

THE BOY CHEMIST

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YOUNG PEOPLE
BY
A. FREDERICK COLLINS

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THE ALCHEMIST.
(From Painting by Teniers.)

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BY

A. FREDERICK COLLINS

Author of "The Boy Astronomer."

WITH FRONTISPIECE AND ONE HUNDRED AND SEVENTY-TWO
TEXT ILLUSTRATIONS



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THE BOY CHEMIST

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TO
WILLIAM COX

FOREWORD

DURING the dark ages there lived men who worked over seething furnaces in the vain attempt to find a way to live a thousand years and to make precious metals out of the baser ones. These men were the *alchemists* of old, and as they lived in an age of ignorance they believed many strange and untrue things.

Chief among these were that *earth, air, fire, and water* were elements; that when these acted one on another, *sulphur, mercury, and salt* were formed, which in turn were called *principles*; and that by combining the elements and the principles in the right proportions they would yield an *essence*, which when taken internally, like castor oil, would prolong life indefinitely, and when poured over lead would change, or "transmute," it into pure gold.

Of course they did not find this miraculous essence, so diligently sought, but they made a few simple discoveries which, while seeming to them to be of very little value, were really of priceless worth, for out of them came the great science of Chemistry as we know it to-day. There is nothing in the whole realm of knowledge of more absorbing interest in an experimental way than this branch of it, for it tells you how to combine atoms and molecules of various elements produced by Nature and make other and entirely different substances. Many of these substances Nature herself has never made, so that you have it in your power to be a creator in the smaller sense; and, equally wonderful, Chemistry tells you how to *break down* various compounds by

means of light, heat, and electricity, and separate them into their original elements.

If you would like to do these things, you will like Chemistry, and I have written this book so that you can easily make the experiments, and thus gain a very good idea of how and why chemicals react on each other, especially if you will give careful attention to the chapter "Chemistry Simply Explained," and do a little *thinking* at the same time. You do not need to buy all the apparatus and chemicals at once, but just enough to make a few of the simple experiments that interest you at first. The next step is to fit up a little laboratory, put on an apron, and go to work in earnest. If you make the experiments in order, by the time you reach the tenth chapter you will have taken a fairly good course in Chemistry, and one that will serve you well for all time.

From the tenth chapter on, you will find a large number of experiments that are strange and curious in the extreme, such as making a flame without light, making photographs with a pinhole camera, magical experiments of all kinds, and making safe and sane fireworks. Finally, there are numerous experiments that have to do with household chemistry, which are of much interest and have a great deal of practical value. That much pleasure and profit will accrue to you from this book is the wish of the author.

A. FREDERICK COLLINS.

Paris, France.

May, 1924.