On later examination of the infants at the age of 6 weeks to 2 months, the skin reaction had become positive in certain babies, to the larger amounts (20 to 50 S. T. D.) of toxin and occasionally to 2 S. T. D. This tendency was most marked in those whose mothers reacted to 2 S. T. D., less marked in those who required 20 S. T. D. to give a reaction, and still less in those who required 50 S. T. D. None of the infants whose mothers were negative to 50 S. T. D. became positive with 50 S. T. D. or less during the first two months of life.

Apparently, the skin of new born infants does not react to small amounts of scarlatinal toxin, and reacts to larger amounts in only a small proportion of cases. If, later, the baby's skin develops a positive reaction, the test is positive first with larger amounts of toxin and later with small amounts. The skin reactivity develops earlier in infants with no antitoxin in the blood, at birth, than in those whose blood contains antitoxin.

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Relation of Skin Reactions to Scarlatinal Streptococcus Filtrate in Children, to Antitoxin in Blood.

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A large number of children over 3 years of age have been given skin tests with varying amounts of a standard scarlatina streptococcus filtrate toxin. In a group giving a positive Dick test with 1 or 2 S. T. D., no antitoxin was demonstrable in the blood. In a few children who were negative to 2 S. T. D., but positive to 5 S. T. D., the antitoxin determinations were somewhat irregular, although when 10 or 20 S. T. D. of toxin or more was necessary to obtain a skin reaction, antitoxin was readily demonstrable, and in those children who gave negative skin tests to 100 or 400 S. T. D., antitoxin was present in the blood in rather large amount.

In tests on younger children a similar association of antitoxin with negative skin tests was found. A certain number of infants, more commonly in the first year, but occasionally later, who gave negative skin reactions to 20 or 50 S. T. D. of toxin, had no antitoxin demonstrable in the blood.

The association of the presence of antitoxin in the blood with negative skin tests to small amounts of toxin, which seems fairly constant in older children, is somewhat more variable in infancy, and certain older infants may have negative skin tests, even to considerable amounts of toxin, without demonstrable antitoxin in the blood.

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Action of Formaldehyde Upon Physiologically Active, Histamine-like Substance Produced by Gas Bacillus.

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The phenomenon of contracture, induced in surviving sections of guinea pig intestine, suspended in Tyrode solution, by the addition of very small amounts of gas bacillus culture[1] suggests that the active substance, possibly substances, contains one or more free ethylamine groups, attached to an aromatic nucleus of the general type R :aromatic nucleus :ethylamine.

In such a compound, current theory predicates that its physiological activity is intimately associated with the presence of the free aromatic ethylamine group. It follows theoretically that any chemical change involving the elimination of this free NH_2 group from such a compound should reduce, or even destroy the physiological action of the molecule as a whole.

The addition of formaldehyde to primary amines changes them according to the following equation, in accordance with the well known "formol titration" of Henriques and Sörenson:[2]

$$R.CH_2.CH_2.NH_2 + H.CHO = R.CH_2.CH_2.N:CH_2 + H_2O.$$

It has been found by actual experiment that the addition of 0.1 cc. of neutralized formalin solution releases the contracture in a piece of guinea pig intestine which has been induced by either the soluble, physiologically active substance found in cultures of the gas bacillus, or by histamine. The following graph is the record of such a contracture induced by 0.2 cc. of gas bacillus filtrate, and released by 0.1 cc. of formaldehyde solution. Precisely similar ones have been obtained with histamine and formaldehyde.

The formaldehyde-ethylamine compound may be washed out of