

notify it of promotions or changes of task. Socialist state the honeyed commonwealth may be; but it is no dictatorship.

Science News Letter, February 8, 1941

PHYSIOLOGY

Discover How Vitamin D Acts to Cure Rickets

ALMOST every school child can tell you that vitamin D, the sunshine vitamin, cures and prevents rickets. Neither the doctors who prescribe vitamin D for prevention or cure of rickets, however, nor the scientists who discovered the vitamin and learned how the sun's rays produce it have heretofore been able to tell exactly how the vitamin does its rickets curing and preventing work.

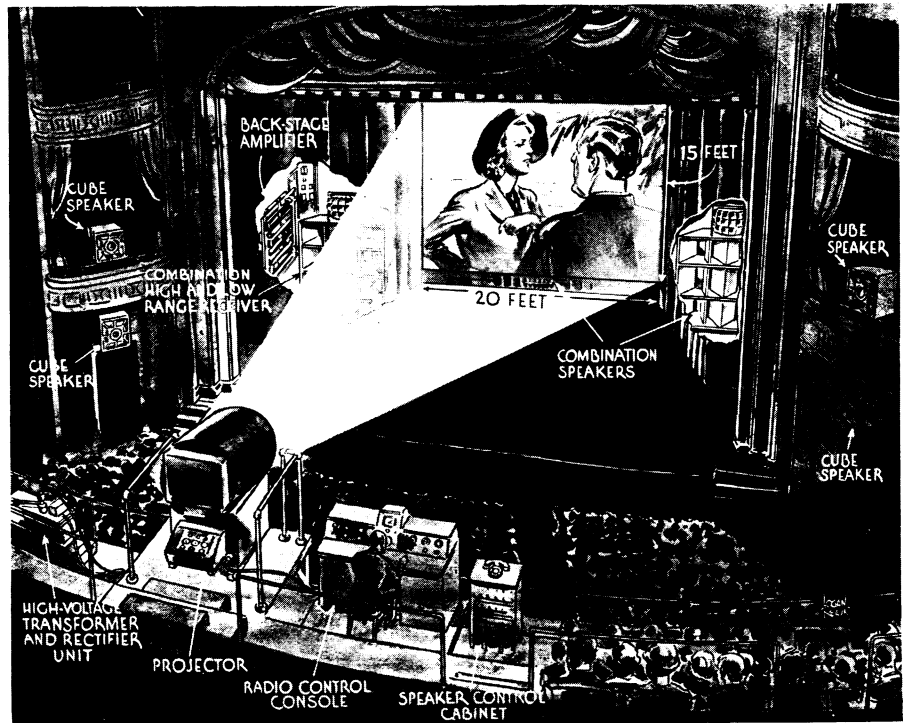
Now it has been discovered that the vitamin cures rickets or prevents it probably through its action on both the kidneys and intestines. Discovery of the vitamin's effect on kidney function has just been reported by Dr. Harold E. Harrison and Dr. Helen C. Harrison, of Cornell University Medical College. (*Journal of Clinical Investigation*, January.) The discovery, like so many others in science, depended on previous research by many other scientists who each added a bit of evidence that gave clues for further discoveries.

The bowlegs and other bony deformities of rickets, as you probably have heard, are due to the fact that the bones do not get enough calcium and phosphorus to make them hard and strong. Even with a plentiful supply of calcium and phosphorus coming into the body in the food, the bones fail to calcify unless there is also a plentiful supply of vitamin D.

The vitamin, scientists found, helps in the process by which the calcium and phosphorus from food are absorbed from the intestines into the blood for transportation to the bones. But this is not the only way in which the vitamin helps to prevent or to cure rickets. Even with plenty of phosphorus in the blood, rickets can develop because the phosphorus, instead of going to the bones, is eliminated through the body via the kidneys.

Vitamin D, the Harrisons found, also acts to prevent this loss of bone-building phosphorus. The kidneys may take the phosphorus out of the blood but when vitamin D is present, instead of eliminating the phosphorus with waste material, they return it to the blood in sufficient amounts for bone building purposes.

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NEXT: TELEVISION NEWS REELS?

When your local theater is equipped to show television with sound, this is the way the instruments may be placed.

ENGINEERING

Television Pictures Thrown On Screen From Balcony

In Order To Use Maximum of Light, Projector Is Schmidt Astronomical Camera in Reverse Position

TELEVISION pictures projected on a theater screen 15 by 20 feet, from a projector in the balcony sixty feet away, were demonstrated in New York by RCA engineers to show the Federal Communications Commission the latest advances in this field.

In order to use the greatest possible amount of light, a projector is used which is really an astronomical camera of the Schmidt type in reverse. The seven-inch face of the high voltage kinescope, on which the picture is formed, faces away from the screen, towards a 30-inch concave mirror. This reflects the image through a glass plate to correct certain faults or aberrations, then to the screen. By the method used for rating camera lenses, the system has a speed of F. 0.7.

The Commission was also shown a

home television receiver in which the pictures were projected to a screen 13½ by 18 inches. This used a conventional type of high speed lens, treated, however, with non-reflecting films, to reduce light losses.

Some of the views witnessed were transmitted from the RCA mobile television unit, stationed at Camp Upton on Long Island, 68 miles away. Automatic relays, at Hauppauge and Bellmore, picked up the short range signals and passed them along. A new horn type antenna was used to receive them, in the relay towers and finally in a window on the 62nd floor of the RCA building.

Radio facsimile, by which a newspaper complete with illustrations can automatically be printed in a home re-