

need be carried on only a minute or two (during which time the chlorine is preferably diverted from entering the cylinder) and then the apparatus is ready for the demonstration.

When put away, the electrolysis vessel, etc., should be filled with distilled water.

I am indebted to Dr. E. P. Schoch, of this laboratory, for the fundamental notions of this design.

J. B. LEWIS.

THE UNIVERSITY OF TEXAS,  
SCHOOL OF CHEMISTRY.

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*A Supposedly New Compound from Wheat Oil.*—While engaged in investigating the properties of bleached flours<sup>1</sup> at the University of Nebraska the writer had occasion to extract about 100 cc. of wheat oil from unbleached flour by means of ether. This oil on standing for a short time was observed to deposit a considerable number of small, white crystals. Some of these crystals were removed from the oil by suction and washed on the filter with ether in which they are not readily soluble. The crystals so obtained were oily to the touch and melted to a colorless liquid at 93–94°. By recrystallization from absolute alcohol this melting point was raised to 96.5°.

That the compound contained nitrogen was proven by the usual tests.

Some attempts were made to saponify the compound by boiling with 10 per cent. alcoholic potash but the melting point remained unchanged.

At this point the investigation was broken off, owing to the fact that it was not directly concerned with the bleaching of flours. There was not obtained sufficient of the compound for a complete investigation although it is hoped by the writer to prepare larger quantities in the near future.

ROSS A. GORTNER.

CHEMICAL LABORATORY,  
UNIVERSITY OF TORONTO,  
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*Determination of Phosphorus in Ash Analysis.*—In our article in the March number of THE JOURNAL, attention was called to the fact that when the ash of cereals is burned at too high a temperature or fused, the method of determining phosphoric acid by extracting the ash with hot nitric acid gave an apparent loss of the phosphorus, although no appreciable loss in the ash occurred. More recent investigations show that the loss is not entirely due to volatilization of the organic phosphorus as was supposed, but to a conversion of the phosphorus to a form which is not precipitated by ammonium molybdate.

The following results show that even boiling the ash with strong nitric acid for an hour is not quite sufficient to recover all of the phosphorus.

<sup>1</sup> Alway and Gortner, THIS JOURNAL, 29, 1503 (Oct., 1907).

Whenever the ash has been burned at too high a temperature it is necessary therefore to determine the phosphoric acid in the ash by means of the Neumann method (digestion with 5-10 cc. of a mixture of equal parts concentrated sulphuric and nitric acids).

These results show that neither phosphoric acid nor ash is appreciably volatilized on high ignition, but that to recover the converted phosphoric acid from the ash, the Neumann or an equally efficient method must be used.

## RESULTS.

Sample.	Ash.		Phosphoric acid.			
	Low redness. (1)	Bright redness. (2)	Hot nitric acid. (1)	Hot nitric acid. (2)	Boiled 1 hr. Nitric acid. (2)	Neumann method. (2)
A. . . . .	2.11	2.08	1.10	0.42	0.99	1.09
B. . . . .	2.18	2.16	1.16	0.48	1.07	1.16

SHERMAN LEAVITT,  
J. A. LECLERC.

LABORATORY OF VEGETABLE PHYSIOLOGICAL CHEMISTRY,  
BUREAU OF CHEMISTRY, WASHINGTON.

## REVIEWS.

## REVIEW OF INORGANIC CHEMISTRY FOR 1907.

BY JAS. LEWIS HOWE.

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The most important paper which has appeared in inorganic chemistry during 1907 is the lecture which was delivered before the German Chemical Society by Werner, on "The Problems of the Constitution and Configuration of Inorganic Compounds" (*Ber.*, 40, 15). The subject was treated under five heads, *viz.*: constitution of the metal-ammonia salts; constitutional relations between the metal-ammonia salts and complex salts; relations between the metal-ammonia salts and the hydrates; the special relations of complex inorganic radicals; polynuclear metal-ammonia salts. The paper, which unfortunately does not admit of abstraction within the limits of this review, gives the latest and most comprehensive views of the author, which are winning general acceptance, as offering the only rational theory of the constitution of complex inorganic compounds. The application of Werner's view to many classes of compounds is as yet far from clear or satisfactory, but an important beginning has been made which bids fair to be second only in importance to the doctrine of valence itself.

Two other important papers from a theoretical standpoint have been by Pfeiffer and by Werner on the theory of hydrolysis and the theory of bases (*Ber.*, 40, 4036, 4133). According to the ideas of these chemists hydroxo-compounds, that is, those containing the undissociated hydroxide group, when treated with acids give salts, not by substitution as generally assumed, but by addition, and the salt formed is primarily an 'aquo' salt, though it may secondarily go over into an anhydrous