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# *Symposium on* The Antimetabolites—Their Modes of Action and Therapeutic Implications*

An antimetabolite is an inactive compound sufficiently similar in structure to an essential metabolite so as to tend to replace it in biological systems, thus bringing about a "conditioned" deficiency of the metabolite. Antimetabolites are of considerably more than academic interest to the practitioner of medicine.

There are naturally occurring antimetabolites, as well as those which are the products of the laboratory. These substances provide the basis for the modern chemotherapy of infectious diseases (i.e., the sulfonamides and the antibiotics), the most effective therapy for many infections ever known to mankind. Through their use we are learning more and more about the metabolic requirements of normal and diseased tissues. As a group they constitute one of the best tools available for the study of the metabolism of malignant growths, and indeed, have been put to practical use in the treatment of some malignancies, particularly the leukemias, with some benefit. These compounds have made it possible to demonstrate that man requires both vitamin $B_6$ and pantothenic acid—an advance which in the instance of vitamin $B_6$ led very quickly to the identification of a wide-spread convulsive disorder in infants who had been maintained on a certain proprietary baby food, as due to vitamin $B_6$ deficiency, and to the discovery that the polyneuropathy occurring in patients with tuberculosis receiving large doses of isoniazid could be prevented by the simultaneous administration of vitamin $B_6$. The syndrome of vitamin $B_6$ deficiency in man now is fairly well known and that of pantothenic acid deficiency is being clarified.

Rapid progress is being made in the study and use of the antimetabolites. It seems inevitable that they will become increasingly more utilized in the practice of medicine, not only for the treatment of infectious dis-

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cases and infestations, but also for the study, control, and correction of metabolic aberrations.

For the most effective therapeutic use of the antimetabolites, the physician must comprehend the metabolic requirements of his patient, the metabolic requirements of the infecting organism or abnormal tissue, and the modes of action of the various structural analogues. One of the purposes of the symposium on antimetabolites, held in New York City on March 1, 1955, was to stimulate interest and research in medical applications of accumulated knowledge in some of the less generally well known aspects of this field. Another purpose was to provide the practitioner of medicine and nutrition with information on a most important and rapidly growing branch of medicine which, otherwise, might not be readily accessible to him. It is hoped that publication of the proceedings of the symposium in this issue of the JOURNAL will further advance these purposes.

We take this occasion to thank the speakers for their contributions, which assured the success of the symposium, and we express our gratitude to Dr. Paul L. Day and Dr. Robert W. Heinle, the very able co-chairmen of the symposium.

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