It has been suggested that Capsicum is taken because of its cooling action due to perspiration (chiefly cephalic), but this certainly cannot be true for all persons. One of my subjects in the metabolic experiment ingested 100 gm. fresh Capsicum, yet did not sweat. Probably the main reason for its being widely used and liked is that it stimulates appetite, more especially as a hot climate tends to produce anorexia.

4256

Growth and Reproduction of Rats on Vitamin C Free Diet.

ERNEST TSO.

From the Division of Pediatrics, Department of Medicine, Peking Union Medical College.

Harden and Zilva[1] and Drummond[2] believed that albino rats could not fully dispense with the antiscorbutic vitamin without restriction of their normal development. Osborne and Mendel[3] were unable to accept this conclusion since it had not been ruled out that the delayed development demonstrated by the first named authors was due to a vitamin B deficiency of their yeast preparation. Neither could it be ruled out that the growth-promoting effect of the fruit juices added was due to a more ample supply of vitamin B rather than to the vitamin C content of the juices.

Parsons[4] made the important observation that rats which had been fed on a practically vitamin C free diet for as long as 213 to 247 days showed considerable amounts of this vitamin in their livers. This, as McCollum[5] points out, constitutes conclusive evidence of synthesis of vitamin C by this species. Parson's experiment, however, does not directly answer the question whether better growth and nutrition could be secured by the addition of an antiscorbutic substance to the diet of albino rats.

The experiments here to be reported show that the addition of the antiscorbutic vitamin had no growth-promoting effect when given to white rats which for 2 generations or more had been reared and raised on a vitamin C free diet. The experiments were carried

[1] Harden, A., and Zilva, S. S., *Biochem. J.*, 1918, xii, 408.

[2] Drummond, J. C., *Biochem. J.*, 1919, xiii, 77.

[3] Osborne, T. B., and Mendel, L. B., *J. Biol. Chem.*, 1920, xli, 554.

[4] Parsons, H. T., *J. Biol. Chem.*, 1920, xliv, 587.

[5] McCollum, E. V., "The Newer Knowledge of Nutrition," 2nd ed., 1923.

out on the third, fourth, and fifth generations. One group of the animals of the third generation, which did not receive any addition of vitamin C, was used as controls.

The experiment has extended almost 20 months. The basal diet was composed of: Soybean meal 35, mung bean meal 30, millet flour 30, NaCl 1, $CaCO_3$ 1.5 and cod liver oil 2. These ingredients, mixed with boiling water, were cooked in a double boiler for 20 to 30 min. This diet invariably produced scurvy in guinea pigs and caused death in less than 4 weeks. As the source of vitamin C fresh cabbage (Peking variety) was used in amounts of 2 gm. per rat each day. The same amount fed to guinea pigs prevented scurvy indefinitely and supported normal growth.

At the age of 8 months the third generation rats on cabbage feeding gave the following body weights in gm.: 282, 334, 360, 340 (males), 264, 272, 248, 230 and 290 (females); those on basal diet alone: 258, 346, 330, 322 (males), 262, 216, 244, 218 and 230 (females). The cabbage ration rats successfully reared 3 out of 4 litters; those on the basal diet, 2 out of 4 litters. The 4 animals of the fourth generation on cabbage feeding at the age of 18 weeks weighed 192, 188 gm. (males), 170 and 164 gm. (females). Two litters were cast but not reared. The 4 rats of the fourth generation on basal diet at the age of 17 weeks and 5 days gave the following body weights in gm.: 206, 254 (males), 158 and 172 (females). One small litter constituting the fifth generation was successfully weaned at the age of 23 days.

4257

New Technique for Feeding Sandflies (Phlebotomus) for Experimental Transmission of Kala-Azar.

C. H. HU AND C. U. LEE. (Introduced by Hsien Wu.)

From the Departments of Pathology and Medicine, Peking Union Medical College.

In the experimental attempts to transmit kala-azar by the bites of sandflies, it has been found desirable to substitute an artificial feeding on blood rich in Leishmann-Donovan bodies for the natural feeding upon infected animals, in order to obtain an abundant growth of flagellates within the flies. This blood is obtained by mixing the blood of a normal animal with the crushed spleen of a hamster heavily infected with kala-azar.