The Slide Rule, Principles and Applications, J. N. Arnold, 1954

The book is divided into two parts, Part I, The Basic Slide Rule Principle: Typical Examples and Exercises (Chapters 1-4, 137 pp.); and Part II, Applications of the Slide Rule to Various Fields (Chapters 5-7, 36 pp.) Judging from the Table of Contents and the example problems included in the text, its purpose seems to be to teach the theory and use of the slide rule to a wide audience, including practitioners in business, finance, statistics, scientific, and engineering disciplines. Even though its audience is supposed to include scientists, engineers, statisticians, and people involved in finance, the author has chosen to present his material is a manner that might be considered odd. Quoting from the Preface, “Large parts of Chapters I and 2, which make up nearly half the book, have been written for the person with no knowledge of algebra.” But we can't assume the text is therefore aimed largely at an audience with no math background since the Preface goes on to state, “... Chapters 3 and 4 assume an understanding of trigonometry and logarithms.” To make matters even more complicated, Chapters 1 through 4 do constitute a very thorough coverage of the theory and operation of the slide rule, but their rather academic (sometimes pedantic) writing style might well be off-putting to readers with little math background.

The end-of-Chapter exercises in Chapters 1 and 2 are a mixture of both pure numeric and applied problems, both of which may require the solution of simple equations. The exercises at the end of Chapters 3 and 4 are pure numeric only. That seems odd since the Preface states that Chapters 1 and 2 had no algebra pre-requisite, but Chapters 3 and 4 did require a background in trig and logarithms. The exercises in Part II are all applied problems, as you would imagine.

With the above said, it is difficult to decide which audience is best suited for this text, or for best results, what that audience's educational or academic background ought to be. For technically trained or inclined people, the book provides a good coverage of the theory and operation of the slide rule. Unfortunately, progress through the tutorial chapters (1-4) can sometimes be slower than those readers might like due to the author's tendency to dwell on details with which they are already familiar or could readily assume. On the other hand, it seems unlikely that readers with little math background would have the patience to deal with those same chapters. Even though the details they need are definitely there, so is an academic style and choice of vocabulary that might not be as 'user-friendly' as one night wish.

The book does not focus on any specific slide rule or manufacturer, but details and illustrations of Deitzgen, K&E, Picket & Eckel, and Post models are included in an Appendix. All common scales, including log-log scales, are used in problem exercises. The existence of vector slide rules upon which hyperbolic trig function values can be directly read is mentioned, but no specifics are given.

Appendix A.2 is a handy compilation of slide rule scale equations showing how each scale is constructed. The eight page index is well constructed and helpful.

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