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## THE SCIENCE OF BIOLOGY AND THE FUTURE OF MAN<sup>1</sup>

By Professor ANTON J. CARLSON

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THE title for my discussion is too formidable for me, and, I believe, for every other biologist, that is, if we propose to stick strictly to the known and the probable. However, I think the fundamental issue before us is the significance and the service of the science of biology in man's future biologic, social and economic development. And that raises another fundamental question. I think we are all agreed on this point: that understanding should be a significant factor for to-morrow's man, both for him as an individual and for him as an effective factor in the social environment. The only question is—to what degree is it possible to bring this about? That is primarily a question of development of control by the higher centers of our nervous system, that is, the cerebrum, over the primitive lower center of the brain, the

<sup>1</sup>Abstract of an address given before the National Association of Biology Teachers on September 16, at the Cleveland meeting of the American Association for the Advancement of Science.

hypo-thalamus. For biology of sub-human species and the history of man to date show that human actions have been determined more by the emotions, and the hypo-thalamus than by understanding, and reason based thereon.

I think at this point we biologists should be more than ready to confess that our science, to-day and more so to-morrow, depends on our sister sciences, chemistry and physics. We advance or fall together. It is perfectly true that the old style descriptive biology, classification of species, etc., can be accomplished with little or no background or understanding of either chemistry or physics; but functional biology, dynamic biology, as it has developed in the last 50 years and as it will further develop to-morrow, is very intimately dependent on parallel developments in the physical sciences. It is functional biology which constitutes and determines the behavior of man. This is the more difficult phase of biology. This is the

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