

Sections of the brains and cords showed progressive involvement of central nervous system in all of the animals (Table I).

These sections therefore presented evidence of involvement of the central nervous system as early as the third day following the first intranasal instillation, at least 2 days before the appearance of temperature, and 5 days before the appearance of paralysis.

These results not only cast doubt on the therapeutic value of immune serums in paralytic poliomyelitis, but also help to explain the failure of immune serums to modify the experimental disease; and by analogy offer a similar explanation of the indifferent results of the controlled series of human cases in 1931.

The authors wish to express their thanks to Dr. William H. Park, Director of the Bureau of Laboratories, New York City, for his help and cooperation.

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Meteorological Influences on Blood pH and Cholesterol.

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Among the blood chemical levels that are distinctly altered with each passing cyclonic wave are the blood pH and the cholesterol. The anoxemic stimulus to which I have previously referred is almost invariably followed by striking increase in the cholesterol level, an increase that is much greater than can be attributed to an alteration in the concentration of the serum.

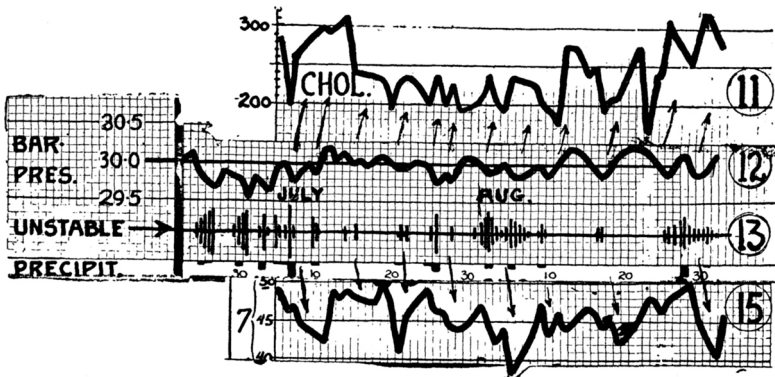
When determinations are made day by day in the normal individual the fluctuations in the level of cholesterol will show a curve with a range of more than 100 mg., in the unstable person the range may be more than 300 mg.

The anoxemic stimulus results in greater liberation of acid metabolites and as might be anticipated, each cyclone is associated with an acidity which follows in its wake, the degree and duration of which is, of course, a purely individual matter. It depends on the constitutional type, on the buffering, on the season, etc. In unstable persons the fluctuations may be quite marked. While the change in the pH may be abrupt, day by day determinations reveal a distinct sequence of increasing and decreasing levels. When me-

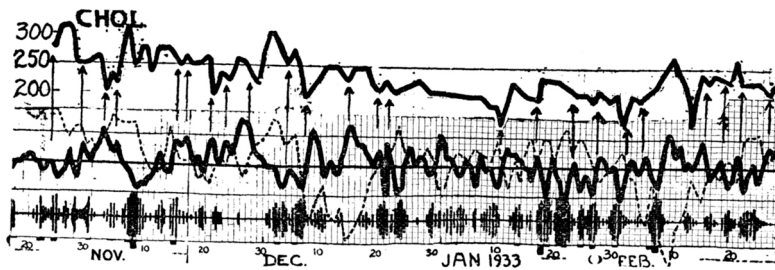
teological stimuli are either very pronounced or frequent, summation effects are readily evident. In the leptosome the buffer mechanism is more apt to be depleted as a result of a series of meteorological adjustments; the pyknic appears to be much better buffered. Two small graphs are appended to illustrate these chemical alterations.

In the first one, curve 11 represents the cholesterol levels, curve 12 is the barograph, curve 13 is the graph of unstable weather with the date line below, curve 15 is the pH level. Arrows have been carried from barometric depressions to cholesterol increase. They have also been carried down from points of unstable weather (barometric lows) to the corresponding low pH levels that follow. This graph is that of a perfectly normal individual of pyknic habitus and covers a period of July and August, 1932.

In the second graph the cholesterol curve has been superimposed over the meteorograph (the barometric pressure is indicated by



GRAPH 1.
Effect of meteorological alterations on blood pH and Cholesterol. Normal individual, pyknic habitus.



GRAPH 2.
Blood cholesterol and the relation to the meteorological alterations. Psychopathic individual.

the heavy black line—the temperature is indicated by the dotted line) for a period extending from October to March and is taken from determinations made on a psychopathic patient. Arrows have been carried from barometric lows to corresponding cholesterol lows merely for purposes of orientation. In general the curves form a mirror image but individual variations occur from case to case.

Conclusions. Day by day determinations made in a large series of normal persons and in patients reveal a distinct rhythm of increasing and decreasing pH as well as of cholesterol. Meteorological associations indicate that each cyclonic cycle is associated with a relative increase in hydrogen-ion concentration and an increase in cholesterol.

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Complete Recovery of Gonadotropic Substances from Urine of Women.

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For assay of urine concentration of gonadotropic substances in normal or non-pregnant women it is necessary to prepare concentrated extracts which are not toxic to immature female rats. Complete recovery of active material is highly desirable. Tests on 6 published extraction methods have failed to yield satisfactory total recovery when applied to urine from pregnant women. The various steps in some of these processes have been studied, and sources of loss have been identified.

Decrease in potency from concentrating urine by low temperature evaporation is probably not so much a temperature effect as due to the adsorption on the urinary solids. Washing these solids with 33% acetone at pH 5 yielded significant amounts for each of 5 washings.

Acetone precipitations of gonadotropic material from urine are incomplete unless the acetone is 95% (20 volumes) at room temperature or 16 volumes at 38°C. The acetone precipitation alone does not remove all toxic materials.

Urine acidified to pH 5 with glacial acetic acid will allow of complete adsorption of gonadotropic substances by Lloyd's reagent or