

gives a rapid method for the separation of cerium from the mixed earths as well as fractionating the others at the same time.

A separation of the yttrium group using tartaric acid as the precipitant has been found to be very effective for fractional purposes. The serial order established is ytterbium (lutecium and neoytterbium), holmium, erbium and dysprosium and yttrium.

This investigation was undertaken at the suggestion of Professor Lenher who has kindly coöperated throughout the work. Gratitude is also expressed to Professor Fischer for suggestions especially during the alkaloidal study. To Mr. H. S. Miner of the Welsbach Company we are grateful for most of the material used.

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NOTE.

New Thermometers for Melting Point Determinations. — Uniformity in practise in making melting point determinations would be very desirable for even to-day there are too many cases where different observers disagree. The failure to agree is not always due to the quality of the material if we may have confidence in the analytical data given. Many forms of apparatus are in use as well as various kinds of thermometers. Other factors also enter in. The practise of reporting the corrected reading is a step in the right direction and its extension should be constantly urged.

In order to avoid the necessity of making corrections for the exposure of the mercury column I have devised a thermometer with a short scale, so that it may be completely immersed in the bath. The method of construction may be readily seen from the accompanying sketch. Owing to the compact form of the scale it was necessary to construct a set of seven thermometers, each with a milk glass scale of 50° with divisions in degrees. The length of the scale is 35 mm. The thermometer jacket is lengthened so that the total length is 20 cm. This permits of its suspension by means of a cork as in the Thiele apparatus which is a particularly good form to be used with this thermometer. The mercury bulb is small and compact and above it is a constriction to enable one to attach the capillary tube if that is desired. For the protection of the manufacture of the thermometers patent No. 507,320 has been entered in the German Patent Office. The thermometers may be obtained from C. Richter, 30 Lehrterstrasse, Berlin N. W. 5.

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