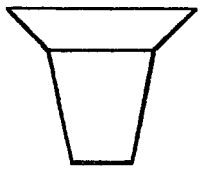
centration cell effect. Since the current densities employed are exceedingly small, the solid bromide about the cathode will maintain the silver content of the solution despite its depletion through precipitation of silver on the electrode and in this way polarization is avoided. The electrodes employed were silver plates, $2'' \times 1/4''$, with a silver or platinum wire fused on as a lead. A tumbler was used as a cell, and four to eight separate anodes could be connected simultaneously with a common cathode in the porous cup. The anodic reaction, being the same as that of the Ostwald instrument, has the same desirable characteristics, while the cathodic modification eliminates the above mentioned disadvantages. The instrument gave excellent results with current densities precipitating not more than 1.5–2 mg. bromine per hour. Blank tests showed no action of the air on the electrodes. W. K. LEWIS.

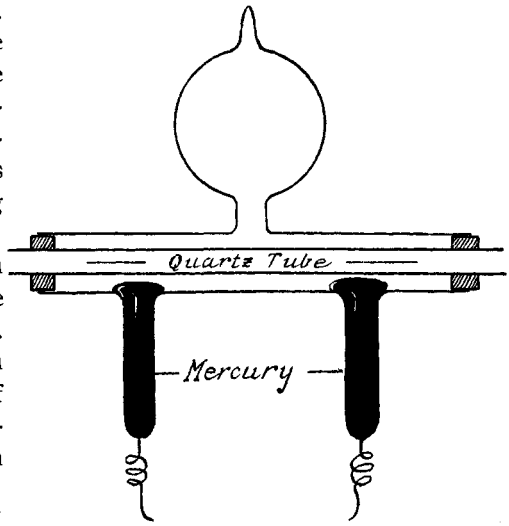
A Modified Form of Gooch Crucible.—On transferring material from a flask or large beaker into a Gooch crucible, there is always risk that some of the substance to be transferred may find its way outside of the crucible and thus be lost. A slight change in the form of the crucible overcomes this difficulty without introducing any serious disadvantage. The change consists in welding to the crucible a flaring brim, which may be as wide as is desired, but usually need not exceed 15 mm. in width. The total diameter of the top of the crucible is thus about doubled. The brim serves not only to prevent the loss already mentioned, but serves also another purpose in stiffening the edge of the crucible, and thus enabling it to keep its form better under the influence of pressure. The only disadvantage seems to be the additional cost, due to the extra weight of platinum. The diagram depicts in section the shape of the crucible thus modified. This improved form of apparatus has been in use for about a year in the Chemical Laboratory of Harvard College, especially by Dr. H. H. Willard and the author in a research on atomic weights. It has demonstrated so conclusively its value that those who have used it are no longer content with the ordinary form. THEODORE WILLIAM RICHARDS.



On the Formation of Ozone by the Ultra-violet Rays.—Bordier and Nogier, in a recent paper in the *Comptes rendus*, **147**, 354 (1908), claim that the odor commonly observed in the neighborhood of a mercury arc enclosed in quartz is not due, as is supposed, to ozone or to oxides of nitrogen. They were unable to detect these gases and found the same odor produced when carbon dioxide and nitrogen were substituted for air. They concluded that the ions produced by the ultra-violet rays

acted on the olfactory nerves and so gave the sensation associated with ozone. To test this the gases were led from the neighborhood of the mercury lamp through a metal tube to remove the ions; no smell could be detected.

In the course of some experiments with a mercury arc the presence of ozone was so persistent that we thought it worth while to test the conclusions of Bordier and Nogier. To do this conveniently we devised a lamp more suitable than the usual form for subjecting gases to the ultra-violet rays. This lamp is shown in the accompanying figure.



The gases are forced through the quartz tube and can be tested in the ordinary way. When air is passed through this tube the presence of ozone can at once be detected by means of potassium iodide and starch paper.

Electrolytic oxygen, freed from ozone and moisture, gives an increased reaction. Hydrogen gives no reaction, while with carbon dioxide the reaction could scarcely be observed.

Moist as well as dry air from this apparatus, passed through a platinum tube, packed with glass wool to remove all ions, showed large amounts of ozone. Only in those cases where the ozone could be detected chemically was the odor observable.

How Rodier and Nogier failed to detect ozone under the conditions of their experiment is difficult to understand.

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Glass Cutting.—In the June number of THIS JOURNAL there is a note on glass cutting by means of a wire heated by electricity. This process was devised by the writer in 1888, and was published in the *Journal of Analytical Chemistry*, **3**, 135–36 (1889). This method has been in use in Vanderbilt University since the above date and has proved itself exceedingly simple and reliable for cutting all kinds of glass tubing, cylinders, etc.

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