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<i>Models of the Physical Universe:</i> PROFESSOR RICHARD C. TOLMAN	367	<i>Scientific Apparatus and Laboratory Methods:</i> <i>A Rapid Method for Obtaining Single Spore Cultures of Molds:</i> H. C. GREENE and PROFESSOR E. M. GILBERT. <i>A Method for Determining the Volume of Small Pieces of Tissue:</i> DR. H. S. RUBINSTEIN. <i>Aloxite as an Abrasive for Grinding Bone Sections for Histological Purposes:</i> EDMOND J. FARRIS	388
<i>Obituary:</i> <i>Wilson Alwyn Bentley:</i> W. J. HUMPHREYS. <i>Memorials. Recent Deaths</i>	374	<i>Special Articles:</i> <i>The Centriole of the Amphibian Leucocyte:</i> DR. ARTHUR W. POLLISTER. <i>Leaf Temperatures of Cotton Plants with Phymatotrichum Root Rot:</i> DR. WALTER N. EZEKIEL AND DR. J. J. TAUBENHAUS	390
<i>Scientific Events:</i> <i>Macaulay Institute for Soil Research; The Edward Orton, Jr., Ceramic Foundation; Marine Expedition to the West Indies; The Pullman Meeting of the Pacific Division of the American Association</i>	375	<i>Science News</i>	8
<i>Scientific Notes and News</i>	377		
<i>Discussion:</i> <i>Biological Abstracts and the College:</i> DR. HOPE HIBBARD. <i>Thallium Poisoning:</i> DR. MARCUS WARD LYON, JR. <i>Extra-Pancreatic Insulin in the Dog after Pancreatectomy?:</i> DR. SAMUEL SOSKIN. <i>The Muskrat, a New Host for Paragonimus:</i> DONALD J. AMEEL. <i>Conical Snow:</i> THE LATE WILSON A. BENTLEY. <i>Relations between Fundamental Physical Constants:</i> PROFESSOR RAYMOND T. BIRGE	380		
<i>Special Correspondence:</i> <i>The Philadelphia Institute for Medical Research:</i> PROFESSOR JUDSON DALAND	383		
<i>Quotations:</i> <i>On the Relation between the Expansion and the Mean Density of the Universe</i>	384		
<i>Reports:</i> <i>Science Essays by High School Pupils:</i> DR. OTIS W. CALDWELL	385		

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MODELS OF THE PHYSICAL UNIVERSE¹

By Professor RICHARD C. TOLMAN

CALIFORNIA INSTITUTE OF TECHNOLOGY

INTRODUCTION

FIRST of all, I wish to express my thanks to Professor Boodin and to Professor Miller for suggesting that the Philosophical Union might be interested in some of the recent work of theoretical physicists in the field of cosmology. More than two thousand years ago, at the instigation of Aristotle, scientific expeditions were financed by Alexander the Great to explore the countries which he had conquered and report their findings to the great philosopher and his school²; and in coming as a scientist to report to you—who are philosophers—I feel that I am acting in accordance with an honorable and desirable tradition.

Nevertheless, certain changes have occurred in the relations between science and philosophy since the

golden time of Aristotle which must not be overlooked.

In the first place, philosophy and science are no longer a united study, and it is not the philosophers but the scientists themselves who now organize and direct their own explorations. Indeed, I think it would have been an unhappy day for science if Galileo had not broken from the Aristotelian tradition, and in any case, whether for better or worse, science has long since issued a declaration of independence from philosophy which can not now be disregarded.

In the second place, the developments of philosophy and science have in the meantime been so extensive and complicated that both disciplines and even their separate branches have been forced to invent special technical languages for the discussion of their subject-matters. Indeed, I have heard a humorous, and I trust untrue, definition of philosophy which

¹ Address before the Philosophical Union, University of California at Los Angeles, February 17, 1932.

² See Pliny, "Hist. Nat.," VIII, 16.

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