

CONTENTS.

CHAPTER I.

| | PAGE |
|---|------|
| TERMINOLOGY | 1 |
| Salutation and Benediction | 1 |
| An appreciation of the science of calculation | 2 |
| Terminology relating to the measurement of space | 4 |
| Do. do. time | 5 |
| Do. do. grain | 5 |
| Do. do. gold | 5 |
| Do. do. silver | 5 |
| Do. do. other metals | 6 |
| Names of the operations in Arithmetic | 6 |
| General rules in regard to zero and positive and negative quantities. | 6 |
| Words denoting numbers | 7 |
| The names of notational places | 7 |
| Qualities of an arithmetician | 8 |

CHAPTER II.

| | |
|--|----|
| ARITHMETICAL OPERATIONS | 9 |
| Multiplication | 9 |
| Division | 12 |
| Squaring | 13 |
| Square root | 15 |
| Cubing | 16 |
| Cube root | 18 |
| Summation | 20 |
| <i>Vyutkalita</i> (subtraction) | 34 |

CHAPTER III.

| | |
|---|----|
| FRACTIONS | 38 |
| Multiplication of fractions | 38 |
| Division of fractions | 39 |
| Squaring, Square-root, Cubing and Cube-root of fractions | 40 |
| Summation of fractional series in progression | 41 |
| <i>Vyutkalita</i> of fractions in series | 48 |
| Six varieties of fractions | 50 |
| Simple fractions (addition and subtraction) | 50 |
| Compound and complex fractions | 61 |
| <i>Bhāgānubandha</i> fractions | 63 |
| <i>Bhāgāpavāha</i> fractions | 66 |
| <i>Bhāgamātr</i> fractions | 69 |

CHAPTER IV.

| | PAGE |
|---|------|
| MISCELLANEOUS PROBLEMS (on fractions) | 70 |
| <i>Bhāga</i> and <i>Śeṣa</i> varieties | 71 |
| <i>Mūla</i> variety | 75 |
| <i>Śeṣamūla</i> variety | 76 |
| <i>Śeṣamūla</i> variety involving two known quantities | 78 |
| <i>Aṁśamūla</i> variety | 79 |
| <i>Bhāgasamvarga</i> variety | 81 |
| <i>Aṁśavarga</i> variety characterized by the subtraction or addition of known quantities | 82 |
| <i>Mūlamīra</i> variety | 83 |
| <i>Bhinnadrśya</i> variety | 84 |

CHAPTER V.

| | |
|--|----|
| RULE OF THREE | 86 |
| Inverse double and treble rule of three | 88 |
| Inverse quadruple rule of three | 89 |
| Problems bearing on forward and backward movement | 89 |
| Double, treble and quadruple rule of three | 90 |

CHAPTER VI.

| | |
|--|-----|
| MIXED PROBLEMS | 93 |
| <i>Saṅkramaṇa</i> and <i>Viśamasāṅkramaṇa</i> | 93 |
| Double rule of three | 94 |
| Problems bearing on interest | 96 |
| Proportionate division | 110 |
| <i>Vallikā-Kuṭṭikāra</i> | 117 |
| <i>Viśama-Kuṭṭikāra</i> | 125 |
| <i>Sakala-Kuṭṭikāra</i> | 126 |
| <i>Suvarṇa-Kuṭṭikāra</i> | 138 |
| <i>Viśitra-Kuṭṭikāra</i> | 149 |
| Summation of series | 168 |

CHAPTER VII.

| | |
|--|-----|
| CALCULATIONS RELATING TO THE MEASUREMENT OF AREAS | 184 |
| Calculation relating to approximate measurement of areas | 187 |
| The minutely accurate calculation of the measure of areas | 197 |
| Subject of treatment known as the <i>Janya</i> operation | 209 |
| Do. do. <i>Paśācika</i> or devilishly difficult problems | 220 |

CONTENTS.

v

CHAPTER VIII.

| | PAGE |
|---|------|
| CALCULATIONS REGARDING EXCAVATIONS | 258 |
| Calculations relating to piles of bricks | 268 |
| Operations relating to the work done with saws in sawing wood ... | 273 |

CHAPTER IX.

| | |
|---|-----|
| CALCULATIONS RELATING TO SHADOWS | 275 |
|---|-----|



