nicotinic acid by sheep on various regimens are average values for 3 consecutive 24-hour collections. While there is considerable variation in the amount of nicotinic acid excreted in the urine the level is not essentially different, irrespective of whether or not the diet is deficient. Supplementing the deficient diet with nicotinic acid augmented the excretion. The most probable explanation of the continued excretion of nicotinic acid by sheep on a diet deficient in this constituent is that this species can synthesize it either in its tissues or it is formed in the rumen by microorganisms, a process analogous to the synthesis of thiamin, riboflavin, B_6, and pantothenic acid.[4]

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BREAKDOWN OF SULFANILAMIDE MOLECULE BY ULTRA-VIOLET IRRADIATION OR CHEMICAL OXIDATION

IN the course of some experiments with ultra-violet irradiation it was observed that dilute aqueous solutions of sulfanilamide became more acid (glass electrode or methyl red as pH indicator). This was taken as an indication of oxidation of the sulfonamide group with liberation of acid sulfur radicals. Proof of a breakdown of the molecule was obtained in that irradiated solutions showed the presence of ammonia by reacting strongly to Nessler's reagent, and of inorganic sulfur by giving a precipitate with barium chloride in acid solution. That the free amino group is also affected has been previously shown by Ottenberg and Fox[1] by a decrease in the diazo reaction under such conditions. By the use of light filters the most effective wave lengths were found to be below 270 mμ, the same region of the spectrum shown by Fox[2] to bring about the colored products.

The amount of sulfur split off was a function of the length of irradiation. When aqueous solutions of sulfanilamide containing 40 mg per cent. were irradiated by a Hanovia Mercury Arc Lamp at 20 cm distance for 2, 4, 8 and 16 minutes the amounts of sulfur split off were 8.6, 16.1, 29.1 and 40.8 per cent., respectively, of the total amounts present. Varying the concentration of sulfanilamide from 20 to 100 mg per cent. caused only slight variations in the total amounts of inorganic sulfur recovered after a uniform exposure of 10 minutes.

Irradiation of the ortho and meta isomers of sulfanilamide, of acetyl sulfanilamide and of sulfanilic acid for 10 minutes under the above condition did not bring about similar changes, except for the liberation of some ammonia with sulfanilic acid.

Oxidation of sulfanilamide by chemical agents has been carried out by Shaffer[3] whose attention was directed to the amino group. Preliminary experiments have shown that the oxidation of dilute aqueous solutions by ferric chloride and hydrogen peroxide is also attended by the liberation of ammonia and inorganic sulfur. The amount of sulfur split off was likewise dependent upon the amount of iron added, indicating that the process is not a catalytic reaction.

After standing at room temperature for 18 hours, 400 cc of an aqueous solution containing 100 mg of sulfanilamide, 2.2 mg $FeCl_3$ and 0.5 cc 3 per cent. H_2O_2 showed 15.7 per cent. of sulfur split off. Under similar conditions the ortho isomer showed 9.7 per cent., the meta isomer 4.8 per cent. and sulfanilic acid (neutralized) 18.3 per cent. of sulfur split off. These results are not comparable to those with irradiation, which was applied for only 10 minutes.

Because of the irreversible nature of these changes it is obvious that potentiometric studies of such solutions are not valid. Whether or not the body is capable of splitting off any of the sulfonamide group remains to be demonstrated. The demonstration by James[4] of p-aminophenol in the urine following sulfanilamide therapy is evidence to this effect.

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SCIENTIFIC APPARATUS AND LABORATORY METHODS

A SPEEDIER AND LESS COSTLY METHOD OF CONCENTRATION IN NITROCELLULOSE IMBEDDING

IN the hot nitrocellulose method of imbedding histological and cytological material as developed by Jeffrey,[1] and somewhat elaborated by Wetmore,[2] chips of celloidin in small metal troughs are used to absorb the ether and alcohol and thus concentrate the liquid in which the material is being imbedded. Around any laboratory using this process a certain amount of used celloidin soon accumulates. It often contains particles of imbedded material as well as dirt from containers

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