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MEDICINE

1963 Cancer Prediction

► **CANCER DEATHS** will total 280,000 this year, but 177,000 who might otherwise have died will live because medical science will cure them.

The president of the American Cancer Society, Dr. I. S. Ravdin, Philadelphia surgeon, gave a life-and-death box score at La Jolla, Calif., in connection with this month's national cancer drive for life-saving and funds.

Public understanding of the need for early detection, and for uterine cancer, the advantage of the Papanicolaou smear test, is responsible for the encouraging cure rate, Dr. Ravdin said. Along with uterine cancer, stomach malignancy has decreased in the past ten years, he told a group of scientists and science writers.

But lung cancer presents a very black picture, he said. Death rates have increased 73% in men and 18% in women with this malignancy. The better record for women is credited by Dr. Ravdin to the fact that women have not been smoking as much or as long as men.

About 41,000 men and 6,000 women are expected to develop lung cancer this year. Dr. Ravdin said 75% of this number prob-

ably would not have developed it if they had never smoked. Smokers who now stop or greatly reduce cigarette smoking run less risk of lung cancer.

Early detection of cancer of the colon and rectum is being stressed by the American Cancer Society, which estimates that three out of four patients could be saved by prompt treatment. This form of cancer strikes some 73,000 Americans each year, with death resulting for more than 40,000 of them.

Breast cancer will afflict about 63,000 women in 1963, despite widespread public education on self-examination and annual check-ups. The death rate has remained high and unchanged during the past ten years.

Leukemia is increasing among adults, but this cancer of the blood-forming organs is leveling off among children.

Challenging gains have been made in spite of continued cancer deaths, Dr. Ravdin said. Last year alone, 44,000 cancer patients who were saved would have died if they had developed the disease ten years ago.

• Science News Letter, 83:286 May 4, 1963

BIOLOGY

Thin Air Affects Brain

► **THE BRAIN MATURES** more slowly in the thin air of high altitudes.

This finding was reported by two scientists who tested young rats on the University of California's Berkeley campus and in a two-mile-high laboratory at the University's White Mountain Research Station.

Marked changes in brain function both in mountain-born animals and in those taken to high altitude soon after birth were found.

The effects were most pronounced on rats born at high altitude, apparently indicating an altitude-caused influence exerted through the mother on the unborn fetus.

These observations may have important implications for humans living at high altitudes. They also add to basic knowledge about the brain and about the physiological stresses that lead to "mountain sickness."

The experiments were reported to the Federation of American Societies for Experimental Biology meeting at Atlantic City, N.J., by Dr. Louise H. Heim of Adelphi College, Garden City, N.Y., and Dr. Paolo S. Timiras of the University of California.

The researchers used three groups of female rats:

1. Rats born and maintained in a sea-level laboratory at Berkeley.
2. Rats born at sea level and transferred after birth to Mt. Barcroft laboratory at 12,500 feet on White Mountain.
3. Rats born and raised in the Mt. Barcroft laboratory.

To measure the development in the brains of the test animals, the scientists used standard electroshock seizure tests. These are carefully timed measurements of the animals' convulsive reactions to brief electric shocks.

A rat's brain is immature at birth, reaching maturity between the third and fourth week of life.

In the White Mountain tests, both sea-level-born and altitude-born rats were delayed in several phases of brain development, and altitude-born animals were delayed a full day in reaching complete brain maturity.

Cause of the brain effects is still largely a mystery, although Drs. Heim and Timiras suggest that the high altitude lack of oxygen may retard myelination, the sheathing of nerve fibers that leads to lower levels of excitability and more mature function in the brain.

The most pronounced symptoms of altitude sickness in humans are found in the brain and central nervous system, the scientists pointed out. These symptoms often include a deterioration of memory and judgment and may also involve such contradictory effects as sleepiness and insomnia, restlessness and lassitude, and irritability and euphoria.

• Science News Letter, 83:286 May 4, 1963

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