

PREFACE

No special originality is claimed for this book. Certain standard methods and illustrations in the elementary teaching of chemistry have proved themselves of such excellence that novelty in these matters generally means loss of real value. There is, however, great need of emphasis in proper places: beginners are very liable to overlook some things that are of prime importance and misunderstand others; hence, a very special effort has been made to guard against those omissions and misconceptions that are so often apparent in the case of young students.

The successful study of chemistry necessarily presupposes some knowledge of physics; but, in an elementary work like this, the quantity is very small. Acquaintance with the metric system is taken for granted, and the centigrade thermometer-scale is used throughout the book.

Science is largely a matter of observation and classification. Hence, pupils should be trained in both. Observations and experiments may be divided into three classes: those that can be carried out successfully by pupils themselves; those that can be carried out by the teacher; and those that can be carried out successfully only on the large scale or in very specially equipped laboratories. Experiments of the first class are described in detail in the following chapters, whilst others are referred to only in passing. For details concerning the performance of class experiments by the teacher, some such book as Newth's "Classroom Lecture Experiments" (Longman's) should be consulted. Particular attention should be paid to the recording of the results of observations; and, in this connection, the great importance of the making of sketches cannot be too strongly emphasized; attempting to describe experiments without sketches of the apparatus employed is almost like trying to prove propositions in geometry without