undissolved. The prepared glass tube is now inserted in the liquid. As long as the stopper *c* closes the mouth of the tube no liquid will be able to filter upwards. When the tube has acquired the temperature of the boiling liquid the stopper *c* is removed, whereupon the liquid will begin to filter through the pellet of cotton and rise in the tube as far as the quantity of liquid will permit. In order to insure perfect uniformity of the liquid within and without the tube, it is best to allow the filtered portion to flow back through the pellet of cotton once or several times. The stopper *c* having then been inserted, the tube is withdrawn, turned upside down, the glass bell removed, and the stopper b inserted. The tube is now carefully cleaned with alcohol, and laid aside until cold. Its tare having previously been determined, the increase in weight represents the weight of the solution contained therein. On transferring or washing the contents into a tared beaker or capsule and evaporating, the weight of the dissolved morphine will be found.

The apparatus here described, which has been frequently in use during several years, and to which, for brevity's sake, the name *lysimeter* (from the Greek *lysis*, solution) has been given, was made for the writer in a very satisfactory manner by Mr. Emil Greiner, of New York City.

NEW YORK, July 7, 1894.

NEW BOOKS.

THE DECOMPOSITION OF THE FIXED ALKALIES AND ALKALINE EARTHS. By Humphry Davy, 1807–1808. Alembic Club Reprint, No. 6. 12 mo. 51 pp. Edinburgh: William F. Clay. 1894.

This number of the Alembic Club Reprints contains the Bakerian Lecture delivered by Davy before the Royal Society in 1807, and also part of a paper communicated by him to the same Society in the following year. The Bakerian Lecture is on the Decomposition of the Fixed Alkalies and on the General Nature of the Alkaline Bodies. The other paper is on the Decomposition of the Earths, with observations on the metals obtained from the alkaline earths.

In the first paper we have the first published record of the experiments by which Davy proved the compound nature of the alkalies and prepared the metals potassium and sodium. The

second paper contains a description of similar experiments upon the earths and alkaline earths, only that part which deals with the successful experiments being reprinted. W. R. O.

THE DISCOVERY OF OXYGEN. By Joseph Priestley, 1775, and Carl Wilhelm Scheele, 1777. Being Nos. 7 and 8 of Alembic Club Reprints. Edinburgh: William F. Clay. 1894.

Among the first things learned by students in chemistry, is that "oxygen was discovered almost simultaneously by Priestley in England, in 1774, and Scheele, in Sweden, in 1775." That the work of these men was independent of each other is also well known. Many have become acquainted with their work in a general way, but few have had the opportunity of following the original experiments as described by the experimenters. This opportunity is offered now by the publishers of the Alembic Club Reprints. Nos. 7 and 8 of this series are the Discovery of Oxygen. Part I (No. 7) by Joseph Priestley, and Part II (No. 8) by Carl Wilhelm Scheele, the latter a translation. They consist of sections taken from larger works of these authors, and, save for a short preface by the publisher, are without note or comment. Both Priestley and Scheele are minute in the description of the numerous experiments carried out in this work.

They began experimenting at different ends of the subject. Priestley was of the "try something" type of worker, and in his different experiments the peculiarities of "dephlogisticated air," as he afterwards called it, "obtruded themselves upon him." He first obtained the "air" then studied its properties. He tried to obtain this "air" from every available substance. The bulk of it was obtained from mercuric oxide and red lead and nitric acid. Scheele, on the other hand, found that air was not a simple substance, but contained a gas, which he called "fire air." The experiments which were performed when this truth was discovered are well described. They consisted in placing oxidizable substances in bottles which were well corked, and allowing the air in them to act for different periods of time, then opening the bottles under water and noting the diminution in the volume of air by the water entering the bottles. Then the work of producing "fire air" was undertaken, numerous experiments were carried out, the results of which are well known.