If one accepts values below 1.10 mg % ascorbic acid as indicative of hypovitaminosis C, then 43 of the 50 cases of this series must be included in this category. These data serve to corroborate previous findings as to the incidence of hypovitaminosis C in active tuberculosis.[4, 5] None of these 43 cases exhibited a prolongation in decolorization time in comparison with the group in which the blood ascorbic acid was normal. The average decolorization time was 4.7 minutes in the hypovitaminotic cases and 6.3 minutes in the group of 7 cases with normal blood ascorbic acid values. Although the difference in numbers between the 2 groups is rather great, it would appear that no possible correlation between chemical and intradermal tests was possible. Furthermore, the decolorization time of the entire group of 50 cases fell into the normal or saturated periods as stipulated by Rotter and corroborated by Portnoy and Wilkinson, although the blood ascorbic acid was below normal in 43 of the cases. It would seem, therefore, that some other reducing substance or substances other than vitamin C, for example, glutathione, may be responsible for the reduction of the dye in the skin.

Conclusion. No correlation between the fasting blood ascorbic acid and the decolorization time of the dichlorophenolindophenol intradermal test was noted in a series of 50 adult female patients with active tuberculosis, in 43 of whom hypovitaminosis C existed.

10135 P

Reaction of Fulminate with Methemoglobin.

R. D. BARNARD AND W. NEITZEL. (Introduced by A. J. Carlson.)

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The addition of a few drops of saturated aqueous mercuric fulminate or of 2% sodium fulminate solution to about 5 cc of millimolar methemoglobin prepared by the action of ferricyanide on laked human erythrocytes, causes the formation of a scarlet pigment which shows a spectroscopic picture similar to that of cyanmethemoglobin. It differs from cyanmethemoglobin, however, in that the addition of alkali causes a change in the spectroscopic band to those of alkaline methemoglobin, in the case of the fulminate derivative, whereas when cyanmethemoglobin is treated with alkali its band

[4] Jetter, W. W., and Bumbalo, T. S., *Am. J. Med. Sc.*, 1938, **195**, 362.

[5] Bumbalo, T. S., and Jetter, W. W., *J. Ped.*, 1938, **13**, 334.

persists. The color intensity of the fulminate derivative appears to be about half that of an equimolecular solution of cyanmethemoglobin.

Saturated silver fulminate precipitates methemoglobin from solution, the precipitate being red in color. Where the methemoglobin solution has been prepared by the action of quinhydrone on hemoglobin, mercuric fulminate likewise causes a similar precipitate. This would indicate a difference between the methemoglobins prepared by the action of ferricyanide and that resulting from the action of quinhydrone on hemoglobin. A difference in the behavior of these 2 substances toward hydrogen peroxide has been previously noted.[1]

The fulminates are without effect on the spectroscopic appearance of oxyhemoglobin, carbon monoxide hemoglobin, reduced hemoglobin and of alkaline hematin, whether the last be in alkali carbonate, ammonium hydroxide, triethanolamine or pyridine solution. In the case of the hematin solutions, the fulminates differ from the cyanides in that the latter give rise to cyanhematin.

Solutions of sodium fulminate and of mercuric fulminate which had been oxidized by molecular iodine lost their power of altering the spectroscopic appearance of methemoglobin. Since the fulminate ion and methemoglobin are both essential to the formation of this compound which differs in its reactions from any hitherto described, it is referred to as fulminate methemoglobin.

10136

Growth and Metamorphosis of Anuran Larvae on Thymus Extracts.*

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Since the early experiments of Gudernatsch,[1] who produced an acceleration of growth and a delay of metamorphosis of tadpoles fed upon fresh thymus tissue, several investigators have obtained diverse results by feeding thymus glands, either fresh or dried, to amphibian

[1] Barnard, R. D., PROC. SOC. EXP. BIOL. AND MED., 1937, **36**, 762.

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[1] Gudernatsch, F., *Arch. f. Entw.-Mech.*, 1912, **35**, 457.