

ARITHMETIC OF PHARMACY

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Arithmetic of Pharmacy by A. B. Stevens

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OF PHARMACY**

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BY

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PREFACE

This work is intended to cover all of the calculations required by the practical pharmacist.

While the work will be useful to those in actual practice, its greatest value will be to students of pharmacy, whether in college or in the store.

The use of higher mathematical terms has been carefully avoided, and the analyses made as simple as possible that they may better serve the needs of those who have been deprived of a liberal education. For the same reason, some subjects have been treated in a manner that may seem unnecessarily simple, but these may be omitted by the more advanced students.

The atomic and molecular weights used in this book are obtained from the table of International Atomic Weights published by the Journal of the American Chemical Society, Vol. XXV, p. 1, 1903. $H = 1$.

The specific gravity of substance is usually given when necessary for calculation of problems. Otherwise, the student is referred to the Pharmacopœia, 8th Dec. Revision, upon which all the problems are based.

I am indebted to W. H. Blome, M.S., and to Don. S. Stevens, A.B., for assistance in verifying results.

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PREFACE TO THE SECOND EDITION

A few corrections and changes have been made in the present edition. The author has also had under consideration the advisability of omitting rules, but after consultation with eminent teachers of mathematics has decided to retain them for the present. The author has always looked upon a rule as a concise statement of the method by which a problem may be solved, rather than a fixed rule to be committed to memory. The student should understand each step, and it was with this in view that the first part of alligation was given instead of depending upon the arbitrary, second rule given on page 34. This would be unnecessary if alligation was taught in all public schools, but it is a fact that many graduates of high schools have never studied this subject. Others, capable in mathematics, become confused when applying proportion to molecular quantities. It is for this reason that the author departs from his usual custom and asks students to apply the rule given at the bottom of page 44. However, this does not prevent them from thoroughly understanding the principles of proportion.

In a work comprising so many calculations it is not strange that a few errors should appear. These have been corrected where observed. Should others be detected, the author will deem it a favor if the page and problem are kindly pointed out to him. The calculations of many of the problems require a number of decimals, and the extent to which these are carried may account for slight differences in the results. A. B. S.

October, 1907.

PREFACE TO THE THIRD EDITION

The atomic weights used in the VIII Revision of the United States Pharmacopœia are based on hydrogen = 1 as the unit. However, most teachers of chemistry were at the time of the revision using atomic weights based on oxygen = 16. As this work was intended primarily for pharmacists it seemed advisable to use the hydrogen standard for the earlier editions, but the time has now come when it is necessary to change to the standard of oxygen = 16. Therefore, all of that part of the 3rd edition in which atomic or molecular weights are used has been changed to conform to the 1912 table of international atomic weights, which is the standard used for all pharmacopœias recently issued, and will be the standard for the U. S. P. IX.

In deference to the wishes of a few of the teachers who are using this work, the answers to about half of the problems have been omitted. This gives the teacher a better opportunity to test the ability of the students to work independently.

Two sections of miscellaneous problems have been added. The first section is given to test the ability of the student to solve problems independently of any directions. Those of the second section are intended to enable the student to become familiar with the pharmacopœial tables. Most of the problems may be solved independently of the tables, but in every case the student should solve the problem, or find the answer, by means of the tables in the latest edition of the Pharmacopœia.

July, 1913.

A. B. S.