus square sections, helicoidal surfaces, face moulds via oblique-cut, and other esoterica.

Several appendices on plane and descriptive geometry are provided for those in need of a refresher on the subject by now. The concluding three chapters cover stone stairs, balustrades, and ellipses for the masons among us. A difficult, fascinating, and completely comprehensive book that might very well lead the dedicated and skilled reader into the rarified atmosphere described by Stanley Badzinski and just glimpsed in Willibald Mannes' book. ■

—Paul Hanke