

anesthetic or post-partum hypoglycemia, and in poisoning or overdoses of such drugs as morphine or strychnine.*

* In all the experiments recorded the animals received no food except water for 24 hours prior to injection. Blood sugar was determined by the iodometric method of Shaffer and Hartmann.

- ¹ McGuigan, H., and Ross, E. L., *J. Biol. Chem.*, 1915, xxii, 417.
- ² Santos, N., *Bull. Soc. Chimie Biol.*, 1925, vii, 1151.
- ³ Lambert, M., and Herman, H., *Compt. rend. Soc. Biol.*, 1925, xei, 440.
- ⁴ Josephs, H., *Johns Hopkins Hosp. Bull.*, 1925, xxxvii, 376.
- ⁵ Harold, K., *Arch. Gynaek.*, 1926, cxxix, 354.
- ⁶ Menten, M. L., *J. Inf. Dis.*, 1926, xxxviii, 354.
- ⁷ Taya, J., *Biochem.*, Tokyo, 1922, i, 479.
- ⁸ Geiger, E., *Magyar Orvosi Archivum*, 1926, xxvii, 12; *Chemical Abstracts*, 1927, xxi, 136.
- ⁹ György, P., and Herzberg, E., *Biochem. Z.*, 1923, cxl, 401.
- ¹⁰ Collens, W. S., Shelling, D. M., and Byron, C. S., *PROC. SOC. EXP. BIOL. AND MED.*, 1926, xxiii, 545.
- ¹¹ Gatin-Gruzevska, citation from Hammerstein and Hedin. *Textbook of Physiological Chemistry*, translated by Mandel. John Wiley and Sons, New York, 1915, p. 391.
- ¹² Marks, H. P., *Brit. J. Physiol.*, 1925, lx, 586.
- ¹³ Schwarz, O. H., *PROC. SOC. EXP. BIOL. AND MED.*, 1925-26, xxiii, 585.
- ¹⁴ Kulz, Zuntz and Vogelius, Frentzel and others, citation from Hammerstein and Hedin. *Textbook of Physiological Chemistry*, *ibid.*, p. 391.
- ¹⁵ Diesel, K., *Z. f. exp. Path. und Ther.*, 1914, xvi, 365.
- ¹⁶ Ross, E. L., *J. Biol. Chem.*, 1918, xxxiv, 335.
- ¹⁷ Mamoli, L., *Sperimentale*, 1926, lxxx, 228.
- ¹⁸ Underhill, F. P., and Karelitz, S., *J. Biol. Chem.*, 1923, lviii, 147.
- ¹⁹ Bodansky, M., *Am. J. Physiol.*, 1923, lxvi, 375.
- ²⁰ Izume, S., and Lewis, H. B., *J. Pharmacol. and Exp. Therap.*, 1926, xxx, 87.
- ²¹ Lyman, R. S., Nicholls, E., and McCann, W. L., *J. Pharmacol. and Exp. Therap.*, 1923, xxi, 343.
- ²² Collip, J. B., *J. Biol. Chem.*, 1923, lv, 513; lvii, 65; 1924, lviii, 163.

3496

The Influence of the Thyroid Gland on Experimental Rickets.

M. M. KUNDE AND L. A. WILLIAMS.

From the Hull Laboratory of the University of Chicago.

Histological studies of sagittal sections through the distal end of the femur of rats 69 days old, and thyroidectomized between 15 and 29 days after birth, reveal a marked overgrowth of the epiphyseal cartilage close to the junction with the metaphysis. This area is also characterized by deficient calcification and invasion of

blood vessels, as in typical rickets. Part of these rats were fed the Steenbock and Black¹ diet No. 2965. Cod liver oil added to this diet in amounts varying from 2 per cent of the diet up to a quantity where food became objectionable, did not prevent the development of rickets in these rats. Other thyroidectomized rats of the same age were fed a diet consisting of table scraps of the various kinds of food constituting the dietary of well-nourished individuals. These rats also developed rickets but in a somewhat lesser degree. Unthyroidectomized control rats of the same litter, living on identical dietaries, did not develop rickets, as determined by histological examination of the epiphysis of the long bones. These experiments demonstrate the necessity of the thyroid hormone for the complete utilization of cod liver oil.

This is a preliminary report.

¹ Steenbock and Black, *J. Biol. Chem.*, 1925, lxiv, 263-298.

3497

Microbic Dissociation: The Tubercle Bacillus.

S. A. PETROFF.

From the Research and Clinical Laboratory of Trudeau Foundation, Trudeau, N. Y.

The studies of dissociation of R and S colonies in various types of microorganisms suggested an investigation of a similar nature with the tubercle bacillus. Here we encounter many difficulties. Workers with tubercle bacilli are aware of the fact that it is almost impossible to prepare a suspension free of clumps and that there are very seldom individual organisms in the suspension. Secondly, as the organisms develop very slowly, sometimes requiring four weeks for a visible colony to appear, contaminations are liable to occur and spoil the investigations of even the most careful workers; and thirdly, it is almost impossible sometimes to prevent dehydration of the culture medium upon which the organism is cultivated. When the tubercle bacilli are cultivated on media prepared in Petri dishes contamination occurs in a large number of the plates. These contaminations are not due to the initial exposure during the seeding, but to the leakage of the air within the plates. In the incubator temperature the air is expanded and again contracted when the Petri dishes are removed to room temperature where the air rushes into the plates, carrying along the contaminating molds and other organisms.