CHEMISTRY

Key to Cancer Control

"Life-managing" nucleic acids and their derivatives seen as key to cure and prevention of cancer in papers presented at World Chemical Conclave.

➤ THE KEY to the cure and prevention of cancer, goal of extensive medical research today, seems to lie in the complex "life-managing" nucleic acids and their derivatives.

These chemicals hold the power of assuring the orderly multiplication of living cells such as occur in health. When unusual or absent these vital chemicals promote the riotous or disordered growth that is cancer.

This was learned from the first papers presented before the two-week World Chemical Conclave organized to celebrate three-quarters of a century of the American Chemical Society.

Many of the chemical attacks on cancer are based upon attempting to interfere with the nucleic acids of the cell, Dr. George Bosworth Brown of Sloan-Kettering Institute, New York, told the chemists.

One of the principal actions of material fighting cancer is to stop the synthesis of nucleic acid, a team from the Southern Research Institute, Birmingham, Ala., reported. The chemists were Howard E. Skipper, L. L. Bennett, Jr., and Glynn P. Wheeler.

The cancer-producing chemical reactions involve the tiny particles within the cells, called the chromosomes, which determine the growth, constitution and reproduction of the cells that make up the living body. This was emphasized by a British biochemist, Dr. Eric Boyland of London's Royal Cancer Hospital. A nucleic acid deficiency or an unusual nucleic acid can be associated, he has found, with abnormalities when cells divide.

Cancer can be prevented practically by guarding against chemicals that are known to produce cancers, Dr. Boyland urged. In the case of cancer, prevention is truly better than cure, he emphasized. Already many cases of cancer have been discovered and largely eliminated, among them:

Radium that causes cancer of the bones, X-rays, certain oils used for lubrication, soot that used to cause cancer in chimney sweeps, arsenic, beryllium metal, mustard gas and nitrogen mustards, the aromatic compound benzpyrene found in coal tar, the dye butter yellow used at one time to color foodstuffs.

Arsenic present in cigarettes may be in part responsible for some cancer of the lung, Dr. Boyland said, but there is at present no laboratory test that will reveal the carcinogenic activity of arsenic for man. If there were experiments to detect the cancer-producing properties of various materials, unsuspected dangerous agents in everyday use would undoubtedly be revealed.

More than one chemical process within the living cells can lead to cancer, Dr. Boyland explained. The diversity of cancer-producing agents makes this probable. The hope is that by finding out mechanisms by which different chemicals that cause cancer produce their effects, it will be possible to discover and treat the cancer causes within the cells themselves.

The "chemical of life" which plays an essential role in life processes of the cell is involved in cancer. This is desoxyribonucleic acid, necessary for maintenance of normal cell division. Cancer-causing chemical agents do their dangerous work by affecting this basic cell component, sometimes breaking it down and in other cases joining with it to keep it from doing its normal work.

Science News Letter, September 15, 1951

NUTRITION

Reducing Diet Has Half Fat in 1400 Calories

➤ THE DAY may be coming when fat men and women will be able to eat fatty foods, such as pork, and drink whole milk instead of skim milk and still lose weight.

Students at Cornell University, Ithaca, N. Y., lost an average of 18 pounds in two months on such a diet. Of their 1,400 calories a day, one half came from fat. Whether the diet will be equally successful for older people as for the 10 overweight students who volunteered to follow it at Cornell will not be known without further study.

The diet was developed by Dr. Margaret Ohlson at Michigan State College in East Lansing and tested on students at Cornell University under the direction of Dr. Charlotte M. Young.

Meat of any kind in two meals a day, one egg, one slice of bread a day and fruits and vegetables are included in this high protein, moderate fat, low sugar and starch diet.

Science News Letter, September 15, 1951

ECOLOGY

People Don't Stray Far In Day-To-Day Travels

➤ DESPITE MODERN transportation, human beings do not stray very far away from their homes as a general rule.

To the meeting in Minneapolis, Minn., of the Ecological Society of America, composed of scientists who study the interplay between environment and the living things in it, Dr. David E. Davis of the Johns Hopkins University School of Hygiene and Public Health, Baltimore, reported a study of "the home range of humans." He went at the job as though he was studying some other sort of animal or living creature.

Disregarding unusual trips and week-end travels, he found as a by-product of a Baltimore traffic survey that regular round trips on an average week day were approximately 2½ to 3 miles in length. Of the trips studied, 43 per cent were within two miles, 71 per cent within 4 miles, 88 per cent within 6 miles and 96 per cent within 8 miles.

Dr. Davis concluded that as has been found the case for other mammals, Homo sapiens, which is the scientific name for people, have a very limited range in their day-to-day life.

Science News Letter, September 15, 1951

PSYCHOLOGY

Brighter Offspring Born When Mamas Fed Glutamic

➤ FEEDING GLUTAMIC acid to expectant mothers makes the babies brighter. At least this is indicated by experiments on rats conducted by Dr. Alex L. Sweet, of the University of Kansas, Lawrence.

Two pairs of sister rats, each pair mated to the same male, were the subjects on this experiment. One sister of each pair was given 300 milligrams of glutamic acid each day in addition to her regular feedings. The other sister, for comparison, did not receive the chemical.

The offspring when they reached eight weeks of age were tested on their ability to learn to run mazes. A larger proportion of the young of the glutamic-fed mothers could learn to solve the problems and they made fewer errors than did the young of mothers who did not receive this "brain food." Dr. Sweet reported his findings to the American Psychological Association meeting in Chicago.

Science News Letter, September 15, 1951

INVENTION

"Hands Up!" Taxi Driver's Push Button Raises Shield

➤ SAFETY FOR taxi drivers from robbers posing as passengers is promised with a protective shield which is ordinarily hidden in the back of the driver's seat but which shoots up to the ceiling when released by a secret button handy to the driver.

Patent 2,566,032 was awarded to Irwin J. Poland of Baltimore, Md., for this handy device.

The shield is made of bullet-proof metal. The mechanism that shoots the shield up to the ceiling also activates locks on the doors and windows. The passenger is trapped, and the driver can deliver him to the police without further trouble.

Science News Letter, September 15, 1951