

MEDICINE

Facts About Cancer

One of the greatest fights the world has ever seen is being waged by medical science against cancer, still a deadly enemy of human beings.

(First of a series of five articles on what can be done about cancer.)

By JANE STAFFORD

► **CANCER IS** a frightening and a sorrowful word to millions.

The word itself comes from the Latin for crab, and a mean old crab it is. Fear, sadness and name-calling, however, cannot stop cancer. Action based on knowledge is needed for that.

Scientists are still searching for more knowledge with which to attack and stop this frightening killer. Meanwhile some things are known which can help all of us to hold the line against cancer.

Many people think of cancer as "a growth." It is more accurate to think of it not just as one growth, but as abnormal growth. Normally, millions of cells in the body die and are replaced every day. Cancer often begins in a disorderly replacement of worn-out cells. The normal replacement of worn-out cells is orderly. Even in cases of injury, when cells are damaged and destroyed, regrowth of the tissue is orderly. When, for example, the skin is cut, new skin cells grow until the cut is healed. Then, normally, the growth of new skin cells is slowed down again to the pace needed for replacing skin cells as they wear out normally.

Cancer cells, once they start growing, do not stop. And they grow without the organization or differentiation that normally controls growing cells so that, from the fertilized egg, cells for different organs and parts of the body develop.

Cancer, if unchecked, kills, and before it kills, it causes sickness. So it is often called a disease. Scientists, however, look on it as a group of diseases with one general characteristic. This characteristic is the multiplication of diseased cells within the body and the invasion by these cells of normal tissue.

Cancer invades not only surrounding tissue. It also gives rise to secondary abnormal growth spots in other parts of the body. This is called metastasis. This spread may be via blood vessels to any part of the body or via lymph vessels to lymph nodes, familiarly called glands, which drain the region in which the cancer is situated.

The primary cause of cancer is unknown, just as the prime factor which supervises the orderly growth and organization of normal cells is unknown. But some secondary causes are known and many others are suspected. For example, although scientists

do not know why cancer of the skin ever occurs, they do know that long exposure to sunlight over a long period of time will cause skin cancer in some persons, particularly light-skinned persons who do not tan easily.

The modern scientific view of the cause of cancer is that there are many causes and probably cancer results from the interplay of more than one.

Viruses are known to cause certain cancers in chickens, rabbits, frogs, and mice. Some scientists suspect a virus cause for some cancers in man. But human cancer is not considered contagious in the manner of virus-caused diseases, such as influenza.

Some chemicals can cause cancer. A hydrocarbon in coal soot has been implicated as the cause of cancer in chimney sweeps. Luminous watch dial painters got cancer from the radium paint they swallowed as they pointed their brushes. Aniline dyes have caused cancer of the bladder in workers in dye plants. Cancer of the lung in chromate workers and cancer of the skin in asphalt workers are other examples of chemicals that can cause cancer.

Cancer is not caused by injuries, but conditions of long-continued chronic irritation are believed to predispose to it. Irritation of the lip by the heated stem of the pipe, for example, may over the years lead to lip cancer. Friction from a belt, suspenders or brassiere strap on a pigmented mole may lead to the kind of cancer called melanoma.

Scientists do not believe cancer is inherited in the way blue eyes are inherited. But there seems to be a hereditary basis for some kinds of cancer. This point has long been and continues to be the subject of intense scientific investigation. Human beings live in a complex environment, eating many kinds of diet, using and working with many kinds of chemicals and subject to many kinds of stresses. And they seldom mate with relatives closer than cousins. So it is very difficult to sort out the possible effects of inheritance and environment and put the finger on any one factor in heredity or environment as a cause of cancer.

Hormones, chemicals produced by glands of the body, seem to be involved in development of at least some kinds of cancer.

Because cancer is a condition of abnormal growth of cells, scientists are delving into the inmost part of the cell, its nucleus, seeking to find what happens there when there is long exposure to chronic irritation, to sunlight or radiation from X-rays and

radium, to chemicals or to unbalanced amounts of hormones.

Scientists have already discovered that some chemical operations of the cancer cell nucleus are different from those in the nucleus of a normal cell. The reason has been traced to enzyme chemicals. Further studies along this line are expected to show much more about the cause of cancer and, perhaps, better ways of controlling cancer.

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Next Week: Detection Important Part of Cancer Fighting.

MEDICINE

Cancer Increases 30% In Decade in Pittsburgh

► **RECENT CANCER** news: National Cancer Institute statisticians find that cancer among residents of the Pittsburgh area apparently increased 30% from 1937 to 1947. Greatest increase was for cancer of the bronchus and lung, which almost doubled in the 10-year period. But cancer patients in this area were getting more hospital attention in 1947 than 1937, which suggests they are getting better medical attention.

The blocking effect of one cancer-causing chemical by another may be due to changes in the adrenal gland, research by Dr. Howard L. Richardson at the University of Oregon suggests. Reporting the findings, the American Cancer Society, which supported the research, says they may help explain why some chemicals will bring temporary relief and even occasional transient shrinkage of cancers in some patients.

A chemical called lathosterol, which may be the key to a new class of cancer-causing compounds, has been discovered in search for a better means of synthesizing cortisone, famous arthritis remedy. This was reported by Dr. Louis F. Fieser of Harvard University at a meeting at City College in New York.

Three of the compounds which help keep livers healthy, all of them enzymes which control the transfer of methyl groups from one substance to another in body chemical reactions, have been identified and partially purified by Dr. Giulio L. Cantoni of Western Reserve University School of Medicine, Cleveland. The research is announced by the American Cancer Society.

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INVENTION

Piggy Bank Is Also Phonograph Record

► **NOW THE** piggy bank talks and sings. John J. Byrne, New York, has invented a flat, thin, round bank, the top and bottom of which are phonograph records. The money is kept in between. The bank can be played on any record player. He received patent number 2,588,958.

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