SCIENTIFIC PROCEEDINGS.

ABSTRACTS OF COMMUNICATIONS.

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1 (2233)

Demonstration of the Vernes flocculation test for syphilis.

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Fifteen to twenty cc. of blood are taken in the usual manner from a vein of the patient and collected in a test tube. The tube is then stoppered and placed in the refrigerator over night to allow the serum to separate. The serum is then decanted and centrifugalized for two minutes at high speed to free it from all traces of corpuscles; the clear serum being transferred to a fresh tube which is tightly closed with a rubber stopper and inactivated one-half hour at 55°C and allowed to cool for one-half hour at room temperature.

The antigen is prepared with the mechanical aid of the mélangeur: 6 cc. of the specially prepared alcoholic extract of horse's heart, called péréthynol, are dropped at the rate of 1 cc. per minute into a beaker containing 12 cc. of doubly distilled water, the suspension being stirred at the rate of 200 revolutions per minute. (See Fig. 1.) After the temperature of this suspension, which has been elevated by the stirring, has regained its original temperature, 21 cc. of doubly distilled water are added

very slowly by hand, while the suspension is being mixed at the same rate, and the stirring continued a few minutes after all the water has been added.

It is most important that all solutions should be of the same temperature, between 20° to 25°C, before adding one to the other, and that the doubly distilled water be prepared in all-glass apparatus free from rubber or metal connections. For the test four tubes are set up for each patient and 0.8 cc. of inactivated serum placed in each tube. To two of these (the reaction tubes) 0.4 cc.

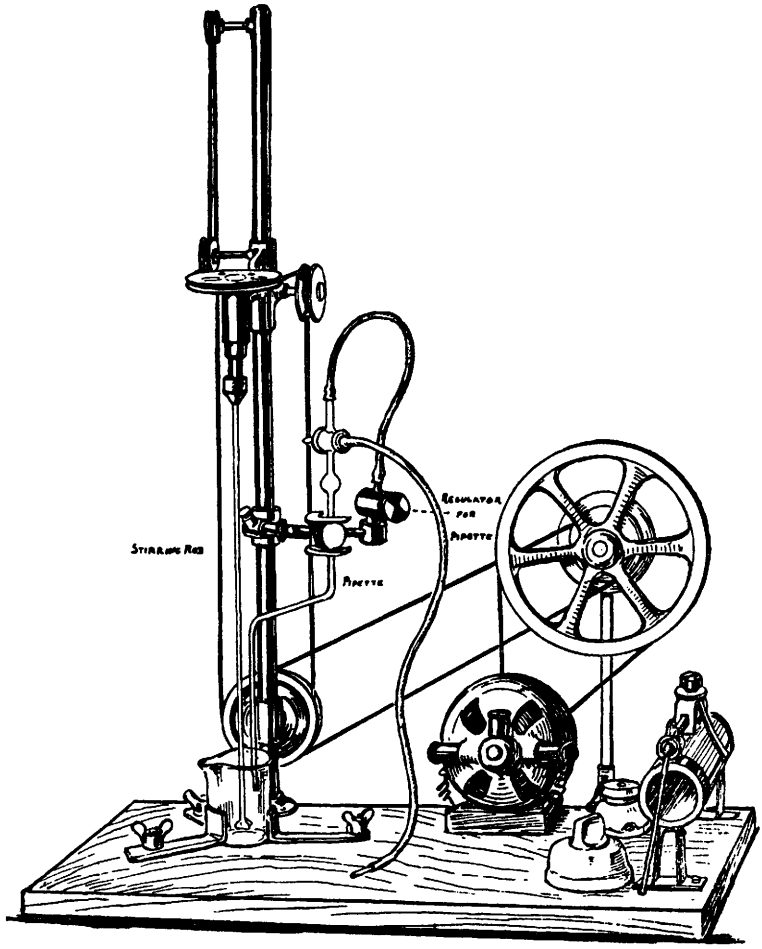

FIG. 1—Vernes Mélangeur.

