

SCIENCE

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THE NATURE OF THE CHEMICAL
ATOM¹

CONTENTS

<i>The Nature of the Chemical Atom</i> : DR. WILLET L. HARDIN	655
<i>On the Utility of Field Labels in Herbarium Practise</i> : DR. E. D. MERRILL	664
<i>The National Academy of Sciences</i>	670
<i>Scientific Notes and News</i>	671
<i>University and Educational News</i>	674
<i>Discussion and Correspondence</i> :—	
<i>Scientific Appointments under the Government</i> : PROFESSOR ARTHUR GORDON WEBSTER. <i>Preparation for Medicine</i> : DR. CECIL K. DRINKER. <i>The Auroral Display of August 26</i> : F. ALEX. McDERMOTT, J. E. HYDE, S. STILLMAN BERRY, WILMEE G. STOVER, JOHN C. HESSLER, H. B. LATIMER, R. R. HUDELSON, CARL ZAPFFER, MARCUS I. GOLDMAN, ARTHUR BEVAN, W. L. FOSTER, R. H. CHAPMAN, M. H. JACOBS	675
<i>Scientific Books</i> :—	
<i>Needham and Lloyd on the Life of Inland Waters</i> : PROFESSOR E. A. BIRGE. <i>Child on Individuality in Organisms</i> : PROFESSOR H. V. NEAL.	683
<i>Proceedings of the National Academy of Sciences</i>	685
<i>The Auriferous Gravels of the Sierra Nevada</i>	686
<i>Special Articles</i> :—	
<i>On the Differential Effect of Certain Calcium Salts upon the Rate of Growth of the Two Sexes of the Domestic Fowl</i> : DR. RAYMOND PEARL. <i>The Present Status of the Dolomite Problem</i> : DR. FRANCIS M. VAN TUYL.	687

MSS. intended for publication and books, etc., intended for review should be sent to Professor J. McKeen Cattell, Garrison-on-Hudson, N. Y.

THERE is probably no subject in physical science that has received more attention or produced a more profound influence on the theories of chemistry and physics during the last few years than that of the constitution of the atom. The problem has been attacked, not only by many of the foremost chemists and physicists of the world, but also by many eminent astronomers and mathematicians. It is one of the most difficult as one of the most important problems with which the chemist is concerned.

The conception of the atom became an important factor in chemical science early in the nineteenth century, when Dalton discovered the laws of definite and multiple proportions and announced his well-known atomic theory. He found that when one chemical element combines with another, it combines in a definite proportion or some integral multiple of that proportion. It was only natural that Dalton should have assumed this definite proportion, which he called an atom, to be an indivisible ultimate particle; and it was only natural that this theory should have prevailed throughout most of the nineteenth century, for, among the most prominent characteristics of the atom are its individuality and its permanency. It behaves in many respects like an indivisible particle.

Recent investigations, however, into the phenomena of the cathode rays, Lenard

¹ An address delivered at a meeting of the Southern California Section of the American Chemical Society, Los Angeles, California, Friday evening, October 22, 1915.

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