

BIOCHEMISTRY

Ultraviolet Light Changes Carrot Pigment Into Vitamin A

Confirmation of British Experiments May Result in Large Scale Production and Introduction of Vitamin Into Foods

By DR. VICTOR COFMAN, Science Service Correspondent

VITAMIN A, the food factor that promotes growth and prevents infections, is produced when ultraviolet light of a particular wavelength acts on carotene, the yellow pigment found in carrots, yellow corn, butter, egg-yolk and other plant and animal substances, Drs. F. P. Bowden and C. P. Snow, of Cambridge University, announced in a report to *Nature*.

Ultraviolet light of wavelength 2650 Angstrom units transforms the mother substance, carotene, into the vitamin A. This light is too short to be seen by human eyes but it can be recorded on photographic plates.

The production of vitamin A was checked by the fact that the substance formed absorbs ultraviolet light in the way that known vitamin A does. It also yields a colored substance when treated with antimony chloride which is another test for vitamin A. The irradiated carotene has not yet been tested biologically upon animals, however.

Production of vitamin A from the yellow pigment, carotene, by action of ultraviolet light is another step to understanding the essential food elements that a few years ago were totally unknown.

Rapid progress has been made in the past few months in the chemistry of vitamin A. It is definitely known that carotene, such as used in the Cambridge University experiments, is the precursor of vitamin A. Other experimenters have shown that carotene is converted into the vitamin in the liver and early this year Prof. J. C. Drummond of University College, London, obtained vitamin A by splitting carotene into two products, one of which was the vitamin.

Prof. Paul Karrer of the University of Zurich, Switzerland, recently derived a formula for vitamin A and showed it to be a close chemical relative to artificial violet perfume.

The ultraviolet light which activated carotene into vitamin A is not contained

in sunlight. Vitamin A will not be known as a "sunshine vitamin" like anti-rachitic vitamin D which is produced by the irradiation of foods and the chemical ergosterol.

Production of vitamin A on a large scale and its manufacture in foods, such as bread and cereals, in the same way that vitamin D is introduced, can be expected to result if the British experiments are confirmed.

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PHYSIOLOGY

Headaches May Be Caused By Food Sensitiveness

HEADACHES may be caused by hyper-sensitiveness to certain foods, it appears from a report of Drs. Ray M. Balyeat and Herbert J. Rinkel of Oklahoma City to the American Medical Association. These physicians studied the various types of headaches due to this cause. They found that women have longer, less frequent attacks, while men have frequent attacks of shorter duration.

The symptoms vary in different persons and in different attacks in the same person. Several members of a family may

PSYCHOLOGY

Timing Winks Reveals More About Human Nature

SCIENTISTS at the psychological laboratory of the University of North Dakota have been studying the winks of human beings. The extent of the wink has been measured by a precise instrument. The inter-wink period has been exactly timed.

The average college student winks once every 5.99 seconds when he is not aware that his behavior is being watched and recorded, it was found by Dr. C.

have them. The only way to determine that the headaches are caused by food sensitiveness is by the trial method; avoidance of the offending food will give relief. This is also the best method of preventing the headache.

Many persons have headaches caused by inflammation of the nasal sinuses. In these cases the food sensitiveness is often a predisposing factor, Dr. Balyeat said. This occurs especially in hay-fever victims.

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PHYSICS

Cry of Tin Due To Birth of Twin Crystals

FOR YEARS chemistry professors have entertained classes by letting them listen to the "cry of tin," a creaking or tearing sound that is emitted by a bar of metallic tin when bent. Now Bruce Chalmers, working in the physics laboratory of University College, London, has discovered that this noise of tin is a sort of birth cry of the crystals in the metal becoming twins.

Using wires of single tin crystals, he stretched them and found that they lengthened without sound until the single crystal turned into two when the cry was heard. Cadmium and zinc were also made to produce cries. In his report to the scientific journal, *Nature*, Mr. Chalmers concludes the tin cry is produced by twinning in the metal and not by grinding of crystals against one another during bending as has previously been supposed, and that it has been heard only in those metals whose crystals twin when stretched.

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W. Telford and Beatrice O'Donnell Anderson, the psychologists who will report their research in the *Journal of Experimental Psychology*.

When the students knew that they were being watched, but were instructed to go ahead and wink at their natural rates, one wink to every 5.31 seconds was recorded.

Ten persons volunteered to sit in the laboratory and allow their winks to be