

MEDICINE

# Artificial Siamese Twins Show Role of Sex Hormones

## Pairs of Mice Joined by Surgery to Have Single Blood Supply Throw Light on Cancer Causation

**P**AIRS of male and female mice, joined Siamese-twin fashion by surgical operation so that they had a common blood supply, have helped to identify the sex hormone that might play a part in breast cancer causation. The studies were reported by Dr. William S. Murray, of the New York State Institute for the Study of Malignant Disease, Buffalo, at the meeting of the American Association for Cancer Research in Chicago.

One of the female sex hormones, the luteal fraction of the ovarian hormone, is the hormone that may lead to the formation of breast cancer in mice, it appears from Dr. Murray's studies.

Scientists had previously found that the ovarian hormones, acting upon or accumulating in the breast tissues of mice, upset the balance between the various hormones in the body, and instigate the formation of cancers. Whether it was the amount or the kind of sex hormone that led to cancer formation was the question Dr. Murray set himself to solve with the paired male and female mice. Male mice of the strain he studied never developed breast cancer. In breeding females of the strain, breast cancer appeared in from 65 per cent. to 100 per cent. under the stimulation of the hormones of oestrus, pregnancy and lactation, whereas in virgin females the ovarian hormones producing oestrus caused breast cancer in only 50 per cent. of the mice.

By pairing the male and female mice

so that they had a common blood supply, both came under the influence of the same amount and kind of sex hormones, both male and female. Introduction of the male hormones into the blood stream of the females upset the sexual cycle in the females. The ovaries were stimulated to precocious development of follicles which degenerated so that no luteal tissue or hormone was formed. Neither males nor females developed breast tumors. Since the luteal fraction of the ovarian hormone was absent, Dr. Murray concludes that this is the hormone that plays a role in the development of breast cancer in mice.

### New Cancer Yardstick

A new yardstick for distinguishing between three cancer-like diseases, which takes a leaf from the book of statisticians who study birth rates in populations, was reported at the meeting of the American Association for Cancer Research by Dr. Albert E. Casey of St. Louis University.

Just as excessive birth rates may bring difficulties to a whole continent like Europe through population pressure, so too, pointed out Dr. Casey, the excessive birth rate of cancer cells is an index to the degree of malignancy in cancerlike diseases such as lymphosarcoma, lymphatic leukemia and Hodgkin's disease.

Death from cancer, finds Dr. Casey by his new method, is in direct proportion to the cancer cells' birth rate. Tumors with low cell birth rate almost never spread to other parts of the body and never cause death except by accident of location.

Swift-growing tumor cells, however, tend to run over into neighboring territories just as nations with a high birth rate tend to seek more room by territorial expansion.

Dr. Casey's analysis of the three diseases based on this population birth rate idea show lymphosarcoma has a high cellular birth rate and—as in real life—a high death rate from the affliction. Tissues from cases of lymphatic leukemia look almost like lymphosarcoma under a microscope but have a low birth rate.

This disease, concludes Dr. Casey, is a harmless tumor growth of the lymph tissues but is not infectious or malignant. Hodgkin's disease has a low birth rate in its cells and there is no evidence that this condition is true cancer.

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ORNITHOLOGY

## Migratory Bird Treaty With Mexico Ratified

**W**ITH the exchange of ratifications of the Mexico-U. S. migratory bird treaty, and the already existing treaty with Canada, North America rounds out a safety-for-birds policy that holds from the Arctic Ocean to the boundaries of Central America.

International agreements are established regulating the maximum length of shooting seasons, prohibiting all shooting whatever during spring and summer, and designating permanently closed sanctuary areas. Neither game birds nor mammals, dead or alive, may be transported across the Mexican border without a permit from the government of each country.

A large list of bird families receives the benefits of protection under the treaty. It includes not only game birds like ducks, geese, snipe, and pigeons, but also small songbirds such as mockingbirds, finches, thrashers, and buntings.

The Bureau of Biological Survey, U. S. Department of Agriculture, has worked patiently for many years to bring this agreement to pass. Conservationists and sportsmen alike have expressed gratification over the consummation of the treaty.

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be determined by figuring the stages of retreat of glaciers in the Rockies and Middle West.

To add to complexity of the problem, Dr. E. B. Renaud of the University of Denver reported finding 3,700 pieces of worked stone, representing early American handiwork crude and primitive and closely like various stages of the Old World's really ancient stone arts. These implements, found on the surface at 40 sites, are not believed by Dr. Renaud to be as old as Europe's Dawn Men or other types several hundred thousand years old, but they apparently show America's earliest inhabitants in a new light, as people who did cruder work on occasion than has been associated with them before.

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