

# SCIENCE

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<i>The Cell and the Problem of Organization</i> : PROFESSOR EDMUND W. SINNOTT .....	41	<i>Scientific Books:</i> <i>Charles Darwin</i> : PROFESSOR T. D. A. COCKERELL. <i>Convergence</i> : PROFESSOR J. L. WALSH .....	59
<i>The American Association for the Advancement of Science: Mathematics, and Poetry and Drama</i> : PROFESSOR RAYMOND CLARE ARCHIBALD .....	46	<i>Special Articles:</i> <i>A Method of Extinguishing the Reflection of Light from Glass</i> : DR. KATHARINE B. BLODGETT. <i>City Air Searched for Sulfur Fumes</i> : JOHN F. McMAHON. <i>The Nature of the Carbohydrate in the Gonadotropic Substance of Pregnancy Urine</i> : DR. SAMUEL GURIN, DR. CARL BACHMAN and DR. D. WRIGHT WILSON .....	60
<i>Obituary:</i> <i>Edward Murray East</i> : PROFESSOR R. A. EMERSON .....	51	<i>Scientific Apparatus and Laboratory Methods:</i> <i>Intravenous Infusion Pump</i> : DR. GERHARD KATZ. <i>An Easy Method for Making an Index</i> : PROFESSOR LORUS J. MILNE .....	63
<i>Scientific Events:</i> <i>The Academy of Sciences of the Soviet Union; Jewish Physicians in Germany; The Council for Pediatric Research; The Annual Report of the Secretary of the Smithsonian Institution; Award to Professor Wood of the Rumford Medal of the Royal Society</i> .....	52	<i>Science News</i> .....	8
<i>Scientific Notes and News</i> .....	54		
<i>Discussion:</i> <i>Biological Research Films</i> : DR. WILLIAM R. DURYEE and PROFESSOR ROBERT CHAMBERS. <i>Another Treatment of the Units for <math>F = ma</math></i> : DR. NIEL F. BEARDSLEY. <i>The Movement of Water from Concentrated to Dilute Solutions through Liquid Membranes</i> : HANS M. CASSEL and GILBERT D. MILES. <i>The American Association of Scientific Workers</i> : DONALD HORTON .....	57		

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## THE CELL AND THE PROBLEM OF ORGANIZATION<sup>1</sup>

By Professor EDMUND W. SINNOTT

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THE third decade of the nineteenth century may well be regarded as the period in which the science of biology began to assume its modern form. The great conceptions of protoplasm as the physical basis of life, of the cell as the unit of plant and animal structure and of the nucleus as an integral part of the cell were then taking shape in the minds of biologists and were beginning to receive their first published expression. My predecessor of seven years ago celebrated the discovery of the nucleus by Robert Brown in 1831. The present year is generally accepted as marking the centennial of a still more important biological idea, that the cell is the unit of structure in all organisms. It was just one hundred years ago that Schleiden's famous paper was published. We need not attempt here to determine what part of the credit for the

formulation of the cell theory should be given to Schleiden and Schwann and how much to earlier students of the minute structure of living things. The year 1838 is at least a convenient point from which to measure a century, and 1938 thus provides a natural occasion on which to evaluate the theory in terms of present-day biology. Such is the purpose of a number of scientific programs, at this meeting of the American Association and elsewhere.

It is not my intention here to undertake the ambitious task of reviewing the significant part which the cell theory has played in the history of morphology, physiology, genetics and indeed of every biological discipline. I do propose, however, to discuss briefly with you certain of its implications for one particular field—that most baffling of biological enigmas, the problem of the organized development of living things. An organism is not static. It continually changes, but in such a regular and orderly fashion

<sup>1</sup>Address of the retiring president of the Botanical Society of America at Richmond, Virginia, December 29, 1938.

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