

experiment has been repeated, using the milk from these same cows on White Leg-horn chickens showing clinical and X-ray rickets. Five chickens were in each lot. After thirty-eight days treatment four of the lot receiving milk from the ultra-violet cows are almost cured of rickets, showing only a very slight stiffness. The fifth chicken shows some stiffness. Four of the lot receiving the normal milk show constantly increasing symptoms of the more advanced stages of clinical rickets.

"These results point to the conclusion that more of the substance necessary to cure rickets is absorbed by the cow exposed to ultra-violet light and secreted by her in her milk. The cows prevented from receiving ultra-violet light are not able to secrete this anti-rachitic substance in sufficient quantities to cure or allay the progress of clinical rickets. The results thus point to an environmental factor transmitted by the cow to her offspring through the medium of her milk. It further suggests that the high incidence of rickets in children during the late winter months is due to their mothers' not receiving enough ultra-violet light either during pregnancy or while in lactation. Furthermore, it would appear that cows' milk produced especially for baby feeding should be from cows which have access to ultra-violet light either from the sun or some other source."

BLOOD CELLS AND GLANDS CONTAIN CURE FOR RICKETS.

New cures have been found for rickets, a serious disease of children and young animals due to defective bone structure, in three substances commonly found in the bodies of all animals. They were reported by Dr. Andor de Bosanyi in a recent issue of the *Bulletin of Johns Hopkins Hospital*.

Rats afflicted with rickets were fed on a diet containing hemoglobin, which is the red coloring matter found in blood corpuscles. When the diet contained from five to six per cent. by weight of this material the rats were quickly cured of their rickets.

A previous experimenter had stated that a substance very similar to hemoglobin would cure rickets when the subject treated was exposed to light. In order to determine whether or not light had any influence in the cure caused by the hemoglobin, rachitic rats were fed the diet containing hemoglobin for eight days in a light-proof compartment. There was found to be quite as marked healing as in the presence of light.

Adrenalin, a substance secreted by glands lying immediately above the kidneys, and known to be a very powerful heart stimulant, was next given to the rats. Very weak doses were given at first and the strength of the dose increased until after four or five days the rats were taking at one dose an amount which would have proved fatal before. Healing of the rickets then began and proceeded rather rapidly until all symptoms disappeared.

The third curative substance was found in histamine, which is a decomposition product of proteins, those complex nitrogenous compounds that form the foundation of all living things. Rats on a histamine diet were cured of rickets in from six to eight days.