

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.

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## 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.

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## 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.

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## 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.

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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.

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