CHEMISTRY-MEDICINE

Chemicals Play Dual Role

A newly isolated chemical found in turnips and cabbage may be a remedy for goiter and thyroid disorders in one situation and a cause in another.

➤ ORDINARY foods such as cabbage and turnips may play a double role in goiter and thyroid gland disorders. They contain a chemical that might be a remedy in one situation and a cause in another.

Latest discoveries in this complex field, made with the aid of radioactive iodine, were reported by Dr. E. B. Astwood of Boston at the meeting of the American College of Physicians in New York City. Dr. Astwood received the college's John Phillips Memorial Medal for his earlier work in discovering anti-thyroid compounds for the treatment of hyperthyroidism, the disease resulting from overactivity of the thyroid gland.

The new work was done by a young physician working with him, Dr. Monte A. Greer, and by Dr. Martin G. Ettlinger of Harvard University chemistry department.

The idea that goiter might be caused by eating certain foods or food chemicals as well as by lack of iodine in the diet is not new. But it was not until radioactive iodine became available that scientists were able to get good evidence for it. Even now, the work is so new that the importance of the anti-thyroid plant chemical as a cause of goiter has not been firmly established.

The chemical is L-5-vinyl-2-thiooxazolidone, called thiooxazolidone for short. It is an anti-thyroid chemical of the same type as that now used to treat the kind of goiter and sickness that comes from a too-active thyroid gland. In a person with a normal thyroid, the chemical's anti-thyroid action might cause simple goiter. It would do this because the chemically retarded gland would enlarge itself in an effort to function normally and produce enough hormone for the body's needs.

This newly isolated chemical in turnips might, Dr. Astwood pointed out, have been responsible for the recent epidemic of goiter in western Europe among the peoples who had to subsist largely on turnips and for the goiter observed in sheep fed on turnips.

The turnip chemical and other similar anti-thyroid chemicals that may exist in other vegetables might explain why goiter is by no means completely abolished, though it is strikingly reduced, when the iodine intake is increased by adding it to drinking water or table salt in regions where there is a lot of simple, or endemic, goiter. In such situations the gland may have to make up for not only a lack of iodine but also a positive anti-thyroid effect from some food chemicals.

Earlier tests of the possible role of vegetables in causing goiter and of known anti-thyroid chemicals were not conclusive for a number of reasons. One important one is that rats, used in some earlier tests, do not respond exactly as humans do to anti-thyroid substances.

Radioactive iodine has made possible more exact studies because the course of radioiodine collection by the thyroid gland of normal human subjects is regular and predictable, Dr. Astwood reported. When a single dose of anti-thyroid substance is given, the accumulation rate is temporarily slowed or stopped altogether.

For the studies he reported a tracer dose of radioiodine was given to normal persons and the rate of its collection by the thyroid was determined during tthe next hour or two. The human guinea pigs were then induced to eat a single item of diet in as large an amount as possible. The subsequent course of iodine accumulation in the gland showed whether or not the food contained a significant quantity of an anti-thyroid compound.

Science News Letter, April 9, 1949

INVENTION

Twin-Hulled Ship Plan Patented by Gar Wood

➤ GAR WOOD, well-known builder and racer of speed boats, has designed a revolutionary type of twin-hulled craft, on which he has just received U. S. patent 2,464,957. It can be built in any size, he states, from small rescue boats to ocean liners and airplane carriers.

Basis of Mr. Wood's design is a pair of long, relatively slender hulls, held side by side with an open space between them by a superstructure consisting of one or more decks well above the waterline. The outboard sides of these hulls are straight, but they curve towards each other on the inside, thus producing a giant venturi tube. Each hull has its own power plant, with a propeller and a rudder astern.

As the twin-hulled craft speeds forward, it gets a considerable degree of air-lift from the lower deck surface and the incurved throat of the 'tween-hulls space. Among other advantages claimed by the inventor are greater steadiness and maneuverability, reduced wave action and abatement of yawing and pitching.

For a given investment in displacement, he declares, the design will give much larger passenger accommodation in liners and greater deck area in carriers.

Science News Letter, April 9, 1949

RADIO

Video Images Recorded For Future Reproduction

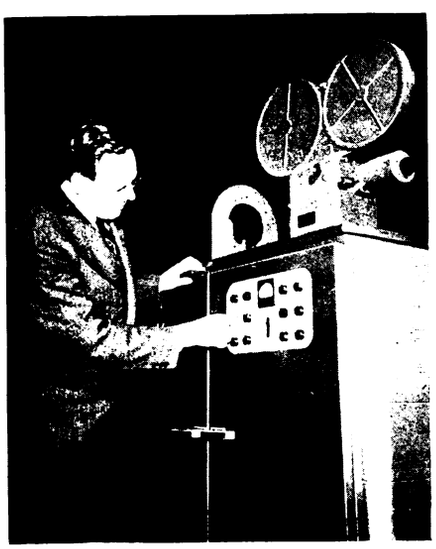
➤ TELEVISION images such as appear on the receiving set are photographed and recorded for future reproduction by means of new equipment which was given its first public showing at the meeting of the National Association of Broadcasters in Chicago.

The system is called a kinephoto equipment. It is a product of the Radio Corporation of America. Basically it is a projection-type of kinescope, or picture-producing device, and a suitable camera, plus amplifiers and other accessories. The kinescope and camera are mounted on a double cabinet rack which houses power supplies and other essentials.

The equipment utilizes standard video signals supplied directly to it from the switching system in the television studio. The kinescope is a special five-inch flat-face aluminized projection-type cathode-ray tube having a short-persistence blue phosphor screen of high actinic value.

The motion picture camera can be supplied with sound recording equipment to place the sound track and picture on the same film, or the sound signals may be fed to a separate recorder which permits editing, re-recording, and dubbing.

Science News Letter, April 9, 1949



KINEPHOTO EQUIPMENT— Television images are recorded on motion picture film by this system consisting of a kinescope or picture-producing device, a suitable camera, amplifiers and other accessories.