

SCIENCE

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FRIDAY, JANUARY 23, 1903.

THE UNIVERSE AS AN ORGANISM.*

CONTENTS:

<i>The Universe as an Organism</i> : PROFESSOR S. NEWCOMB	121
<i>Plans of the New Buildings for the National Bureau of Standards</i> : PROFESSOR E. B. ROSA	129
<i>American Philosophical Association</i> : PROFESSOR H. N. GARDINER	140
<i>Scientific Books</i> :—	
<i>Baldwin's Dictionary of Philosophy and Psychology, Vol. II.</i> : PROFESSOR FRANK THILLY	143
<i>Scientific Journals and Articles</i>	145
<i>Societies and Academies</i> :—	
<i>Ohio State Academy of Science</i> : PROFESSOR E. L. MOSELEY. <i>North Carolina Academy of Science</i> : F. S. <i>Northeastern Section of the American Chemical Society</i> : ARTHUR M. COMEY. <i>Torrey Botanical Club</i> : W. A. CANNON; PROFESSOR EDWARD S. BURGESS. <i>Columbia University Geological Journal Club</i> : H. W. SHIMER	145
<i>Discussion and Correspondence</i> :—	
<i>First Record of the Pollack Whale (Balænoptera borealis) in the Western North Atlantic</i> : FREDERICK W. TRUE. <i>A Second Bishop's Ring around the Sun and the Recent Unusual Twilight Glows</i> : HENRY HELM CLAYTON	150
<i>Shorter Articles</i> :—	
<i>Some Corrosions found on Ancient Bronzes</i> : WALDEMAR KOCH. <i>Note on the Circular Swimming of Sand-dollar Spermatozoa</i> : G. M. WINSLOW	152
<i>Notes on Entomology</i> : NATHAN BANKS	154
<i>Botanical Notes</i> :—	
<i>Pharmacognosy; Amateur Systematic Botany</i> : PROFESSOR CHARLES E. BESSEY	156
<i>Recent Zoopaleontology</i> : H. F. O.	157
<i>Scientific Notes and News</i>	158
<i>University and Educational News</i>	160

IF I were called upon to convey, within the compass of a single sentence, an idea of the trend of recent astronomical and physical science, I should say that it was in the direction of showing the universe to be a connected whole. The farther we advance in knowledge, the clearer it becomes that the bodies which are scattered through the celestial spaces are not completely independent existences, but have, with all their infinite diversity, many attributes in common.

In this we are going in the direction of certain ideas of the ancients which modern discovery long seemed to have contradicted. In the infancy of the race, the idea that the heavens were simply an enlarged and diversified earth, peopled by beings who could roam at pleasure from one extreme to the other, was a quite natural one. The crystalline sphere or spheres which contained all formed a combination of machinery revolving on a single plan. But all bonds of unity between the stars began to be weakened when Copernicus showed that there were no spheres, that the planets were isolated bodies, and that the stars were vastly more distant than the planets. As discovery went on and our conceptions of the universe were

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