the female hormone liberated by the stimulated cortical tissue is responsible for the growth of the oviduct.

## 6480

### Transient Hyperglycemia and Glycosuria Following Discontinuation of Insulin Given Non-Diabetic Patients.

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The rise in blood sugar following the discontinuation of insulin administered to an anorexia case suggested that a temporary hyperglycemia and even a glycosuria might be induced in this way in non-diabetic subjects. Accordingly, 5 other non-diabetic patients were given insulin, starting with Units V before each meal, and the dosage increased at intervals of a few days until one patient was receiving Units XVII and another Units XXV 3 times a day. The injections were given 15 to 30 minutes before meals. Blood sugars 2 hr. after meals were usually normal, sometimes above normal. Hypoglycemic symptoms were rarely encountered. Upon discontinuation of the insulin all of these patients showed a hyperglycemia and 4 of them a temporary glycosuria. Glucose tolerance curves were done on 3 of the 6 patients and showed a diminished tolerance, even in one case where there was failure to produce a glycosuria.

For example, a female patient, age 34 years, entered the University Hospital June 2, 1932, following a pleurisy with effusion; she had lost weight and her appetite was poor. On June 4 a 50 gm. sugar tolerance test was normal, fasting blood sugar was 87 mg., the maximum at the half hour was 159 mg. Insulin was started at noon on this day with an initial dosage of Units V 3 times a day with the patient on a general diet. A second glucose tolerance test was done June 18 when the patient was receiving Units X 3 times a day; blood sugar reached a maximum of 231 mg. after 1 hr. The patient had been receiving insulin Units XXV 3 times a day on July 10 and insulin was discontinued the following day. A glucose tolerance test was of the mildly diabetic type, starting with a fasting figure of 87 mg. and with subsequent half-hour values of 208, 231, 253, and 176 mg.; the urine during the first hour contained 0.8% of sugar and during the second 1.1%. Tolerance

curves on July 16 and 19 showed that tolerance was slowly improving, but had not quite returned to normal 8 days after the insulin injections were stopped.

The hyperglycemia following cessation of the insulin injections in these non-diabetics might be explained as due to a compensatory inhibition of the normal islet secretion with a slow readjustment until ordinary activity is attained. Such an interpretation is in accord with the idea of a latent functional capability of the island cells in diabetes mellitus.[1] However, a study of the respiratory quotients in the insulinized non-diabetics now under way indicates that an explanation other than the above may obtain.

## 6481

## On the Motion of Growth. IV. Further Analysis of Energetics of Heat Production with Special Reference to Basal Metabolism During Prolonged Human Fasting.

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Certain theoretical considerations in respect to the energetics of heat production as defined[1] for states of changing weight are of special interest but should also prove of rather great practical importance. In view of the fact that the hyperbolic term in equation (6) of the foregoing paper has dampened out and become negligible in the case of human growth beyond the age of twenty, this relation assumes the simpler form,

$$\rho \left(\frac{dq}{dt}\right)^2 + E_c \frac{dq}{dt} + A' = U \qquad (7)$$

for heat production in calories per Kg. per unit of time, the various factors possessing the same significance as before.

It is clear from (7) that $U$ will not alter greatly during any period in which $\left(\frac{dq}{dt}\right)$ fails to change rapidly—a condition, as we have seen, which is actually reached on the average during the second and third decades of life. For constant values of $\pm\left(\frac{dq}{dt}\right)$, $U$

[1] Gibson, R. B., *J. Lab. Clin. Med.*, 1929, **14**, 597; PROC. SOC. EXP. BIOL. AND MED., 1929, **26**, 449; *Am. J. Physiol.*, 1932, **101**, 41.

[1] Wetzel, N. C., PROC. SOC. EXP. BIOL. AND MED., 1932, **30**, 233.