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New Institute for Biological Studies at San Diego

Science is an accumulative enterprise. That is a reason why the various branches of science experience their major developments successively rather than simultaneously.

A certain amount of mathematical reasoning had to occur before mechanics could progress. Much advance had to be made in the more mechanical aspects of physics before electrical theories could go forward. A great deal of mathematics and physics and chemistry had to be developed before the biological sciences could emerge out of their more descriptive stages into the present stage.

It is not difficult to understand why the whole range of the physical sciences experienced such a dramatic forward surge over the century from 1850 to 1950. For the same basic reasons it is clear that the century beginning in 1950 will see the conquering forward surge of biology.

The beginning of this biological era has already, and unquestionably, occurred. We have gained marvellous new knowledge, much of it at the level of molecular detail, of what goes on inside individual cells. We are beginning to analyze the interrelations between enzymology, genetics, and immunology. We can see vaguely ahead the way into an understanding of the functioning of the central nervous system.

It is not possible to overestimate the promise and power of the knowledge that will be gained in the next 50 years concerning the basic character of life processes. In the most practical terms, our position vis-à-vis disease of all sort should be as different, 50 years from now, as intercontinental telephony is different from a whispered voice.

Even more significant than practical results of this sort, moreover, will be the contribution to man's inner life of the mind and the spirit. For at last man will begin to understand his own nature, his place in the total universe of living and nonliving matter, his essential oneness with the star, the cell, and the atom.

These triumphs will not be brought about by setting up "projects" or by financing crash programs. They will be brought about by giving flexible freedom to scholarly scientists, by encouraging them to undertake imaginative basic research on the essential nature of the life processes, however long-range, however "impractical," these studies may appear to be.

This kind of science, moreover, ends up by being something more than science. For as the biological nature of man becomes discernible, the closer and more fruitful will become the interconnections with humanistic, philosophical, artistic, and ethical ideas.

These are, in brief, the reasons why this is a good moment to expand and intensify biological research. A new Institute for Biological Studies, however, is justified only if it offers a quality of opportunity not to be gained by the expansion of existing facilities. Those responsible for planning the new institute now being built are determined to create an atmosphere of unparalleled freedom and flexibility, within which the controls will rest with the scholar-scientists but without any burden of administrative duties, without any handicap of outmoded departmental structure, and with the closest association between scientists who are humanists, and humanists with an informed appreciation of science.—WARREN WEAVER, *Alfred P. Sloan Foundation, New York*

(Erratum: The figure given in the editorial of 11 May for the minimum salary of a full professor at Harvard, \$18,750, is an average salary. The minimum salary, including fringe benefits, is \$13,860.)