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A Simplified Serological Test for Tuberculosis.

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Montank,[1] in 1924, reported before this Society the results of precipitation tests with tricresol on tuberculous serum. Vernes,[2] in 1923, applied his flocculation test to the study of tuberculosis and in 1926 published[3] the results obtained with the use of a resorcine reagent.

Prior to a description of the present test two points should be stressed: first, that it is based on the Vernes[4] principle of a periodic sinusoidal curve of precipitate; second, that it lacks the precision of the Vernes test and is in this way comparable to the Kahn test in its relation to other luetic reactions.

For the test, 0.5 cc. of centrifugalized blood serum, obtained from patient 3 hours after eating, is placed in a small clean tube and an equal quantity of a 1.25% aqueous solution of chemically pure resorcine in a duplicate tube. The contents of the tubes are then mixed rapidly, first pouring the resorcine on the serum. The tube containing the final mixture is securely stoppered and allowed to remain at an approximate temperature of 25° C. for 4 hours, followed by an over-night refrigeration. The following morning the test is read by inspection. According to the volume and character of the precipitate, results are expressed as minus, plus-minus, plus, 2-plus, 3-plus and 4-plus. There is also an atypical result observed in other pathological conditions, with or without concomitant tuberculosis, which is readily recognized by the large flakes of precipitate, different in character from the typical 4-plus reaction. The resorcine solution must be perfectly colorless, but hemolytic or slightly turbid serum may be successfully tested. During a period of 2 years 290 patients have been examined by this technic in conjunction with the more elaborate Vernes test.[5] Normal controls have also been tested as a check against false reactions.

It has been our experience that non-tuberculous sera give no precipitate, and minus and plus-minus readings correspond to Vernes figures below 20. Quiescent tuberculosis, during periods of slight activity, gives plus and 2-plus readings corresponding to Vernes

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figures from 20 to 30. Active tuberculosis gives readings of 3 plus and 4 plus, corresponding to Vernes figures above 30.

This simple method lacks the delicacy of the Vernes technic, but is capable of giving diagnostic information and requires only inexpensive equipment. Owing to its simplicity, too much significance must not be attached to the results in the hands of the inexperienced.

[1] Montank, I. A., PROC. SOC. EXP. BIOL. AND MED., 1924, xxi, 547.

[2] Vernes, Arthur, *Comp. Rend. Soc. Biol.*, Paris, 1925, xciii, 1425.

[3] Vernes, Arthur, *Études sur la sérologie de la tuberculose.* Fascicule 4. Maloine et Fils, Paris, 1926.

[4] Vernes, Arthur, *Am. Rev. Tuber.*, 1927, iv, 505.

[5] Baylis, Adelaide B., *Am. Rev. Tuber.*, 1927, iv, 500.

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Relation of Osmotic Pressure to Availability of Synthetic Media for Streptococci.

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The osmotic pressure of the environment of an organism is believed to be an important factor affecting its metabolism. Dr. Frankel and her coworkers have made the first attempt to apply this consideration to the investigation of synthetic media.[1] These authors kept all their media isotonic with an M/6 NaCl solution. Falk, in his review of the rôle of certain ions in bacterial physiology, expressed the view that "an attempt to keep osmotic pressure constant is undoubtedly a step toward elucidation of the principles underlying the sound use of synthetic media."[2]

The work described in the present paper includes the determination of the osmotic pressures of four series of entirely different media. Media were prepared and their availability for streptococci tested by procedures already described.[3] Osmotic pressures were calculated from the freezing point depressions. The authors were aware, at the outset, of the inaccuracies in this method due to the high molar concentrations of several of the mixtures used. The errors were ignored in order to obtain figures for preliminary comparisons.

The significance of the details obtained may be brought out perhaps most clearly in the following tabulations: