altered so as to transmit a greater intensity and a wider range of the shorter ultra-violet radiations. Lanolin which had been irradiated with the mercury vapor lamp to the same degree—for one-half hour at a distance of one foot—was found to have acquired much less antirachitic potency.

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Crystals of vitamin B from the Mung bean.

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(Introduced by V. K. La Mer).

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The source of the vitamin is a Chinese bean, the Mung bean, ground dry into a meal. The method of extraction is a modification of Suzuki's (1912). The meal is boiled with methyl alcohol (80 percent) plus 2 percent hydrochloric acid, and extracted three times in a reflux condenser. The filtrates are added together and evaporated under reduced pressure. Precipitates are filtered off as evaporation proceeds. The evaporation is continued to the removal (complete) of alcohol. All fats, organic acids, etc., are removed from the aqueous solution with ether. The solution is then acidified with sulfuric acid and treated with phospho-tungstic acid to complete precipitation, and filtered. The precipitate is decomposed with a solution of acetone made alkaline with barium-hydroxide, the resulting precipitate being filtered off. The excess of barium-hydroxide is removed with sulfuric acid, and excess of sulfuric acid is removed with lead acetate, and excess of lead removed by hydrogen sulfide. The resulting solution is then evaporated. When evaporation has reached approximately 3 percent of the initial quantity of liquid used in the extraction, needle-shaped, colorless crystals begin to appear. When evaporation is carried to dryness the crystals coalesce as brownish masses. This mass may be recrystalized as white crystals from 80 percent ethyl alcohol.

The melting point of these crystals is 320 degrees Centigrade, and they turn brown at 245 degrees Centigrade. The identity of these crystals as uric acid crystals could not be established by

Microphotograph of crystals of Vitamin B isolated from Phaseolus aureus.

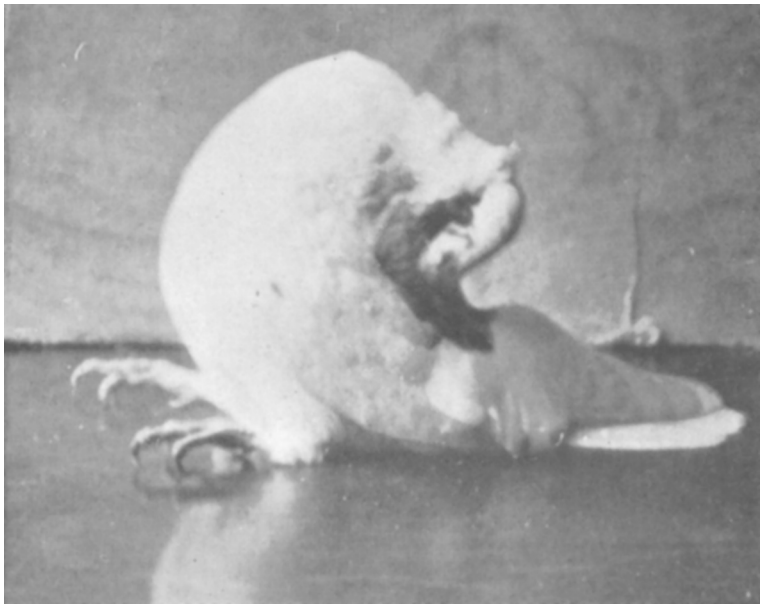

FIG. 1. Pigeon in which acute beri-beri was induced, showing typical neck retraction.

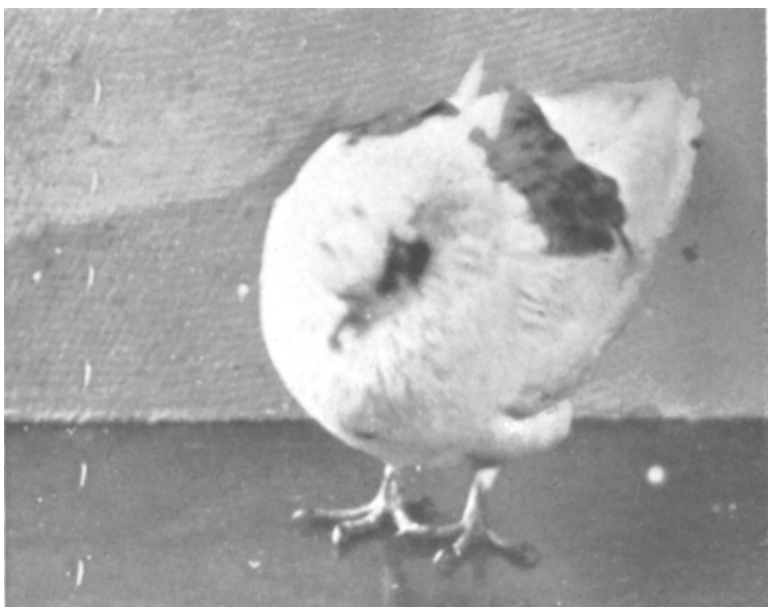

FIG. 2. The same bird as in Fig. 1, one hour after receiving a dose of 2 mg. of Vitamin B crystals, solution being injected in the pectoral muscle.

appropriate tests, nor as amino acids, nor as protein with proper tests for these substances. With bromine water they give a yellow precipitate, and a blue color with the Folin-Macallum Reagent.

Polyneuritis was induced in pigeons by putting them on a diet of polished rice and water for about two weeks. In birds suffering with the acute symptoms (*i. e.*, retracted neck muscles and paralyzed legs and drooping wings), these acute symptoms were relieved by injecting minute doses of three milligrams of the crystals dissolved in water and dilute alcohol, into the pectoral muscles. Within an hour these pigeons were able to stand erect and showed normal movement of the head. This was repeated with four adult pigeons each weighing on an average about 345 grams. They were placed on the restricted diet and weighed each day and the weights recorded from which, later, curves were made. Two of these pigeons were given doses of the solution of three milligrams of the vitamin crystals at intervals of three days. The curves, while showing a steady decline in weight, show a sharp upward trend after each injection of vitamin into the pectoral muscle due to the renewal of the appetite and consequent eating of more polished rice. The other pigeons kept on declining until the end of the experiment. Charts were kept of each pigeon individually.

Growth experiments were also made with guinea pigs and the crystals, but the development of scurvy complicated conditions unless special diets to prevent scurvy were used. Pigeons on the whole are much more satisfactory subjects in studying Vitamin B or the anti-beri-beri accessory.

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The use of chloretone as an anesthetic for paramecium.

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The described methods for quieting paramecia by using formaldehyde, quince seed jelly, cotton fibers, etc., are by no means satisfactory, if observations are to extend over more than a few