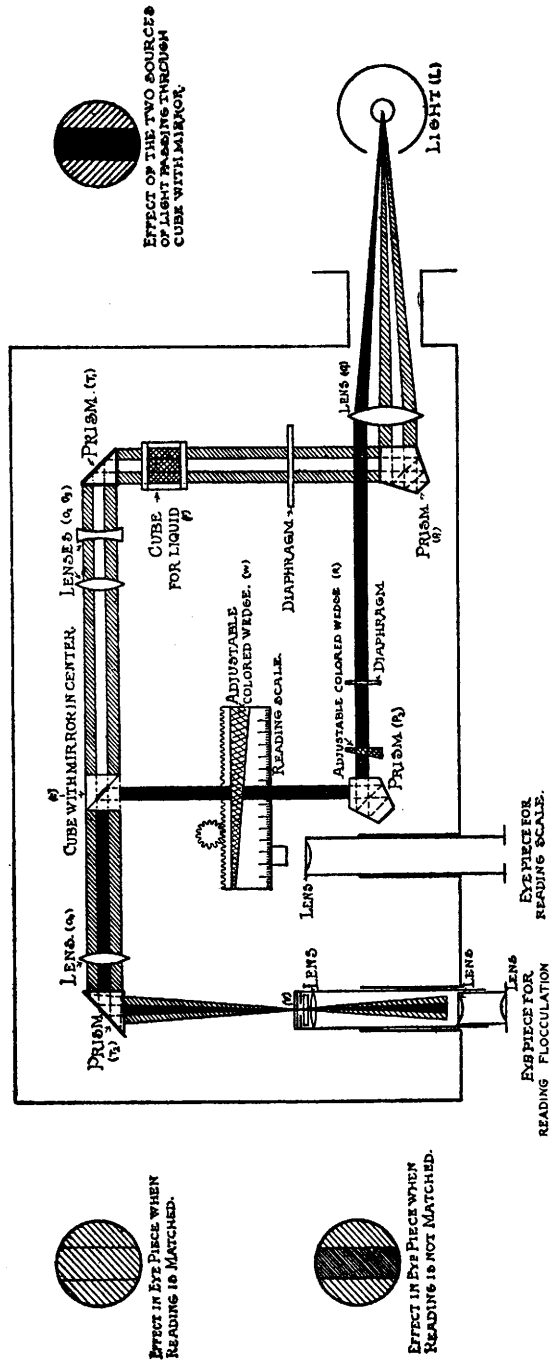

FIG. 2—Photométre Vernes, Bricq, and Yvon.

of the diluted péréthynol suspension are added and to the other two tubes (the control tubes) 0.4 cc. of a control diluted alcoholic solution (1 cc. absolute ethyl alcohol to 5.5 cc. doubly distilled water). The tubes are then tightly closed with rubber stoppers, thoroughly agitated and incubated in water bath for four hours at 25°C. After incubation each tube is gently agitated by slowly inverting once or twice and the contents placed in the chamber, Cube F, of the photometer for the estimation of turbidity. (See Fig. 2.)

The photometer (photométre) is a box fitted with lenses, prisms, and a wedge of fumed glass, enabling the operator to read with great accuracy the degree of flocculation. The light from an electric lamp (L) enters and passes through lens O_1, in parallel lines. One half, entering Prism P_1, is then deflected through cube F, which contains the test liquid, and passes to triangle T_1—is deflected from T_1 through lenses O_2 and O_3 to cube C where the mirror in the centre of the cube deflects the central portion of the beam of light and allows the remainder to pass through lens O_4 and enter triangle T_2. It is then deflected and brought to a point of focus in the centre of the eyepiece; The other half of the light from lens O_1 passes through fumed wedge R to prism P_2, is deflected through the adjustable wedge of fumed glass to cube C, where the mirror deflects the central band of light in such a manner that it passes parallel with the light from the other source and, like it, is deflected by triangle T_2 and brought to a point of focus in the centre of the eyepiece; the beam from one source being superimposed on the beam from the other source. The eyepiece as illustrated receives the beams of light in three portions, the two outside bands representing the light which has passed through cube F containing the test fluid, while that of the central band has passed through the movable wedge of fumed glass (W). By adjustment of this wedge, W, the field may be made homogeneous.

To read the degrees of flocculation the liquid is placed in the chamber, Cube F, and the sliding fumed wedge (W) moved by a ratchet until the three divisions in the eyepiece are homogeneous, in similar manner to the reading of a colorimeter. The number on the scale attached to the movable fumed wedge (W) is read and recorded and used for a comparison with the reading of the control and the difference noted. The instrument is

so designed that this difference represents the amount of flocculation or precipitation in milligrams per cubic centimeter of fluid. There are several accessory mechanical features and minor details of the test, which it is not our purpose to discuss in the present communication.

2 (2234)

The effect of loss of sleep on the composition of the blood and urine.

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The experiments were carried out on eight normal men, on a uniform diet, who remained awake over a period of 48 hours. Twenty-four hour urine samples were collected for two days of the wakeful period, as well as the normal day preceding. Blood samples were taken at the beginning, middle and end of the period. The whole experiment was repeated after an interval of three weeks, the men alternating as controls and subjects in the two periods.

Total nitrogen, urea, ammonia, chlorides, phosphates, uric acid and total acidity were determined in the urine by the customary methods; while in the blood, determinations were made of sugar, non-protein nitrogen, urea, phenols (both free and conjugated), uric acid, chlorides, and alkali reserve. In four cases total "acid soluble" phosphorus and lactic acid were also determined in the blood.

The results showed no really consistent alteration in any of the components studied with the exception of a possible increasing tendency of the total nitrogen and the phosphorus of the urine and an increase in the lactic acid and phosphorus of the blood. The data concerning these last two components are too fragmentary, however, to justify any positive conclusion as yet.

The experiment has shown that loss of sleep for as long as