The apparatus consists of an ordinary porcelain crucible, about two inches in diameter and one and three-quarters inch high, fitted with a partition of asbestos-board reaching almost to the bottom.

The anode is a pencil of gas carbon which is immersed in the fused chloride on one side of the asbestos diaphragm, the cathode being of iron wire bent into the form shown and placed in the electrolyte on the other side.

A current of from 5 to 7 amperes is used from the 110-volt circuit, and in a few minutes a globule of metallic lithium will appear in the iron wire loop, which may be transferred to a vessel of kerosene by withdrawing the wire and tapping off the metal while it is still melted.

The lithium chloride must be dry and is first fused in the crucible over the gas flame, and during the electrolysis is kept in the molten condition by means of a burner placed underneath and also by the resistance of the current.

The modification was worked out mainly by one of my students, P. F. Cowing, who obtained considerable quantities of the metal in this way. SAMUEL A. TUCKER.

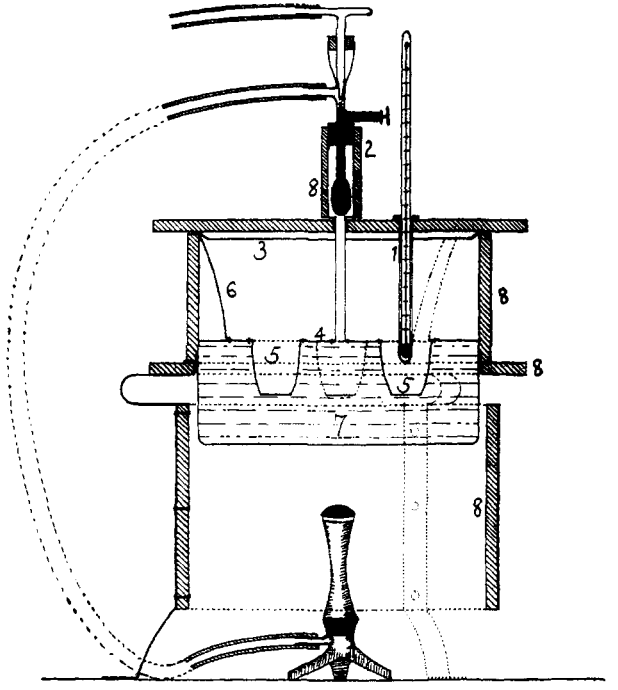
HAVEMEYER LABORATORIES, COLUMBIA UNIVERSITY, May 31, 1902.

A Novel Constant High Temperature Bath.[1]—The sulphate method, exemplified by the work of G. Krüss, for the determination of the atomic weight of certain elements is open to objections, as first pointed out by Brauner and Povlicek and noted by Dennis and myself, but it answers very satisfactorily as a criterion in the fractionation of the rare earths. Our source of heat is gasoline and the gas pressure varies considerably with large classes in the laboratories. As the heating continues for days at a time, it became quite necessary to devise a bath which might be regulated and expected to remain at some fixed temperature between 350° and 450° C. The accompanying diagram shows a section of the bath designed and is really self-explanatory. It was made by Eimer and Amend and paid for in part by a grant from the American Association for the Advancement of Science to which I owe sincere thanks.

The apparatus consists essentially of a porcelain-lined water-

[1] Read at the Pittsburg meeting of the American Chemical Society.

bath with a copper flange, depressed to support the copper cover, bound to the top, and a fusible alloy. The use of a fusible alloy as a bath for moderately high temperatures is not new. The flange has three sections, 1 cm. across, cut out equidistant to permit the passage of the copper springs, which hold the iron float depressed in the molten alloy, when it is desired to remove it. The float in



Scale : 5 mm. : 2 cm.

1. Brass sheath for thermometer, graduated to 550° C.; 2. Closed iron cylinder, containing thermostat; 3. Copper cover; 4. Iron float, containing crucible molds, 5; held down by springs, 6, bearing against flange; 7. Bath of molten alloy; 8. Asbestos sheathing; 9. Asbestos cover; 10. Asbestos ring.

this particular bath has three depressions made to hold evenly platinum crucibles of 60 cc. capacity. One is for the counterpoise and the third is for the thermometer held in place by a brass sheath long enough to allow the bulb to reach the center of the depression. The three places were regarded necessary on account of danger of introducing impurities into a crucible during the inser-

tion or removal of the thermometer, which contains mercury with carbon dioxide under twenty atmospheres' pressure. The thermometer was standardized at the Reichsanstalt. The float is handled by means of a small iron cylinder rising vertically. It is much enlarged above the second cover (asbestos) to hold a short mercury thermostat made of especially resistant glass. The two covers have hit-and-miss slits that they may be taken off for removal of crucible. All exposed surfaces of the bath, except where it is heated, are jacketed with heavy asbestos. The large excess of acid sometimes used in the determinations is first driven off in a hot air platinum bath (to be described in due time) before the crucibles are placed in this bath. Notable corrosion is thus avoided. The source of heat is a complex Bunsen burner.

So far the bath has given perfect satisfaction.

CHARLES BASKERVILLE.

UNIVERSITY OF NORTH CAROLINA,
April, 1902.

On an Adulteration of Lavender Oil with Salicylic Acid.—A French lavender oil, which the following constants showed to be of good quality,

$d_{15^\circ} = 0.893$,
$[\alpha]_D = 6^\circ\ 42'$,
Acid number = 4.48,
Ester content = 35.52 per cent. as linanyl acetate,
Soluble in 2.5 vol. and more 70 per cent. alcohol,

turned red after some time, something never observed before in lavender oil. This discoloration was traced back to salicylic acid, which evidently had acted on some defective parts inside the tinned cans.

The salicylic acid was isolated from the oil by shaking the same with a potash solution of 10° Bé. Hydrochloric acid precipitated the organic acid from the alkaline solution. Another part could be obtained by extracting the filtrate with ether. The acid was purified by repeated fractional precipitation with hydrochloric acid from its alkaline solution, recrystallization out of chloroform and finally out of water with addition of some animal charcoal. The white crystals, now quite odorless, melted at 156°-157°. They were identified as salicylic acid by the characteristic violet colora-