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THE CELL AND THE PROBLEM OF ORGANIZATION

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

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