GeO_2 taken, g.	0.1789	.2536	.1699	.1674	.1791	.1797	.2757
GeO_2 found, g.	0.1785	.2538	.1701	.1674	.1786	.1797	.2745
GeO_2 taken, g.	0.2495	.2654	.1050	.1093	.1508	.2016	.2972
GeO_2 found, g.	0.2489	.2640	.1044	.1092	.1509	.2013	.2972

The method was then used in the determination of germanium in two different samples of germanium-bearing zinc oxide. The method of Dennis and Papish[3] was followed to the point of precipitation of the germanium sulfide. From there on, the procedure here described was employed. Three analyses of each sample were made.

Zinc Oxide No. 1

Crude oxide G.	GeO_2 found G.	GeO_2 found %
100	0.1112	0.111
100	.1116	.112
105	.1159	.110
	Zinc Oxide No. 2	
50	.1054	.211
60	.1259	.210
102	.2150	.211

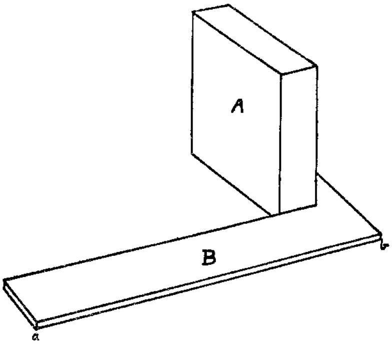
Summary

This article describes a method for the determination of germanium, in which the germanium is precipitated as the disulfide, the precipitate is oxidized with 3% hydrogen peroxide and the germanium is finally weighed as the dioxide.

Ithaca, New York

NOTES

A Simple Tangentimeter.—It is often of the utmost importance to the physical chemist to know the slope of a plotted curve at any point. It was to satisfy such a need that the instrument shown in the figure and described below was constructed and used, after a search for, and trial of the various methods given in the literature. The essential feature of the device is copied from a mechanical differentiator constructed and described by A. Elmendorf.[1] In the figure, A is a mirror (a plane polished block of speculum metal in this case) mounted on one leg of the steel square B, so that the mirror face extends to the plane of the bottom of the square and is normal to the edge ab.



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[1] Elmendorf, *Sci. Am. Suppl.*, Feb. 12, 1916.

When the mirror is standing across a given curve, and is normal to it, there will be no break between the curve and its image at the foot of the mirror; any deviation from the normal will cause a noticeable break. Obviously, then, the line ab will be parallel to the tangent at that point, and the numerical value of the tangent can be obtained from its intersection with the abscissas and ordinates of the paper on which the graph is plotted. This calculation is much simplified if ab is made of such length that ten or one hundred units can be used as one of the ordinates in calculating the tangent.

It is well to caution the novice that the curve must be drawn *very* smoothly or false tangents will result. With a little practise, considerable accuracy can be attained in the use of this instrument.

CONTRIBUTION FROM JOHNS HOPKINS UNIVERSITY
BALTIMORE, MARYLAND
MAX LATSHAW

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The Influence of Intensive Drying on Inner Equilibria.—In relation to the publication of G. N. Lewis[1] concerning Baker's drying experiments, I will state here to prevent confusion that I had already discussed the problem in detail and published in the early part of 1922 an explanation corresponding exactly to that later published by Professor Lewis.

This explanation in its original form,[2] stated that by intensive drying the inner transformations in a unary phase are stopped and consequently the inner equilibrium is fixed and a mixture is obtained which, on distillation, generally gives a distillate with a lower boiling point and a residue with a higher boiling point than that of the original liquid. Further, it was concluded that the boiling points observed by Baker were abnormally high because the liquid mixture, before reaching the boiling point, had already partly evaporated.

After the publication of Baker's later investigations on the properties of extremely dry liquids[3] the author discussed these results in a chapter of his book "Theory of Allotropy" and considered, in view of these new experiments, whether the original explanation set forth above might be regarded as adequate, or should be supplemented by the assumption that the inner equilibrium is first displaced and then fixed. The conclusion arrived at was that for the purpose of providing a general explanation the original form should be supplemented by the assumption that, by the drying process, the inner equilibrium can be displaced—an assumption which is not in contradiction with thermodynamic considerations.

Moreover, the best way of answering the question as to what actually

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[1] Lewis, THIS JOURNAL, **45**, 2836 (1923).

[2] *Z. physik. Chem.*, **100**, 477 (1922).

[3] Baker, *J. Chem. Soc.*, **121**, 568 (1922).