Built-in wall cases for apparatus and chemical supplies, fitted with glass doors, add to the general appearance of the laboratory. All doors have friction catches and locks.

The frame of the 24-in. by 30-in. hood is of wood and the sliding sash is counterpoised by lead weights attached by means of hemp rope. Foul air is conducted through a flue to the top of the building.

A No. 35 Troemner balance rests upon a solidly constructed and securely fastened oak bench so that there is only a negligible amount of vibration from passing street cars. It is protected from dust and fumes by a glass case which fits over the balance and is secured by locks.

Opening from the main laboratory is a special dark room provided with benches, sink, cases, and lockers. This room is

used in conjunction with the course in photography and for photochemical work.

In addition to the school library, a branch of the Public Library of the District of Columbia is housed in the school, making available a large number of books relating to chemistry and allied sciences.

A museum has recently been started by the presentation of a collection of minerals and several collections of specimens representing processes of certain manufactured articles. To these will be added other minerals and certain chemicals prepared by the students.

Instruction in chemistry is under the supervision of the Director of the Educational Department and the instructors are chemists well trained in their profession.

THE CHANDLER LECTURE

INTRODUCTORY REMARKS

By Ralph H. McKee

COLUMBIA UNIVERSITY, NEW YORK, N. Y.

In 1910 friends of Professor Chandler, mostly former students, presented to the trustees of Columbia University a sum of money which constitutes the Charles Frederick Chandler Foundation. The income from this fund is used to provide a lecture by an eminent chemist and to provide a medal to be presented to the lecturer in recognition of his achievements in science. We are gathered this evening to listen to the Chandler Lecture and it is my privilege to introduce the lecturer, Dr. Willis Rodney Whitney.

MEDAL ADDRESS

THE LITTLEST THINGS IN CHEMISTRY¹

By W. R. Whitney

GENERAL ELECTRIC COMPANY, SCHENECTADY, N. Y.

To receive the Chandler Medal is to me doubly agreeable. My earliest interests in chemistry were largely influenced by what I heard as a boy about Professor Chandler and the Columbia School of Mines. At that time he was to me all there was of our science anywhere outside of Steel's "Fourteen Weeks in Chemistry." Through all of my lifetime he has been the American dean of chemistry. You may imagine my pride, then, in having my name thus connected with his.

But a second reason for my pride and pleasure is the fact that I live in the city which first recognized the qualities of Professor Chandler, and am a member of the board of trustees which paid him his first professor's salary. Therefore I shall show this medal at Union with elation. That he left our college to come to the Columbia School of Mines, where they paid no salaries, speaks well of Union, of New York, and of Professor Chandler.

In preparing an address which, while intimately connected with chemical affairs, might still be of interest to those who do not closely follow all its modern developments, it has been my aim to select a field in which great activity has recently been taking place. I have made no attempt to distinguish between chemistry, physics, and electricity in this connection, because the littlest things of the universe clearly belong equally to all three. Chemistry, physics, and electricity are coöperating in a thorough manner in their study of nature and it is evident that, from the viewpoint of this triple alliance, a wonderful new territory of interest has been opened. Possibly, also, by showing to the general public the exceedingly intimate relationships between the most theoretical and speculative parts of science and the highly prized technical applications, I may do something to encourage the younger men to appreciate the fact that the

theoretical and speculative may be also truthful, spectacular, and valuable. I have made no effort to appeal to the expert research physicist, nor to write for those who are actually doing advanced research work in the line of the littlest things in chemistry, but rather to the much larger and, I hope, less critical group who are interested in seeing how much ado can be made about next to nothing. One may also quite properly maintain that there is no such word as "littlest." I may reply that there may also be no such *thing* as I talk about, but we get a great deal of satisfaction from thinking there is.

My object is to treat in a simple way some of the facts which we have learned more or less recently which have to do with our chemically fundamental materials. Different chemists occupying various fields of activity would handle the subject differently according as they are impressed with different applications. Physicists would treat the whole subject from quite another standpoint. The mathematician would introduce a third, the metaphysicist another, and so on. In the past, all have greatly advanced our knowledge. To most of us, these changing points of view are interesting largely in their application to some form of welfare work. I have had in mind the thought that I might talk about atoms, molecules, ions, and electrons, and still keep so well within the bounds of simple experimental demonstrations as to assist some of you in appreciating the applications. To those for whom such effort is unnecessary I would excuse myself by claiming a desire to help prepare the way for future students of the still more remote entity, the quantum, which it seems chemists must soon adopt.

It has always been natural to want to extend our vision. We have tried in vain to look through infinite space and to think through infinite time, though we know that we have no apparatus for such work. But, just as with telescope and microscope we have increased our knowledge within that portion which we may call our real horizon, without diminishing the incomprehensible total, so we have also advanced the frontiers of chemical or physical subdivisions (our metaphorical horizon), also without diminishing there the incomprehensible total.

Everywhere we look there still extends that distant arrangement of something we vainly call matter and energy which, because of our limited measuring apparatus, we still know only as infinite complexity. But what we can put behind us with weights and measures attached, we say we have added to science, and whatever has not been successfully weighed or measured we justly consider unknown. Thus chemistry first started to grow as a true and useful science when the balance came into use. So also psychology began as a science when it could be built even ever so little on experimental and measured facts. But when one of the world's greatest physicists tells us about things for which there are no generally useful measurements, or gives us data from untested balances, we seem justified in