TABLE "A."

T.	cm.	T.	cm.
15	73.9	25	126.9
16	79.2	26	132.7
17	84.0	27	138.7
18	89.2	28	144.4
19	94.2	29	150.7
20	99.5	30	157.0
21	104.8	31	163.3
22	110.2	32	169.8
23	115.8	33	176.7
24	121.2	34	183.4

TABLE "B."

p.	t.	v.	(Cal.)	V (Obs.).
750.5	20.6	42.0	37.64	37.7
750.5	21.4	41.6	37.13	37.1
742.1	26.2	41.9	36.11	36.1
742.1	26.5	31.6	27.16	27.1
741.2	26.0	30.6	26.33	26.3
733.2	21.1	74.0	64.58	64.5
736.4	22.6	6.2	5.39	5.4
748.4	19.0	50.2	45.20	45.2
760.5	18.5	49.6	45.51	45.4
760.0	21.0	41.7	37.77	38.8

UNIVERSITY OF ILLINOIS,
URBANA, ILL.

A LECTURE TABLE DOWN-DRAFT.

BY WM. L. DUDLEY.

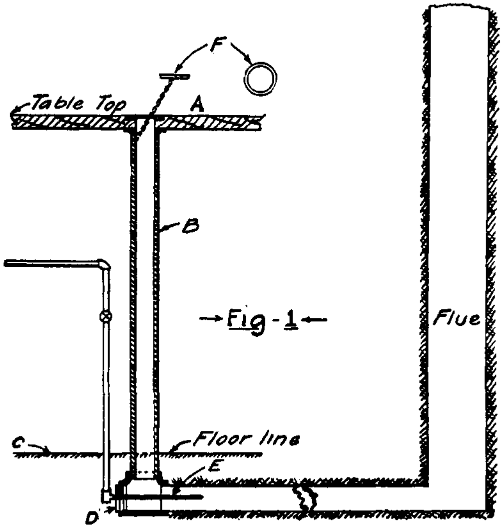
Received March 26, 1908.

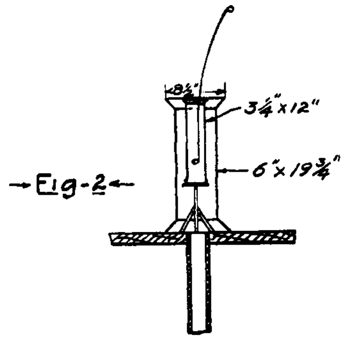
A powerful and reliable down-draft on a lecture table is of great service and is much superior to a hood behind the lecturer since by its use experiments with the most disagreeable and poisonous gases can be made safely in full view of the audience.

My experience in the past has been that such down-drafts are rare, in fact, I have never had one that was usable until I installed in the lecture theatre of Furman Hall, the new chemical laboratory, the arrangement herein described.

The requirements of a good down-draft are (1) certainty of action regardless of the weather or temperature, (2) sufficient suction to permit of moderate freedom of action on the part of the experimenter which is not possible if the air current is so slow as to require a closed chamber to prevent the escape of gases into the room, (3) the draft tube with its cover being so arranged that it can be located in or near the center of the lecture table flush with the table top so as to offer no obstruction, and (4) a cover to the draft tube which will not stick nor become fast from corrosion.

All of these requirements are amply met by our down-draft arrangement which will be readily understood by reference to the accompanying sketch and description.





A (Fig. 1) is the top of the lecture table. B is a two-inch cast iron soil pipe which drops vertically through the lecture table and the floor under which it passes at right angles to a flue. The end of the horizontal pipe is closed at D by a plug, through the center of which passes a brass pipe, E, one-eighth of an inch inside diameter, extending about 12 inches beyond the vertical pipe. The pipe E is connected to a compressed air pipe.

The hub of the vertical pipe B is fitted with an ordinary two-inch brass "wash-tray plug," without a stopper, set flush with the table top by letting it into the wood. Connected with the crossbars in the wash-tray plug is a chain, the other end of which is attached to the bottom of a thin flat brass plate, F, 2 $^5/_{16}$ inches in diameter, which serves as a cover. This cover fits flush with the wash-tray plug which has had an offset turned in the face, of sufficient diameter to receive the cover-plate. A finger lift is also cut in the plug, thus the cover plate can be easily slipped aside when the down-draft is in use and the chain prevents its being detached. The valve controlling the supply of compressed air is located under the table at a place most convenient to the experimenter.

In using the down-draft, I perform the experiments inside of a glass cylinder six inches in diameter and open at both ends, as shown in Fig. 2. At one end, the cylinder is 8½ inches in diameter and at the other, 10 inches in diameter. The vessel containing the gas or volatile substance is placed on an adjustable support over the down-draft pipe, and the glass cylinder is put around it with its larger end resting on the table.

The top of the vessel, for convenience, should be about on a level with the top of the cylinder. When the vessel is opened all of the fumes which come out are sucked down into the down-draft pipe.

With an air pressure of 25 pounds, the suction in the down-draft tube is 2¼ inches of water pressure, and the velocity of the air going through the six-inch cylinder was found by careful anemometer measurement to be 135 feet per minute, which gives a velocity of about 1200 feet per minute in the two-inch down-draft pipe.

FURMAN HALL, VANDERBILT UNIVERSITY,
NASHVILLE, TENNESSEE.

PURITY AND VOLATILITY OF PRECIPITATED ANTIMONY SULPHIDE.

BY LEWIS A. YOUTZ.

Received April 10, 1908.

This work was taken up to discover whether pure antimony trisulphide could be obtained by precipitation by hydrogen sulphide. The volatility of the product of precipitation when heated in an inert atmosphere came in more or less incidentally in the course of the work as a check on the purity of the sulphide. Practically the only impurity considered however was the chloride.

Most of the work on the determination of antimony by precipitation as sulphide, as is too often the case in analytical work in general, is empirical. The investigator will fall upon a method that approximates accurate results; then by shifting the conditions here or there he finally arrives at a set of conditions that will give results within the limits of experimental error. He then announces his method as an accurate one though often it is accurate merely because of a series of compensating errors.

It might be said in anticipation that such was found to be the case in the method of determining antimony by precipitation as sulphide in the presence of hydrochloric acid, heating the dried sulphide in an atmosphere of carbon dioxide, and weighing.

Purity.

(1) As a preliminary experiment in the investigation of the purity of the precipitated sulphide, two samples of antimony trichloride of approximately 1.5 grams each were dissolved in 250 cc. of water and 30 cc. of concentrated hydrochloric acid, the antimony precipitated as completely as possible by hydrogen sulphide gas, the volume of the liquid then increased to 500 or 600 cc., warmed nearly to boiling, and saturated with the gas. The sulphides were washed with water saturated with hydrogen sulphide till 10 cc. of wash water gave no test for chloride, or but a faint trace. It should be noted that it is very difficult to wash the precipitated sulphide free from chloride, from 1000 to 1500 cc. of water being required in this and