SOME NEW ASPECTS OF THE RELATIONSHIP OF CHEMICAL STRUCTURE TO BIOLOGICAL ACTIVITY*

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Although for many years it has been recognized that relationships exist between the chemical structures of certain compounds and their pharmacological properties, those interdependencies1 which have been observed have served more to correlate existing data in many isolated sectors of the field of drug action than to serve as guideposts on the road of medicine and research ahead. Therefore it has seemed desirable to examine some of the facts recently uncovered in nutritional research in an effort to gain new vantage points from which to survey the field of the relationship of chemical structure to biological activity. From these vantage points it may be possible to see some of the roads along which future progress may be made.

Much of the material from which conclusions will be drawn in this paper had its origin in the observation of Woods,2 who in 1940 reported that the bacteriostatic action of sulfanilamide was reversed competitively by p-aminobenzoic acid. These two antagonistic substances are very closely related structurally, since they differ only in the fact that the sulfonamide group of the former is replaced by a carboxyl group in the latter. The hypothesis was

1 Thus while many studies have been made of the relationship of such factors as the length of side chains to a given biological activity in a series of compounds, these studies have followed the original empirical discovery of an active member of the series.

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