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.

6960

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

norit. Permutit was less active. Elution from norit was, however, incomplete with a number of reagents. From Lloyd's reagent partial recovery was possible with ammonia-free distilled water, 33% acetone, 50% acetone, or 0.1 N sodium hydroxide. Complete recovery was found with 50% aqueous pyridine, or alkalinized acetone (50%). Better yields were obtained with equal parts of C.P. acetone and 0.2 N sodium hydroxide than with two parts of alkali to one of acetone.

The following extraction method is proposed to secure non-toxic extracts from pregnancy urine without appreciable loss of gonadotropic potency.

1. Acidify urine to pH 5 with glacial acetic acid, filter, and shake for 2 hours with 20 gm. of Lloyd's reagent per liter. Readjust to pH 5 and filter by suction. Discard urine, dry and return the adsorbent to the flask.

2. a. *Pyridine method.* Add 50% pyridine in amount equal to the volume of urine, shake continuously for 8 hours, and remove the solvent by filtration or centrifugation. Repeat the extraction with a second equal portion of 50% pyridine for 8 hours. Wash the residue with small amounts of 33% acetone, adding the washings to the extracts.

b. *Alkaline acetone method.* Mix equal parts of C.P. acetone and 0.2 N sodium hydroxide, and extract as with pyridine, except that extractions are limited to 4 hours each. (Six hours causes some loss.) Wash with 33% acetone.

3. As soon as extracts are removed from the Lloyd's reagent pour them into 16 volumes of acetone at 38°C. Keep the material at about 8°C. until the precipitate has subsided. Siphon off the liquid and place the container with the precipitate in the breeze of a fan to remove the rest of the acetone. Take up the dried precipitate in water or saline for injection.

Extracts prepared by this method have been assayed for potency by subcutaneous injection of amounts equivalent to the amount of untreated urine demonstrated to contain the minimal effective dose of gonadotropic substance. The minimal effective dose of untreated urine is considered to be the least amount of that urine which injected in 5 daily portions produces in at least one of 3 rats, 24 days of age at the beginning of the injections, a 100% increase in ovary weight and one or more corpora lutea at necropsy on the sixth day. The fact that approximately duplicate ovarian effects are produced by the minimal effective dose of the whole urine and by an equiva-

lent amount of the extract is offered as evidence that satisfactory total recovery of active material is obtained by this method. Injection of 100 cc. urine equivalents of the extracts results in no toxic effects. The extracts are apparently free from follicular hormone since they are without effect on the uteri of immature castrate female rats of the same age.

6961

Basophilic Activation of Neurohypophysis and its Bearing on Certain Diseases Characterized by Hypertension.*

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Of the 3 cellular elements composing the pituitary body, the basophilic cells are normally fewest in number and their function least well understood. A peculiar disease, apparently due to a functionally active adenoma of these elements, has recently been described[1] and a further example of this disorder has been thoroughly examined after death.[2] In this case, the unenlarged pituitary body in addition to the basophilic adenoma of the pars anterior shows a heavy invasion of the posterior lobe by basophilic elements from the pars intermedia.

One of the characteristic symptoms of this disease is a high blood-pressure, and the posterior lobe of glands from such fatal cases of eclampsia and of essential hypertension as I have since had the opportunity to study, have shown the same type of massive basophilic infiltration.

The active hormone of the posterior lobe is unquestionably derived from the pars intermedia whose fully ripened elements are indistinguishable from the basophils of the pars anterior. The ripened cytoplasm of the inwandering cellular elements becomes transformed into the secretory product (the hyaline bodies of Herring) which can be traced in favorably fixed tissues up the pituitary stalk to the region of the tuberal nuclei. The open meshwork of the tuberal tissue and the invariably broken-up appearance of the

* Abstract of report before the National Academy of Science, April 25, 1933.

[1] *Bull. Johns Hopkins Hosp.*, 1932, **50**, 137.

[2] *Arch. Int. Med.*, 1933, **51**, 487.