plow line (seven inches) and the subsoil line (usually about eighteen inches); and the third is a sample of the subsoil to a total depth of forty inches.

The method was checked up with the copper oxide combustion method and the following table gives some comparative results:

PER CENT. ORGANIC CARBON IN SOILS.

Soil No.	Soil stratum.	Copper oxide method.	Parr's method modified.	Difference.
59	Surface	3.30	3.40	+0.10
60	Subsurface	2.08	2.11	+0.03
61	Subsoil	0.45	0.54	0.09
89	Surface	3.32	3.35	0.03
90	Subsurface	1.92	1.98	+0.06
91	Subsoil	0.54	0.67	+0.13
119	Surface	3.15	3.15	+0.00
120	Subsurface	2.36	2.42	+0.06
121	Subsoil	0.65	0.74	0.09
473	Surface	0.87	0.94	+0.07
474	Subsurface	0.36	0.39	+0.03
475	Subsoil	0.12	0.13	+0.01
556	Surface	8.37	8.38	+0.01
557	Subsurface	1.48	1.64	+0.16
558	Subsoil	0.22	0.24	+0.02
661	Surface	3.93	3.96	+0.03
662	Subsurface	2.45	2.48	+0.03
663	Subsoil	0.48	0.43	−0.05
690	Surface	1.29	1.39	+0.10
691	Subsurface	0.61	0.59	−0.02
692	Subsoil	0.44	0.36	−0.08

With this method, using Parr's apparatus, one man can easily make duplicate determinations on eight soils in a day of eight hours. One man has made nineteen separate determinations in one day in this laboratory.

INACTIVE THORIUM.[1]

BY CHAS. BASKERVILLE AND FRITZ ZERBAN.

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Synopsis.—A new source of Inactive Thorium has been found in a rock from South America.

Most of the investigators working on radio-activity are of the opinion that thorium is a primarily active body, under all condi-

[1] Read before the New York Section of the American Chemical Society and published by permission of the Carnegie Institution.

tions, independently of the source from which it is obtained. K. A. Hofmann, and also the writers, arrived at the assumption that thorium is inactive *per se* and shows radio-active properties merely under certain circumstances.

One of us investigated Rutherford's thorium-X, especially for its chemical properties.[1] Through the courtesy of the Welsbach Lighting Company he obtained over 100 liters of an ammoniacal filtrate by the extraction of thoria from monazite sand, which is said to contain thorium-X. This liquid, after evaporation and ignition, left a residue showing strong radio-activity, but no trace of thorium could be detected in it. Further, by reprecipitation of a quite chemically pure thorium solution with fumaric acid, according to Metzger's method,[2] evaporation of the filtrate and ignition, a residue was obtained much more active than the precipitate. These two results can be explained only by the fact that the radio-activity of the common pure thorium preparations is not a property of thorium itself, but of a strange body associated with it.

Now, while it has been found impossible as yet to remove this additional substance thoroughly from thorium, K. A. Hofmann and Zerban did succeed in obtaining entirely inactive thorium directly from mineral sources,[3] but only from such minerals as contain no radio-active bodies at all; for instance, from Norwegian gadolinite, yttrotitanite and orthite. On the other hand, it has been found that thorium is active only when, but always when the minerals yielding it contain other radio-active substances.

In these investigations it was, also, necessary to state the presence of other radio-active bodies than thorium in monazite sand, which was said to contain only thorium as a radio-active body. Indeed, one of us detected very small amounts of uranium in five different samples of monazite sand from various localities.[4] Some time ago Clemens Winkler made some objections to the method used in this work.[5] This matter will be taken up later.

Clemens Winkler also suggested that there are uranium-free monazites, but, in the meantime, Haitinger and Peters have noted

[1] This Journal, **26**, 922 (1904).
[2] *Ibid.*, **24**, 901 (1902).
[3] *Ber. d. chem. Ges.*, **36**, 3093 (1903).
[4] *Ibid.*, **36**, 3911 (1903).
[5] *Ibid.*, **37**, 1655 (1904).

the presence of radium in monazite sand. So the radio-activity of thorium from uranium-free minerals may be explained by the presence of radium in them.

In continuing the work on the activity of thorium we analyzed a mineral, or more properly speaking, a rock, from South America which yielded perfectly and initially inactive thorium. This rock possesses a grayish color, very similar to common slate.[1] It consists mostly of barium carbonate, containing a very small percentage of thoria.

Neither the barium nor the thorium in this rock shows any radio-activity. There are no α-radiations given off, and barium within 140, thorium within 290 hours did not affect the photographic plate through black paper.[2] That our body is really thorium could be proved by the different reactions characteristic for this body: As, first, solubility of the oxalate in a hot solution of ammonium oxalate and reprecipitation of the oxalate after diluting and cooling; second, by precipitation with sodium thiosulphate, potassium iodate, fumaric acid, *m*-nitrobenzoic acid, and phenylhydrazine. The quantity of the body obtained was very small, so that we could not carry out a determination of the atomic weight. We are now occupied, however, in working with larger quantities of the rock and hope to be able soon to determine whether or not this new variety of thorium is of a simple elementary nature or capable of being resolved into the three constituents, berzelium, carolinium, and new thorium.

The important bearing these observations have on the very recent theories of radio-activity is apparent.

CONTRIBUTION FROM THE COMMITTEE ON UNIFORMITY IN TECHNICAL ANALYSIS, I.

Received October 24, 1904.

THE object of the present communication is to offer to American chemists a sketch of the reasons for the existence of the Committee on Uniformity in Technical Analysis and a statement of the policy by which it expects to be guided in seeking to remedy the present very unsatisfactory condition of analytical chemistry in at least some lines of work.

[1] We are indebted to Dr. Geo. C. Lee, of Philadelphia, for the material.

[2] Even after an exposure of 600 hours no effect upon the plate can be noted, as two subsequent experiments show.