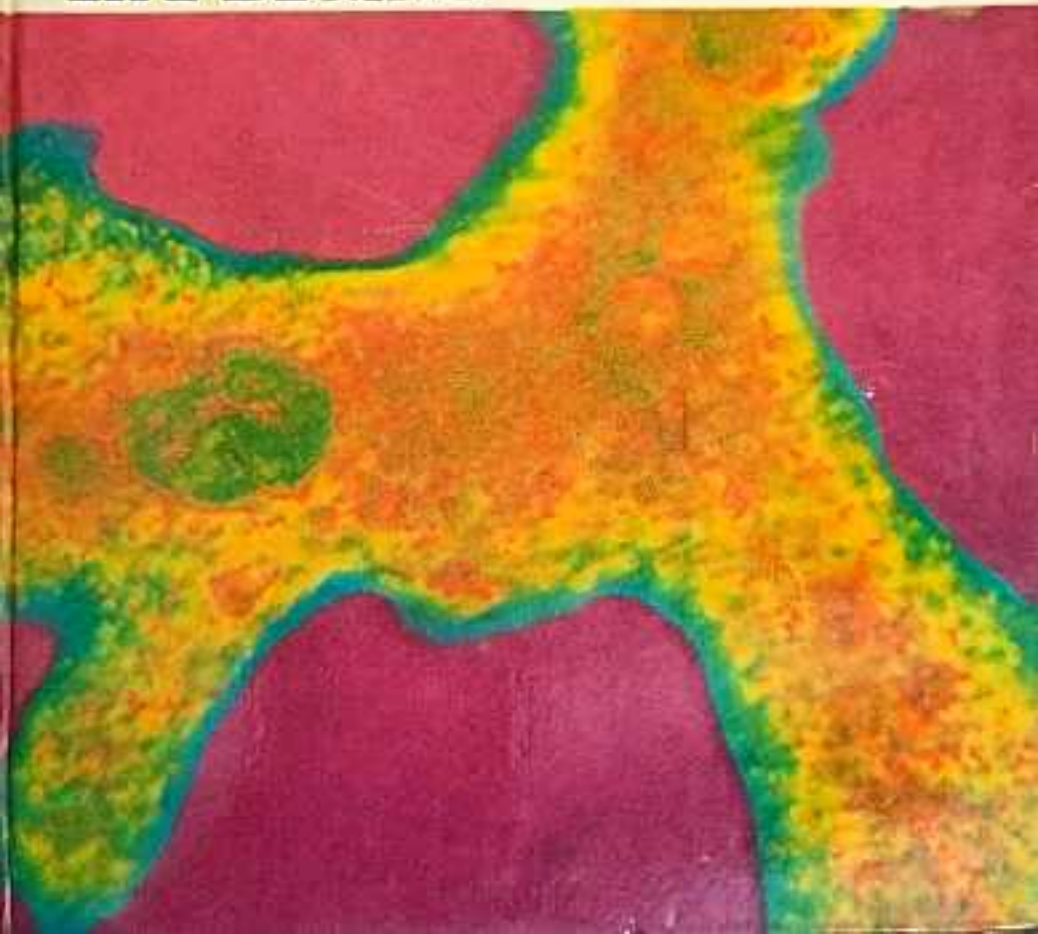
The Marshall Cavendish Learning System: Biology

WHERE LIFE BEGINS



WHERE LIFE BEGINS

Fundamentals of Biology

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Introduction

by J.D. Carthy

Scientific Director, Field Studies Council

THE STUDY OF biology is a search for an answer to the question—what is Life? In recent years many discoveries have been made which shed new light on what is the essential nature of the living process. In this book the reader is given a picture of how far biologists feel that they are able to answer this age-old question.

First we must distinguish between the living world and the rest of existence. In the first chapter we examine why living things should be different from the non-living. Into them the 'breath of life', the 'animus' had been breathed, or so the ancients thought. The 'vital spark', the 'élan vital' are all synonyms for the mysterious quality of living. To-day we are beginning to be able to see in detail what it is that makes living things different from non-living. We can begin to look below the superficial differences of movement and growth and the like to the mechanisms which are shared by all living things. As chapter three shows, certain chemical substances are unique to living things and form their very structure but it is their arrangement into microscopic cells, very small but with highly complicated structure, which is so characteristic of animals and plants.

It is in these cells that the chemical processes must take place that allow reproduction and growth and the release of energy. Most of the rest of this book is concerned with the new information about the cell and its special structures which allow it to carry out the life functions. For armed with the electron microscope and sophisticated biochemical techniques scientists are now able to describe how the molecules themselves are built-up to make a cell. The way in which the blue-print for a cell is contained in special large molecules is described in chapter two. This is the very essence of reproduction, the knub of living. But even when all the workings of the cell are unravelled, who knows but that there may yet be some other ingredient of life still to be found and even now unsuspected.

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Where life begins

What is life? In recent years many discoveries have been made about the nature of the living process about what, in fact, constitutes 'Life'. This book gives a broad picture of our present knowledge.

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