

This form of experimental uremia on account of its reversibility and the relative simplicity of its causation, is particularly adapted for the quantitative analysis of certain aspects of the general problem of uremia.

## 4791

**The Crystals of the Follicular Ovarian Hormone.**

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The first preparation of crystalline ovarian hormone<sup>1</sup> was obtained from a combination of 2 acidic aqueous solutions containing approximately 7500 rat units of a potency exceeding 1000 units per mgm. The aqueous solution (volume 480 cc.) was extracted with six 150 cc. portions of ethyl ether, the ether distilled and the flask evacuated to remove the last of the solvents. The residue was leached with small volumes of anhydrous ethyl ether, this solution centrifuged, poured into a flask and distilled to dryness. Owing to the danger of ether peroxides 1 cc. of ethyl alcohol was added and distilled using a vacuum to complete the removal of the alcohol. The flask was put in the refrigerator ( $-10^{\circ}$  C.) and crystals began to appear within a short time. The weight of the crystals, which possibly were not absolutely pure, was 2.07 mg. Upon an additional purification the weight diminished to 1.39 mg.

Beginning with this initial crystallization, we have been able to convert all of our preparations into a crystalline form. Many individual preparations have been converted into the pure crystals. Several other products of a different crystalline form isolated during the course of preparation have proved to be inactive upon assay.

One interesting observation regarding the crystalline structure has been made. The pure hormone crystallizes in at least 2 distinct forms of crystals, a phenomenon which is not exceptional but which is encountered quite frequently.

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<sup>1</sup> Announcement of this discovery was first made on August 23, 1929, at a scientific meeting of the Thirteenth International Congress. (*Am. J. Phys.*, 1929, *xe*, 329.) Lantern slides of the 2 crystalline forms were used to illustrate the 2 kinds of crystals, and the evidence regarding the identity of the hormone and the crystals presented.

For want of a more adequate description, we refer to the one form as clusters of needles (A) and to the other as rhombohedral plates (B). In one of our earlier preparations, A separated from a light yellow oil. Upon washing out the oil with cold ethyl alcohol,

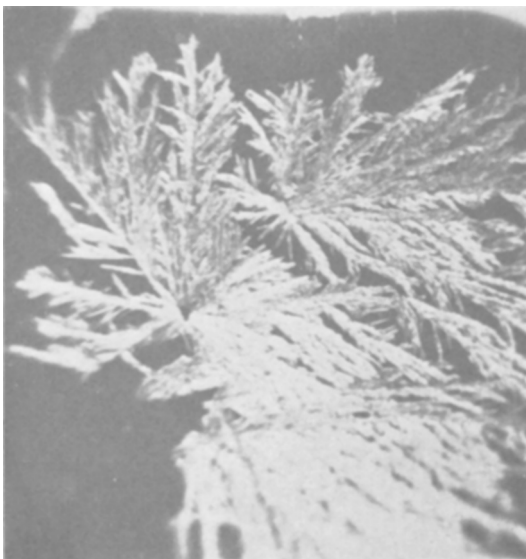


PLATE 1. Crystals A of text. 30X.

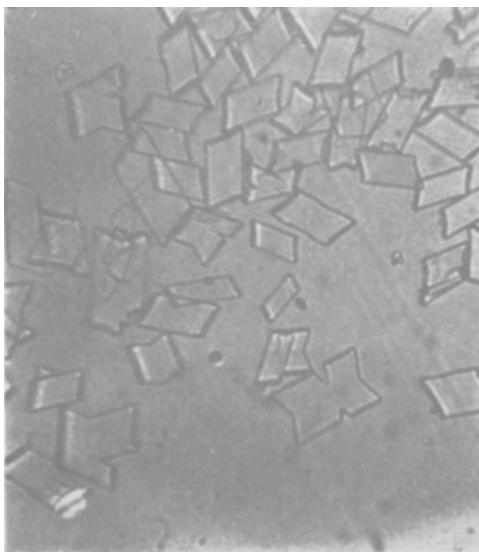


PLATE 2. Crystals B of text. 416X.

we obtained the A form apparently in a pure condition. Upon recrystallization from dilute ethyl alcohol, the B form was obtained.

As a rule the clusters of needles are obtained when a solution of the pure crystals is freed from solvent by distillation, whereas the plate form appears upon crystallization from hot dilute aqueous acetone or ethyl alcohol or from butyl alcohol. While we have not studied the point in detail, our records indicate that either form may be converted into the other, depending upon the experimental procedure.

## 4792

**Influence of Ingestion of Butter Fat on Body Fat of the White Rat.**

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In previous communications<sup>1, 2</sup> the writer presented evidence indicating that the ingestion of derivatives of butyric and caproic acids by the white rat exerted an effect on the body fat of such animals quite different from that usually observed when fats are fed. The general effect consists of an alteration of body fat accompanied by an incorporation in that fat of derivatives of the ingested fat. While it was apparent, from the investigations referred to, that the tissue fat of rats had been altered as a result of the ingestion of derivatives of the above mentioned acids, no evidence of the presence of the ingested fats in the fat of the rats could be obtained. The results secured when tricaproin was fed were quite satisfactory, since the rats appeared to be normal and grew at the usual rate. On the other hand those on a diet containing the butyryl radical in the form of sodium butyrate appeared to be abnormal throughout the whole experimental period.

This communication is a report of experiments in which the butyryl radical was incorporated in the diet in another manner, namely by feeding considerable amounts of butter fat to the rats. The diet fed consisted of the following mixture: vegex 2%, salt mixture 5%, casein 20%, butter fat 30%, and cornstarch 43%. Each 100 gm. of food contained non-saponifiable matter from 7 gm.

<sup>1</sup> Eckstein, H. C., *J. Biol. Chem.*, 1929, lxxxii, 613.

<sup>2</sup> Eckstein, H. C., *J. Biol. Chem.*, 1929, lxxxiv, 353.