10040 P

Gelation of Serum by Ethyl Alcohol.

ALFRED LEWIN. (Introduced by W. Antopol.)
From the Medical Clinic, University of Basle, Switzerland.

In the course of experiments on denaturation of serum* I observed the phenomenon of gelation of human sera following the addition of ethyl alcohol in higher concentrations. Gaté and Papacostas[1] described a similar serological reaction using formaldehyde. They offered this as a test for the diagnosis of syphilis but subsequently it was found to be of no value as such.

Principle of method: A known amount of ethyl alcohol (80%) is added to an equal amount of serum, shaken well, and the time determined in which the mixture turns into a gel. The gelation may at times be so complete that the tube may be inverted without the contents being spilled. The test-tubes used for the reaction must be of equal diameters when comparative studies are made.

Method: 0.2 cc of serum are measured into test-tubes 8 cm long, 7.5 mm internal diameter. Over the serum is then stratified 0.2 cc 80% ethyl alcohol. At the adjacent surfaces of these fluids a precipitate is formed. The tubes are then well corked and shaken vigorously until the mixing of the serum and alcohol is complete. This is recognizable by the milky white to yellowish white appearance which the solution assumes. The results are designated according to the degree of gelation which has taken place as follows: +++, complete; ++(+), almost complete; ++, strong; +(+), medium; +, weak; (+) beginning; —, none.

The test is carried out at room temperature. After 5 min., 30 min. and 3 hours the results are read; each tube is taken from the test-tube stand and is slowly tilted between thumb and forefinger at first to an angle of almost 90° and then, if the gelation is strong to complete, to an angle of 180°. While the conditions of this experiments are very simple, the differences in the intensity of gelation are very striking. In time the mixture coagulates to such a degree that one single large flocule is formed.

The time of gelation can be markedly influenced in several ways.

* The work was begun under supervision of Professor H. Sachs at the Institute for Experimental Cancer Research at Heidelberg during the winter 1934-35, and continued in the institute of Professor R. Staehelin in Basle.

1 Gaté and Papacostas, *Compt. rend. Soc. de Biol.*, 1920, **83**, 1432; *ibid.*, 1923, **89**, 1305.

The gelation is accelerated and intensified: (a) by increasing the concentration of the alcohol; (b) by raising the temperature of the mixture; (c) by inactivation of the serum (that is by heating ½ hour at 55-56° C); (d) by aging the serum.

Experiments on about 1500 sera of various origins were made, and the results, which will be reported in more detail in a later publication, are as follows:

1. The complete gelation in normal sera takes place after several hours. In certain cases however it does not occur even after days. 2. It is noticeable that positive Wassermann sera react like normal sera. 3. In most cases the value of the gelation was correlated with the sedimentation rate and only to a certain degree did the 2 reactions run parallel. Apart from normal sera there was no parallelism between the rate of the gelation and the sedimentation time. 4. Other serum reactions were also used for comparison. Takata-Staub positive sera in several cases showed a corresponding positive result to the gelation test. 5. At the first reading (after 5 min. at room temperature) the gelation was strong to complete in many cases of the following diseases: pulmonary tuberculosis, pleurisy, lobar pneumonia, Hodgkin's disease, cirrhosis of the liver, carcinoma.

The phenomenon described is a non-specific serum reaction which is striking in certain diseases. Its value as a differential diagnostic test remains to be determined by further studies.

10041

Failure of Nicotinic Acid to Prevent Nutritional Cytopenia in the Monkey.*

PAUL L. DAY, WILLIAM C. LANGSTON AND WILLIAM J. DARBY.

From the Departments of Physiological Chemistry and Anatomy, School of Medicine, University of Arkansas, Little Rock.

Day, Langston and Shukers[1] demonstrated that when monkeys (*Macaca mulatta*) were given a diet "deficient in vitamin G (B_2) and possibly deficient in less well-known organic substances which may be essential . . ." they developed a rapidly progressive blood

* Research paper No. 515, Journal Series, University of Arkansas. Aided by grants from the Committee on Scientific Research of the American Medical Association and the Ella Sachs Plotz Foundation.

[1] Day, Paul L., Langston, W. C., and Shukers, C. F., *J. Nutrition*, 1935, **9**, 637.