

AND MUCH MORE TO TELL

The 1968 Annual Report of the Division of Biology contains some 225 research reports by nearly 200 investigators. Clearly the preceding articles represent but a selected sample of the many and diverse researches currently probing the frontiers of biology in the Caltech laboratories.

Professor Albert Tyler has continued his important studies of the event that defines the creation of every individual—the fertilization of the egg. Professor Giuseppe Attardi is actively exploring the functions of the mitochondrial DNA described in Professor Jerome Vinograd's article in this issue, and Professor Daniel McMahon studies the origin and development of these mitochondria and of chloroplasts. Professor Charles Brokaw inquires into the bases of cellular motion: How do cilia beat and flagella propel?

Professor William Dreyer probes the detailed structures of the antibodies that confer immunity and of the proteins that form the protective membranes around all cells, while Professor Robert Sinsheimer analyzes and inquires into the detailed structures of DNA and RNA and the means whereby such molecules can replicate. In addition to gene replication there is gene conversion, and Professor Sterling Emerson has developed special techniques to analyze this process, free of selective bias.

Cell differentiation, based upon differential DNA expression as described in Professor James Bonner's article in this issue, can be

studied at many levels. Professor Norman Horowitz seeks to understand the adaptive differentiation represented by the formation of a fruiting body in *Neurospora* in response to certain environmental conditions. Biochemical changes during the development of *Drosophila* are studied by Professor Herschel Mitchell, while Professor Edward Lewis studies the genetic bases of developmental stages in the same organism.

Aplysia, the sea hare, has a central ganglion with large, identifiable neurons, and Professor Felix Strumwasser wonders about the distribution of function among these cells, about the biochemical basis of their rhythmic activities and the origin of their electric pulses. The structural and physiological interactions of neurons in the central nervous system challenge Professor Anthonie van Harreveld. In the visual response to images stabilized on the retina under varied conditions, Professor Derek Fender has developed a powerful tool for the analysis of visual perception.

A diverse group of scientists—using a kaleidoscopic array of techniques to ask a galaxy of questions—they are nonetheless united by their open curiosity about, their fascination with, and their profound respect for the extraordinary phenomena of life.

Professor Albert Tyler's sudden and unexpected death on November 9, 1968, has deprived the biology division of one of its ablest faculty members whose career spanned the entire 40 years of biology at Caltech.