AGRICULTURAL ARITHMETIC

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Agricultural Arithmetic by George C. Shutts & Wilbert Walter Weir

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Agricultural Arithmetic

BY

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FOREWORD

Arithmetic, as a subject in the school curriculum, is of no particular value in itself. It is not one of the satisfactions of life. It was so regarded, however, in the past, and much pleasure to the keen witted, as well as sorrow of soul to the dull, was wrought by its puzzles which certainly did not grow out of any of the occupations of man. But tradition is so strong that it has taken a long time to eliminate this theory concerning arithmetic with its attendant conundrums.

Arithmetic is best regarded as an instrument, a tool, with which to accomplish various desired ends and hence should be studied in adaptation to those ends.

Facility in the use of arithmetic depends upon two things: first a knowledge of the business relations to which it is to be applied, and, second, a knowledge of the pure arithmetical processes together with skill in performing them. Hence this book has been organized into two parts.

In Part I has been gathered into a brief space the essential things to be considered and drilled upon to enable one to develop accuracy and rapidity in computation by arithmetical processes. As it presupposes a considerable knowledge of the processes of arithmetic, Part I does not attempt to develop fully the general subject, but is simply a rational review to strengthen some of the weak points.

Part II is an application of arithmetic to farm experiences. The problems are not inventions, but are drawn from life in its various phases upon the farm. Necessary conditions in problems are sometimes omitted in order that the pupil may collect his own data from observation, experience, etc., at home; hence results will differ or only

approximate one another. These varying results will naturally lead to a study of the causes that produce them, and thus may supply an incentive to improve unfavorable conditions.

Lack of space has limited the number and a greater variety of problems. It is hoped that the teacher will formulate additional problems to give a further drill on points not fully understood by the respective classes or individuals.

Farm operations have been determined too largely by tradition; and the prejudice against scientific methods has been so strong that progress has been slow. It is believed that the study of topics and selection of problems herein will prove an incentive for improvement.

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The Authors

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PART ONE

INTRODUCTION

To satisfy his wants in his conquest over matter, civilized man, or even the savage, needs to determine the size of the elements with which he deals. To do this he must select a part of the whole, an amount with which he is familiar, and by this estimate or measure the size of the whole.

Mass or magnitude is the simple notion of size. It is indefinite and always suggests the question, How much?

Measurement is the process of determining how much there is of the magnitude. The process of measurement consists in determining the number of units it contains.

A unit is a single thing or a portion of a magnitude into which it is divided in the process of measurement.

Number tells how many units there are in a given mass or magnitude.

Quantity is the complete answer to the question how much there is of the mass or magnitude that is measured.

To illustrate: A person desires to know how large is a given piece of land. He takes a plat of land of a given size and calls it, for instance, a square rod. In the fundamental way of measuring, he separates the land into square rods and counts them. His result, say, is 15 square rods. The *magnitude* is the amount of land that prompts the question, How much? The *unit* is the square rod, the portion into which the whole is divided in the process of measurement. The *number* is 15, and tells how many rods there are. The *quantity* is 15 rods and tells the size of the