PREFACE

and every one has much to recommend it, and the expert handrailer will no doubt have copies of these larger works on his shelves. To the first and last of the names given in the foregoing belong the greatest honors in this science, the first for his invention, or rather discovery, of the true geometrical principles involved, and the latter for divesting the science of its crudities and reducing it to more simple conditions. Nearly all improvements in the science are due in large measure to the methods employed by Robert Riddell.

The prismatic solid when thoroughly understood will show to the student pretty nearly everything required in handrailing, and it is the advice of the writer that this solid should be analyzed by the young man who wishes to become an expert, and the study will neither be tedious nor uninteresting.

In all cases a stairway should be commodious, inviting and easy of ascent, and when winders are used they should extend past the spring line of the cylinder, so as to give a fair wreath at narrow end of tread and to bring the rail as near as possible to the same pitch as rail over square steps, and when the hall or space is sufficiently wide should not be less than β feet 6 inches in width; 4 feet would be much better, then two persons can pass each other. The height of riser and width of step are governed by the space allowed for the stairs, but as a general rule the step should not be less than β inches wide and the riser should not exceed

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