

1. Action of Hydrochloric Acid Gas
Upon Arsenates and Nitrates.

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2. The Atomic Weights of Nitrogen
and Arsenic.

Thesis

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BY

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INTRODUCTION.

It has only been in recent years that any degree of attention has been directed to the separation of metals, or their oxides, by the different volatility shown by them when heated in the vapors of hydrochloric acid.

Debray* obtained the exceedingly volatile compound molybdenyl dihydroxy-dichloride ($\text{Mo O}_2 (\text{OH})_2 \text{Cl}_2$) when hydrogen chloride was conducted over perfectly dry molybdenum trioxide; but the fact was never utilized in the analytical way until Pechard† and others‡ made it the basis of a separation of molybdic from tungstic acid. The same idea likewise served for the determination of the atomic weight of molybdenum§, adding a result in every respect comparable with those deduced by other methods.

Vanadic acid || also was found to be completely eliminated from its salts, when the latter, at a gentle heat, were exposed to the action of the acid gas.

The investigations here alluded to have suggested a study of other elements in similar directions. Thus nitrates, arsenates, phosphates and the trioxide of antimony have been drawn into the field of experiment and the results obtained from them constitute an essential portion of the present research.

*Compt. rendus 46, 1098. Liebig's Annalen 108, 250.

†Compt. rendus 114, 173.

‡Z. f. anorg. Chemie 4, 236.

§Z. f. anorg. Chemie 4, 236.

|| Z. f. anorg. Chemie 7, 41.