

**A LABORATORY MANUAL
TO
ACCOMPANY GODFREY'S
ELEMENTARY CHEMISTRY**

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A Laboratory Manual to Accompany Godfrey's Elementary Chemistry by Hollis Godfrey

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ELEMENTARY CHEMISTRY

BY HOLLIS GODFREY

With many illustrations. Crown 8vo. Pp. xiv—456.

The book consists of 33 chapters dealing with those portions of Elementary Inorganic and Organic Chemistry which the author has considered of most value to the student, with a final chapter on Chemical Arithmetic (Part I); brief Epitomes of the 33 descriptive chapters for purposes of review (Part II); and Questions drawn from the individual chapters (Part III).

A LABORATORY MANUAL

TO ACCOMPANY

GODFREY'S ELEMENTARY CHEMISTRY

BY

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PREFACE

THIS laboratory manual is intended to accompany Godfrey's Elementary Chemistry. It contains eighty experiments, of which the first sixty-four are designed to occupy two laboratory periods a week for thirty-two weeks and correspond to the text book work of the thirty-three descriptive chapters of the Chemistry. There are no experiments given for Chapter XIII. on Equations. This omission is due to the author's belief that at this point, where the first introduction of the subject of equations occurs, the whole of the laboratory time should be given over to practice in equation writing. The first sixty-four experiments are chiefly qualitative. The last sixteen experiments are partly quantitative. These latter experiments furnish material for about thirty-two additional periods of laboratory work, afford some opportunity for choice and offer to the pupil with an excess of time a wider range of subjects. Exercise 80 on the bending of glass is placed, for convenience of reference, at the end of the book.

A few points characteristic of this manual should receive some mention. A brief note precedes each experiment, referring the laboratory work directly to the occurrences of every-day life. Repetition is an essential part of learning with most of us, and the impressions derived from the statements of the text gain in strength by the reinforcement of the manual. Careful detailed directions are given in every case. Questions intended to bring out the salient points of each experiment end each exercise. Important topics have been italicized. A continual effort has been made to advise the use of simple, inexpensive apparatus and to require only simple manipulation. Out of the eighty exercises given here sixty-eight can be performed with the simple apparatus in the hands of every pupil, such as flasks, beakers, and test tubes. Twelve experiments require slightly more expensive apparatus, such as burettes

and condensers. These may be made lecture-table experiments. Illustrations of some of the more complicated pieces of apparatus have been included in the list of plates in order to show pupils the method of adjusting the apparatus mentioned in the text. A full list of apparatus and of chemicals will be found in the appendix.

No claim of originality in the exercises chosen for this manual is made. To a marked degree chemical science has already determined what experiments are practical for use in the ordinary school laboratory. The sources whence these experiments have been drawn are so various, and this manual has been in the process of construction for so many years, that detailed acknowledgment would be impossible. One acknowledgment, however, should be made. From the Boston Teachers of Chemistry, with whom the author has met month after month and year after year, have come many suggestions of great value.

The purpose of this laboratory course is similar to the purpose of Godfrey's Elementary Chemistry — constantly to bring before the pupil's mind the connection between the laboratory, the text-book and the affairs of every-day life. The author recognizes the possibility of varying conditions existent in different schools and welcomes all criticism and advice which will aid in the difficult task of joining the practical affairs of every-day life to the limitations of the ordinary school laboratory.

Besides being read by several readers to whom the author expressed his acknowledgments in the preface to the chemistry proper, the manuscript of this manual has been read by Miss L. C. Smith, instructor in chemistry in the Brookline High School, and by Miss Florence M. Homer, the author's present assistant.

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