CALCULATING COMPANION FOR THE SLIDE RULE

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Calculating companion for the slide rule by James L. Rowland

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JAMES L. ROWLAND

CALCULATING COMPANION FOR THE SLIDE RULE

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CALCULATING COMPANION

FOR

THE SLIDE RULE,

CONTAINING

Instructions for its Application

TO

CALCULATIONS OF LEVERAGE, MENSURATION OF SUPERFICES, SOLIDS, &c., CASK AND MALT GAUGING, STEAM ENGINES, METAL WEIGHING, &c.

BY JAMES L. ROWLAND.

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INTRODUCTION.

It is hoped that the accompanying little book will meet with the general approbation of the public; more particularly as it contains instructions on several subjects connected with the Slide Rule, which have not appeared in any other book, and which have been discovered by the Author, after a good deal of thought and application.

It is published in the hope that calculations will thereby be facilitated; and those to whom "time is money," will find themselves amply repaid by the purchase of this unpretending little work.

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CALCULATING COMPANION,

ETC. ETC.

INSTRUCTIONS FOR USING THE SLIDE RULE.

On the rule there are four lines of numbers, called A, B, C, D; the upper three of which are exactly alike, consisting of two radiuses numbered from left hand to right hand, 1, 2, 3, 4, 5, 6, 7, 8, 9—1, 2, 3, 4, 5, 6, 7, 8, 9, 10; these three are, generally speaking, used for superficial measure. The lowest, or girt line D, differs from the others, as its first number is 4, and last 40. All questions in solid or cubic measure are answered on this, whether timber, stone, bricks, earth, metal, ganging, &c., by setting figures on the sliding part of the rule to different gauge points on this.

NUMERATION

Is the first thing which ought to be learnt in regard to this rule. It is a very simple subject, and when it is known everything else is easily understood. The numbers and divisions are all arbitrary, and the value set upon them must be such as the nature of the question requires; as, whatever you call the first 1, the middle 1 must be increased tenfold, and the end 1, of course, in another tenfold proportion.

Example 1. Let it be required to find 16 on the top line, or line A; look for the first or middle 1 (it matters not which), and count six of the long divisions between that and 2, which will be 16, the number for which we are seeking; it is also 160, 1600, 16000, &c.

Ex. 2. Let the number 4825 be required; find a 4 on the top line and consider it 4000; then count eight of the divisions between that and 5, which is 800, and a quarter of the distance between the eighth and ninth division is 25. This is also 482·5, 48·25, 4·825, &c.

MULTIPLICATION.

RULE.—Set the multiplier on B to 1 or 10 on A, and opposite any multiplicand upon A is the product on B.

Ex. 1. What is the product of 9 times 6? Set 9 upon B to 1 on A, and against 6 on A is 54—the answer on B.

Ex. 2. What is the product of 74 times 16? Set 74 upon B to 1 on A, and opposite 16 on A is 1184 on B.

Where the answer amounts to four figures or more, as in the last example, it is not easy to distinguish the unit numbers on the rule; it is, therefore, found to be a great assistance to multiply the unit numbers mentally, and as 4 times 6 is 24, the last or unit number must be 4.

DIVISION.

As the divisor on B is to 1 or 10 upon A, so is the dividend on B to the quotient on A.

Ex. Divide £96 between 8 persons. Set 8 upon B to 1 or 10 on A, and against 96 on B is 12 upon A.

RULE OF THREE.

In this rule we have three numbers given to find a fourth, that shall bear the same proportion to the third as the second does to the first. The slide should be set in this manner:—As the first term upon A is to the second on B, so is the third term on A to the fourth upon B; always remembering to take the first and third terms on the same line, and the second and fourth on the other.

Ex. 1. If a man can walk 16 miles in 4 hours, how long would he require to walk 100 miles? Set 16 upon B to 4 on A, and opposite 100 on B is 25 upon A.

Ex. 2. If 7 cwts. cost 27s. 6d., what will 9 tons cost? Set 7 upon B to 27·5 on A, and opposite 9 on B is £35 7s. 1¼d. upon A. When any number of cwts. is thus set on B to its value on A, it is a table of tons in weight, and pounds in money; for against any other number of tons upon B is the price in pounds and parts of a pound on A.

When more requires less, or less requires more, the slide must be inverted, as:—If 15 men do a piece of work in 9 days, how many can do it in 5 days? Set 9 on C to 15 upon A, and against 5 on C is 27, the answer, on A.

If I lend my friend £200 for 12 months, for how long ought he to lend me £150? Set 200 on C to 12 upon A, opposite 150 on C is 16 on A.