

**ELEMENTARY PHYSICS
AND CHEMISTRY. THIRD
STAGE**

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Elementary Physics and Chemistry. Third Stage by R. A. Gregory & A. T. Simmons

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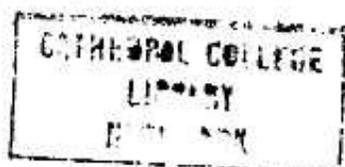
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CHEMISTRY**



° ELEMENTARY
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THIRD STAGE



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PREFACE.

THIS book is the last of three little volumes containing a course of experimental work on the elementary principles of Physics and Chemistry. The subjects dealt with were introduced into the Code of the Board of Education in 1898 as suitable for instruction in the upper standards of public elementary schools, and are also included among those which may be taught in Evening Continuation Schools. In each case the object of the instruction prescribed is not so much to convey information as to develop a scientific habit of thinking in the pupils, and it is in sympathy with this spirit that the books have been prepared.

Wherever the study of science is being commenced, it should be through the consideration of the properties of familiar things; for this is the best way to encourage an intelligent interest in scientific reasons and results. The course of work here followed is thus as suitable for the lower forms of secondary schools as for schools of other grades. A knowledge of the scientific meaning of such facts of ordinary experience as are described and examined in this and the two companion volumes should, indeed, be possessed by everyone.

The value of practical exercises in all scientific instruction, however elementary, is now so widely recognised that it is almost unnecessary to advise that the experiments described in each lesson should be actually performed. Unfortunately, it is not often possible to provide accommodation and apparatus sufficient to enable individual pupils to experiment. This

difficulty has been borne in mind in designing the form of the following lessons, each of which is divided into two parts—the first consisting of instructions for the performance of simple experiments, the second of explanations of the principles taught by the practical work.

When circumstances permit, every pupil should perform the experiments, and when this is impossible he should see them done by someone else. The descriptive text, which is complete in itself, and independent of the experimental work, though covering the same ground, provides suitable lessons to be studied at home.

Every effort has been made to arrange a practicable and instructive first course of science based upon sound educational principles. No difficult point has been passed without attempting to present it in the simplest way, and in such relation with everyday phenomena as to encourage pupils to use their observant and reasoning faculties.

Several of the illustrations have been specially engraved for the book by Mr. O. L. Lacour, and all of them have been inserted with the object of simplifying the text, or impressing some fact upon the mind of the pupil.

For the help readily given us by Mr. J. A. Humphris, Science Demonstrator for the Bristol School Board, we gladly take this opportunity of recording our thanks.

R. A. G.

A. T. S.

LONDON, *July*, 1900.

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