

compasses until the points of the legs are four inches apart,—or making the radius four inches—he can, by keeping one point fixed, called a "center," describe a circle with the other leg, the diameter of which will be eight inches. By this process he has solved a second geometrical problem, or at least he has solved it so far that it suits his present purposes. These examples, of course, do not convey to the operator the more subtle qualities of the right angle or the circle, yet they serve, in a practical manner, as assistants in every-day work.

When a man becomes a good workman, it goes without saying that he has also become possessor of a fair amount of practical geometrical knowledge, though he may not be aware of the fact.

The workman who can construct a roof, hipped, gabled, or otherwise, cutting all his material on the ground, has attained an advanced practical knowledge of geometry, though he may never have heard of Euclid or opened a book relating to the science. Some of the best workmen I have met were men who knew nothing of geometry as taught in the books, yet it was no trouble for them to lay out a circular or elliptical stairway, or construct a rail over them, a feat that requires a knowledge of geometry of a high order to properly accomplish.

These few introductory remarks are made with the hope that the reader of this little volume will not be disheartened at the threshold of his trade, because of his lack of knowledge in any branch thereof. To become a good carpenter or a good joiner, a young man must begin at the bottom, and first learn his A, B, C's, and the difficulties that beset him will disappear one after another as his lessons are learned. It