

**RESEARCHES UPON THE ATOMIC  
WEIGHTS OF CADMIUM,  
MANGANESE, BROMINE, LEAD,  
ARSENIC, IODINE, SILVER  
CHROMIUM AND PHOSPHORUS**

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Researches upon the atomic weights of cadmium, manganese, bromine, lead, arsenic, Iodine, silver chromium and phosphorus by Gregory Paul Baxter

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**GREGORY PAUL BAXTER**

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THE ATOMIC WEIGHTS  
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BY  
GREGORY PAUL BAXTER

IN COLLABORATION WITH  
M. A. HINES, H. L. FREVERT, J. HUNT WILSON, F. B. COFFIN,  
G. S. TILLEY, EDWARD MUELLER, R. H. JESSE, Jr.,  
AND GRINNELL JONES



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## PREFACE.

This collection of papers upon the atomic weights of certain common elements embodies the results of researches of which the experimental work has been carried on in the Chemical Laboratory of Harvard College during the past six years. All of the papers have already been published separately both in American and in German periodicals, and references to the places of publication are given at the beginning of each article.

In reprinting the papers in the present form the only changes of importance which have been made are due to more exact knowledge of the fundamental atomic weights upon which the calculations depend. Many recent investigations, especially that upon the analysis of lithium chloride and perchlorate by Richards and Willard,<sup>1</sup> have shown that the atomic weight of silver, referred to oxygen 16.000, is certainly as low as 107.880, and possibly as low as 107.870. Since the International Committee upon Atomic Weights at the date of writing have chosen the higher of these values, the calculations have been based upon the value 107.880 for silver, the atomic weights of chlorine and bromine being assumed to be 35.457<sup>2</sup> and 79.916<sup>3</sup> respectively. The effect of a change from 107.880 to 107.870 in the atomic weight of silver is, however, plainly indicated in each instance.

In the case of cadmium the subject-matter of two papers has been rearranged in a manner differing considerably from that of the original publication. In the case of iodine the subject-matter of two papers has been combined in one. In all other cases the presentation is essentially that of the original publication.

Generous grants from the Carnegie Institution of Washington have been of the greatest assistance in the progress of this work, while grants from the Cyrus M. Warren Fund for Research in Harvard University have materially aided all the investigations.

G. P. BANTER.

<sup>1</sup> *Publications of the Carnegie Institution*, No. 125 (1910); *Jour. Amer. Chem. Soc.*, 32, 4.

<sup>2</sup> *Publications of the Carnegie Institution*, No. 28 (1905); *Jour. Amer. Chem. Soc.*, 27, 459; *Zeit. anorg. Chem.*, 47, 56.

<sup>3</sup> *Proc. Amer. Acad.*, 42, 201 (1906); *Jour. Amer. Chem. Soc.*, 28, 1322; *Zeit. anorg. Chem. Soc.*, 389. (See page 49.)





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