These chemical changes are so similar in these three chemical reactions that one should expect like variation in pharmacological action in changing from free to conjugated acid. To be more explicit, if glycocoll, by combining chemically with benzoic acid, render the latter less active, then one should expect glycocoll combining with salicylic or with cholic acid to produce a similar pharmacological change. I have instituted some researches in support of this theory.

Glycocoll as the Defensive Agent Against Poisoning by Benzoic Acid.

If benzoic acid is administered in small quantities it is excreted in the urine as hippuric acid. The latter compound is quite soluble and almost inert. The increase in solubility aids excretion. Again, in young herbivorous animals fed on milk, very little hippuric acid appears in the urine, as is the case in man. However, as soon as they begin to feed on grass then hippuric acid is excreted in considerable amount. We may ask ourselves the question, why does this change take place? The answer is, no doubt, that the animal is unable to completely oxidize many of the stable aromatic compounds present in grass. It is, however, capable by oxidizing side drains, etc., of converting them into benzoic acid which are picked up by the glycocoll and excreted as hippuric acid. The toxic effect of the benzoic acid is thereby, to a great extent, neutralized. Glycocoll should, therefore, be considered a defensive agent, and the excretion of hippuric acid in large quantities by herbivors as an obligate condition.

Glycocoll as a Defensive Agent Against Poisoning by Salicylic Acid.

When salicylic acid is given internally to an animal it combines at least in part with glycocoll, forming salicyluric acid, a compound analagous in composition to hippuric acid. Now as hippuric acid is almost inert, one should expect salicyluric acid to be at least less active than salicylic acid. If this be true, the formation of salicyluric acid would have an important bearing on the pharmacological action of salicylic acid. Again, as glycocoll is such an important cleavage product of certain foodstuffs, such as gelatine, one might expect the feeding of gelatine or the administration of pure glycocoll by the mouth or subcutaneously to increase the formation of salicyluric acid. These considerations suggested to me that