

MEDICINE

# X-Ray Burns Healed, Cancer Prevented By New Method

## International Cancer Congress Hears Of New Research Into Possible Causes and Cures of Dread Disease

**X**-RAY and radium burns of many years standing have been healed and probably kept from turning into cancers by a method reported by Dr. Erich Uhlmann of Chicago at the International Cancer Congress meeting in Atlantic City.

Effective cancer treatment may even result from modification of the method used to treat these dangerous sores, which are the same kind that claimed the lives of many of the X-ray pioneers. Dr. Uhlmann said that he is now working at an adaptation of the method to cancer treatment.

The treatment is a combination of alpha rays, beryllium and boron. Skin burns and ulcers, produced by X-ray or radium treatment, which failed to heal in spite of many kinds of treatments over a long period, "healed completely in a short time" under this new form of treatment, Dr. Uhlmann reported.

Ten-year cures of both the ulcers and of some which had started to become cancers were reported. The cancers were not healed by the treatment but their growth was definitely retarded. They were then removed by cold cautery (dry ice). Following this the wounds and the original injury healed "in a surprisingly short time" and there have been no recurrences in the ten years since the treatment.

Dr. Uhlmann suggests that either neutrons or secondary alpha rays may be responsible for the success of the treatment. Beryllium is the greatest source scientists now have for the fast neutron rays. Bombarding beryllium with deuterons in the cyclotron or making it into a bomb with radon gas from radium will produce neutrons. Apparently Dr. Uhlmann stumbled on this last method of making neutrons long before these powerful rays had actually been discovered.

*Science News Letter, September 23, 1939*

## Hope For Vaccination

**C**ONQUEST of cancer by vaccinating against it seems closer to reality

today as a result of experiments reported to the Congress.

Mice have been made resistant to cancer by giving them a complex substance called a chemoantigen, Dr. W. R. Franks of Toronto reported. In London, England, Dr. William Cramer has immunized mice against skin cancer and Dr. Thomas Lumsden has discovered in the blood of many cancerous animals a poisonous substance which kills cancer cells under certain conditions, they reported.

Dr. Franks produced cancer resistance in his mice by linking cancer-causing chemicals with casein, the protein of milk. He reported a "significant reduction in tumor production," when this substance was given before cancer-causing agents were set to work in the animals' bodies.

The anti-cancer vaccination experiments have so far been limited to laboratory animals and it may be a long time before any such results can be achieved with humans, if they ever can be.

*Science News Letter, September 23, 1939*

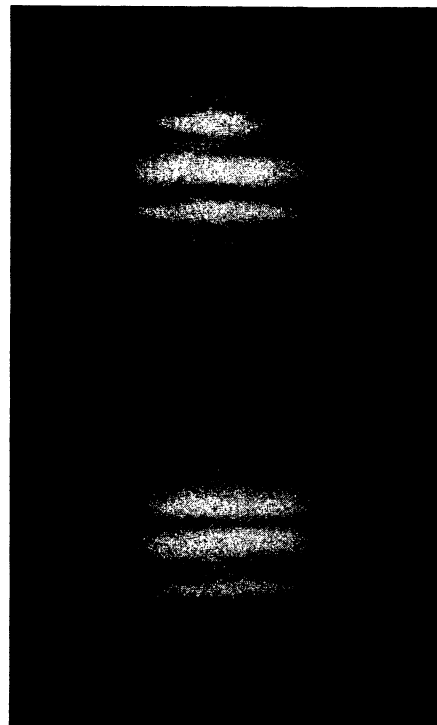
## See Cells Become Cancerous

**T**HE SEARCH for a chemical to cure cancer has been advanced by the discovery of a cancer indicator which lets scientists see under the microscope the cells that are becoming cancerous.

The indicator was demonstrated by Prof. Albert Dustin of Brussels. It is the old-time gout remedy, colchicine, obtained from the meadow saffron. It has no practical value as a cancer test, but it has opened new fields for research on cancer and also on gland action and other unsolved medical problems.

Colchicine speeds up the division of certain types of cells into new cells. It also has the power to halt this cell division at one stage, called the metaphase. It is this double effect of the drug that lets scientists see the cancer cells under the microscope when they are becoming cancerous.

It is important to look at just the right time to see this take-off into cancer, Prof. Dustin found. Cancer-causing chemicals



## JUPITER DRAWS NEAR

*Jupiter, biggest of all the planets and over 314 times as heavy as the earth, makes its nearest approach to our planet in 24 years on Sept. 27. On that date Jupiter will be 367,110,000 miles away. What Jupiter looks like in large telescopes is shown in these photographs made at Lowell Observatory. The streaks which run across Jupiter's visible surface have no fixed patterns. They change from time to time. Their cause is still one of astronomy's mysteries.*

are first injected into rats or other laboratory animals. Then colchicine, the indicator, is injected, to speed up the division of the cells. Between 7 and 10 hours, no more and no less, the cells are arrested in their dividing. This is the time when the scientist can see that the cancer cells are ready to proceed to abnormal division, and normal cells are ready to go on dividing normally.

If a chemical is ever found to cure cancer or to prevent it, it probably will have to achieve its effect on the cells at this stage of their lives. Colchicine, the indicator that shows up this stage, will, it is believed, show whether or not the proposed chemical cure is having any effect on the cancer cells at this crucial period.

