

CONTENTS

	PAGE
<i>Preface</i>	v
CHAPTER 1	
INTRODUCTORY	1
Brief history of logarithms and the slide rule—General description	
CHAPTER 2	
SCALE ELEMENTS, NOMENCLATURE AND LOGARITHMS	5
Graduation distance formula—Interval length formula—Elementary fixed conjugate scales—Fundamental operations on the slide rule—Linear and non-linear scales—Common logarithms—Naperian logarithms—Equations	
CHAPTER 3	
LOGARITHMIC SCALES	14
Fixed conjugate and extended scales—Range of scales of BX and correlated expressions—Range of scales of $(BX)^m$ and correlated expressions—Trigonometric scales— $\sqrt{1 - (0.1X)^2}$ scale—Commercial scales	
CHAPTER 4	
LOG LOG AND HYPERBOLIC SCALES	25
$\log_{10}\log_{10}$ scales and correlated expressions— $\log_{10}\log_e$ scales and correlated expressions—Hyperbolic scales—Hyperbolic equations	
CHAPTER 5	
DESIGN FEATURES AND SCALE READING	31
Mannheim type slide rule—Duplex type slide rule—The cursor—Magnifiers—Gauge marks for constants—Scale reading—Probable error	
CHAPTER 6	
PLACING THE DECIMAL POINT	39
Decimal point position—Approximation method—Anti-mantissa method—Counting digits and ciphers method	
CHAPTER 7	
PUTTING THE SCALES TO WORK	46
Scales C and D—Multiplication—Division—Proportion—Setting diagrams—Interpreting slide settings, Methods 1 to 6—Worked examples—Practice examples	
CHAPTER 8	
FOLDED, INVERSE, POWER AND ROOT SCALES AT WORK	55
C, D and folded scales in cooperation—C, D, inverse and folded scales in cooperation—C, D, A and B scales in cooperation—Folded and inverse scales on the slide—Commercial scales—Square, cube, square root and cube root scales—Correlated expressions—Worked examples—Practice examples	

CHAPTER 9		PAGE
TRIGONOMETRIC SCALES AT WORK		67
Trigonometric equations—Degrees to radians—Trigonometric scales on the slide —Vectors, complex quantities and equations—Worked examples—Practice examples		
CHAPTER 10		
LOG, LOG LOG AND HYPERBOLIC SCALES AT WORK		79
Logarithms, antilogarithms, powers and roots from C, CI, D and L scales— Logarithms from $\log_{10}\log_{10}$ scales—Powers and roots from $\log_{10}\log_{10}$ scales— Correlated expressions—Proportion with $\log_{10}\log_{10}$ scales—Values outside the scale ranges— $\log_{10}\log_e$ scales and correlated expressions—Logarithms to any base—Hyperbolic scales on the slide rule—Hyperbolic functions, complex quantities and equations—Worked examples—Practice examples		
CHAPTER 11		
CYLINDRICAL, DISC AND FLAT CALCULATORS		96
The Fuller cylindrical calculator—The Otis King cylindrical calculator— Cylindrical calculators with discontinuous scales—Flat surface calculators with discontinuous scales—Disc calculators with circular scales—Disc calculators with spiral scales		
CHAPTER 12		
SINGLE-FUNCTION SLIDE RULES		102
Extended scale principles—Five steps in designing single-function calculators— Slide rule for $F = 5,252H/Rn$ —Disc calculator for $F = 5,252H/Rn$ —Slide rule for $P = C(t - 1)^2/(a^2 + b^2)$ —Slide rule for $t = e^{0.07453n\mu}$		
APPENDIX 1		
TYPICAL STRAIGHT-SCALE INSTRUMENTS		109
APPENDIX 2		
SLIDE RULE STRATEGY		116
Simplifying—More accurate results—Dealing with powers and roots—Solving quadratic equations—Scale recognition		
APPENDIX 3		
USEFUL FORMULAE		122
Approximations—Percentages—Simple interest—Compound interest		
<i>Index</i>		125