

MEDICINE

X-Rayed Cells Live Faster; Die of Premature Old Age

Irradiated Cancer Cells Not Killed, Research Shows; They Live Normal Life But Go Through Cycle Sooner

WHEN X-RAYS are used to treat cancer, the cells of the cancer are not killed directly but are made to live more merrily, finish their normal life more rapidly and die of senility at an earlier age.

This answer to the hitherto unsolved problem of what happens when a cancer victim is irradiated and his cancer decreases in size was given to the American Association for the Advancement of Science by Dr. Raphael Isaacs of the University of Michigan, who made observations on 923 patients before he announced his findings.

It is expected that this discovery will be of great importance in understanding various kinds of cancer and other diseases of cell growth, such as leukemia, lymphoblastoma and pernicious and other anemias.

Treatment of cancer by X-rays results in a premature old age, Dr. Isaacs found. The premature old age occurs not in the patient but in the cells of the malignant growth with which he is afflicted. This is a case where premature senility is welcome.

Dr. Isaacs studied the various kinds of the blood cells and noted the effect of the X-ray treatments given the patients. Even after X-ray therapy, the blood-forming cells, both white and red, go through their lives in an orderly manner and die normal deaths.

"Nothing happens to the cells that would not have happened to them if they had lived their normal life," said Dr. Isaacs, "except that X-rays make them go through the process somewhat faster. X-rays act by hurrying the onset of old age and not by killing directly."

Radiologists have noted that there is a lag between the time of the X-ray treatment and the effect that is produced. Dr. Isaacs said that it corresponds to the time it takes the irradiated cells to live and die, in an accelerated but normal manner. Some cells, like germ cells and white blood cells, die fairly quickly after treatment with X-rays. Dr. Isaacs finds that these cells have a short adult life and therefore die soon after it is

reached. Other cells, like those of muscle, nerve and fibrous tissue cells, live long after they become adults and when stimulated to develop to maturity by X-rays, they do not die of senility for a long time. The effects of the X-ray treatment are therefore delayed longer.

A favorite explanation of the action of X-rays and radium on the cancer and other cells has been that they killed the cells, but the researches reported by Dr. Isaacs repudiate this theory.

Science News Letter, July 9, 1932

ENGINEERING

Soap Bubbles Reveal Strength of Steel Beams

WILL the new bridge safely carry the heavy traffic that is going to flow over it?

Ask a soap bubble.

That is what engineers at the University of Michigan have been doing; and the soap bubble answers are so accurate that they are being used in a mathematical formula to picture the stress in metal parts of complicated shape.

This procedure is revealed in a report made to the American Society of Mechanical Engineers by Dr. P. Allerton Cushman of the College of Engineering in the University of Michigan. He told how the soap bubble has become a valuable aid in the determination of stresses in materials. By mapping the contour of a flimsy soap film over the cut-out model of the cross-section of a machine part or skyscraper beam, engineers can determine quickly and accurately just how much twisting or bending stress will affect the original of the model.

The apparatus devised to record these findings is surprisingly simple. Half-way down in a square box a brass sheet is sealed, with a portion of the metal cut out in copy of the cross-section of the article to be tested. Topping the box is a glass plate inset with a depth gauge. In operation a film of soap so-

lution is drawn across the cut-out design, water is forced into the lower part of the box, causing the confined air beneath the plate to push up the film, and with the depth gauge the varying level of the film is measured from the glass top. Many readings are made in various spots, curves are charted between the points, and a contour map results which locates stress points which may easily be interpreted in their meaning for the designer of metal work.

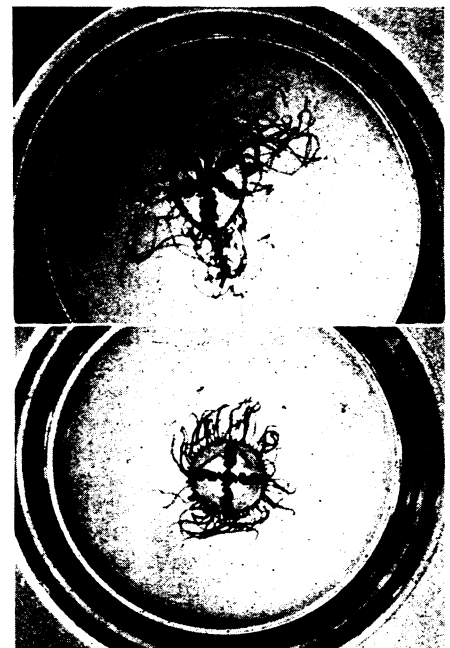
Science News Letter, July 9, 1932

CHEMISTRY

Colored Coverings Prevent Rancid Foods

SPECIAL red and green wrappers and bottles are likely to be used in the future for packaging oils, mayonnaise, butter, lard, potato chips and other oil-bearing foods to prevent them from becoming rancid as the result of a Department of Agriculture discovery that certain wavelengths of light produce rancidity.

Mayne R. Coe of the food research division of the U. S. Bureau of Chemistry and Soils reported in *Science* that the keeping quality of oily foods is greatly enhanced by the use of packages that screen out the *(Please turn page)*



A FREAK JELLYFISH

—matching two-headed turtles and four-legged chickens, turned up in the zoology laboratory collections of the University of Southern California. Normal jellyfish of this group have four "radial canals" as shown in the specimen at the bottom. This one had six, two mouths and eight frilled lobes about them.