At this same period of division, cells are most vulnerable to the destructive action of X-rays. Colchicine, which speeds up cell division so that many more cells are in the dividing stage, promises to make X-rays more effective in cancer treatment. By giving colchicine

to rats some 12 to 18 hours before X-ray treatments, cell division figures accumulated from 10 to 100 times the normal and X-rays applied toward the end of such periods of arrested cell division were more effective than in animals that had no colchicine. These studies and others showing that X-rays were more lethal to cancer cells after colchicine treatment were reported by Drs. M. F. Guyer and P. E. Claus of Madison, Wis.

*Science News Letter, September 23, 1939*

## Glands Prevent Cancer

**C**ANCER-SUSCEPTIBLE women may be protected against cancer by proper gland treatment, if the theory elaborated in a report from Dr. William Cramer of London, England, can be put on a practical basis.

Statistical investigations have already shown that some women inherit a susceptibility to breast cancer. A number of scientists suspect that breast cancer in women is due to the presence of too much of the female sex hormone in their bodies. It is known that injections of this female sex hormone will produce breast cancers in mice.

Dr. Cramer suggests that in women an excess of female sex hormone with cancer-causing power may arise if glands other than the sex glands are disordered. Both the pituitary gland in the head, for example, and the adrenal glands influence the sex glands.

If these other gland disorders can be detected and corrected, the women might be protected from cancer which would otherwise develop.

*Science News Letter, September 23, 1939*

## Virus Cause of Cancer?

**C**AN cancer be caused by a virus, the kind of ultra-microscopic substance that causes infantile paralysis, influenza and other baffling ailments? The case for and against this theory of cancer cause was debated by leading English and American authorities on cancer and on viruses.

The idea should be given very careful attention, declared Dr. C. H. Andrewes of London. He pointed out that viruses are now accepted as the cause of some tumors in animals. There is no proof yet, he stated, that viruses are concerned in the cause of cancer in general, but the viruses have properties which fit them for the role of cancer-causing agents and they should therefore be given further study in this connection.

On the other hand, Dr. James B. Mur-

phy of New York City gave as his opinion that there is no justification for the idea that there is one "universal virus" which causes cancers. Investigation of the viruses which cause tumors in animals is, however, interesting and important, he pointed out.

Chief point against the idea that human cancer is caused by a virus is the failure so far to find a filterable substance such as a virus in tumors of mammalian animals (mouse or man) which can cause tumors when injected into other animals. This point was stressed by both Drs. Murphy and Andrewes.

Whether or not viruses cause cancer in man, they may provide the best lead to discovering the nature of "directive factors" in the life processes of both normal and cancer cells, and thus perhaps to discovery of what directs a cancer cell to become cancerous. This suggestion was made by Dr. W. M. Stanley, of the Rockefeller Institute at Princeton, N. J., the scientist who succeeded in isolating some viruses in the form of crystalline, non-living protein matter.

The viruses represent a key to abnormal tissue changes, he said, and because many viruses are now available in essentially pure form for study, investigation of them may give scientists the key to the abnormal tissue change that is cancerous.

*Science News Letter, September 23, 1939*

## Tobacco and Cancer

**B**OTH coffee and tobacco contain tars which can cause cancer, Dr. Angel H. Roffo, of Buenos Aires, Argentina, has found. Some of the tars he extracted from tobacco caused cancer when painted on rabbits' skins in 100% of the animals. Most active cancer-causing tars were obtained from Turkish, Egyptian, Kentucky and twist tobaccos. Tars of tobaccos from Havana, Italy, Paraguay, Germany and Salta were not so active but even these caused cancer in more than 50% of the animals treated. Dr. Roffo estimates that the average smoker in 10 years applies more than 8 quarts of tobacco tar to the tissues lining his breathing apparatus.

Coffee drinkers need not fear getting cancer, Dr. Roffo reassures us, because the cancer-causing substances in coffee tar do not dissolve in water and so cannot get at human tissues to damage them.

*Science News Letter, September 23, 1939*

The California Institute of Technology has a "dust-storm machine" for sorting soil particles according to size.

## PUBLIC HEALTH

### Food Deficiencies Will Be Increased by Pinch of War

**F**OOD is essential in war. It can almost be considered a munition, in these days when there are no non-combatants. In the warring countries, hemmed in by armies, navies, and air fleets, food will become less plentiful and less adequate to proper support of human life.

Just as war tightens belts, there is a growing realization that even in the most peaceful and prosperous days millions in the leading nations, our own included, do not get enough to eat of the proper food. The world is chronically undernourished, to the great aid of disease and unrest.

"We now know that faulty diet is responsible for a great deal of disease, ill health and physical disability which in the past were regarded as normal and inevitable," wrote Sir John Orr, director of the Imperial Bureau of Nutrition, Aberdeen, Scotland, in one of the papers undelivered before the British Association for the Advancement of Science at its Dundee meeting when war blacked-out its sessions.

Up until a few years ago we did not know enough to assure good food to every one. Now, as Sir John Orr says, the center of interest in nutrition has moved from physiology to economics. There is difficulty in getting the new knowledge applied under economic conditions which grew up before the knowledge was available.

Studies in Great Britain show that the diet of the poorer half of the population is deficient and becomes more deficient as family income falls. The kind of diet in common use among the poorest 25% of the population is deficient in nearly every constituent necessary for health with the exception of carbohydrates and fats. Much the same story can be told about other nations. Germany is probably much worse off. We are somewhat better situated, although we have our famous "one-third of a nation" ill fed.

In peace times the diet is faulty in "protective" foods, such as milk, dairy produce, eggs, fruit and vegetables. Consumption of these should be doubled.

Under the pinch of war, despite regimentation that may iron out inequalities and actually give a better diet to the lowest levels, the advance of nutrition to mankind's betterment will undoubtedly be given smashing blows.

*Science News Letter, September 23, 1939*