

WHAT WE KNOW ABOUT CANCER

It Causes More Than One in Every Thirty Deaths and Carries Off More Victims Than All the Contagious Diseases Put Together—Is Not Fatal if Treated in Time and Is Not on the Increase

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HERE is naturally very great popular interest in cancer. The disease causes more than one in thirty deaths, it is said, and carries off more victims than typhoid fever, smallpox, scarlet fever, measles, whooping cough and all the contagious diseases put together. There are very few people one may meet in our time who have not lost some friends by cancer. Information with regard to it has been looked for anxiously and the supply from many sources has been almost equal to the demand. Some of the information, however, has proved to be merely hasty jumping to conclusions not justified by real knowledge. Much more of it has turned out to be sensational seeking after notoriety for one reason or another, either on the part of scientific investigators, or much oftener on the part of those whose only idea is to make money by their supposed discoveries.

Scarcely a month passes without the announcement of a new and wonderful discovery with regard to the cause and cure of cancer, yet the cancer deaths continue and very little that is practical seems to have been accomplished. Every now and then the high character of the source of the news seems to indicate that the mystery has surely been solved, but we find after a time that it is just as great a mystery as ever, and cancer continues to be one of the most serious factors in the human death rate. In spite of all the accumulation of medical scientific knowledge in recent years there have even been declarations, apparently founded on reliable statistics, that cancer was increasing rather than decreasing. This, of course, is mainly due to the fact that with better knowledge cancer is now more frequently and surely diagnosed. Many a patient died from obscure internal ailments in the past whose death was set down to some constitutional disease of a general character or to some complication or even to old age that now is definitely recognized as a death from cancer. Population is so much more crowded and news better reported that we hear much more frequently of deaths from cancer, but the only real increase has come from the fact that our better hygienic conditions are keeping people alive longer than a few generations ago, and cancer is a disease particularly of the time after middle life. More people live to the cancer age and death inevitably comes to a certain number of them in this form.

Cause Not Known.
In spite of the scarcity of such definite information as would enable us to prevent or cure cancer in general, we now know enough about it to be able to point out certain conditions that favor its appearance in people who are predisposed to it so as to be able to suggest general prophylaxis and, still more important, to be able to quiet many fears and doubts with regard to cancer which make some sensitive people almost as miserable as if the disease were actually developing.

Probably the most important source of information with regard to cancer has been the investigation made by the Imperial Cancer Research Fund of England under the direction of the Royal College of Physicians of London and the Royal College of Surgeons of England. Their fourth scientific report published not long since makes another valuable contribution, not to the theory of cancer, of which we have a surplus, but to such actual knowledge of the disease as may be helpful.

While we do not know the cause of cancer, as has been said, there are many interesting conditions that have been discovered in which it develops very frequently. It is particularly likely to originate in areas of chronic irritation; that is, portions of the body where some irritant has been producing that tendency to coagulation in the midst of which nerves are more sensitive and vital processes are more active than they are anywhere else. Many of these chronic irritations are due to occupations or popular habits. It was because of the frequent occurrence of cancer in connection with certain trades that the peculiarity of cancer was first recognized.

One of the earliest of these was the so-called chimney sweep's cancer. The soot from the chimneys clouded by these workers gathered in various creases of the body and, being very fine, is difficult of entire removal by washing. Besides, such laborers seldom take much trouble to secure complete cleanliness. As a consequence, manifestly, of the chronic irritation set up by the presence of this dirt it was noted that cancer was particularly likely to develop in certain folds and creases of the

skin surface, though practically never seen in other people in the same situations.

After this came a series of similar observations. It was found that people who work in tar and paraffin may have cancer develop on portions of the skin surface subjected to constant irritation from these products. Apparently all that is needed in certain persons is the constant presence of an irritant, and then cancer is likely to develop. It does not develop in all of the workers in a particular trade, nor even in a large proportion of them, but it is seen only in those who work at such trades, and the origin of it, particularly in parts of the body where irritants are constantly present in workers, though cancer almost never occurs in other persons in such localities, makes it evident that the disease is due to the prolonged local irritation.

- Any form of chronic irritation, however, may prove the basis for the development of cancer. Sailors, who handle ropes and whose hands and arms are much exposed to the inclemencies of the weather, develop certain chronic skin diseases, in the midst of which cancer has been known to develop, which by German authorities has been spoken of as sailor's cancer.

The customs of many nations furnish the basis of chronic irritation in which cancer develops. For instance, in Ceylon and India the people have the habit of chewing a preparation of betel nut. This consists of the nut of the betel tree wrapped in the leaves of the betel pepper plant. It is very hot and rather acrid, and it is not a little difficult to understand just why the custom of chewing the preparation became so common. Apparently any strong sensation can after a time become a source of pleasure because of the attention that it arouses. The gum chewing habit, after all, is founded on the same principle, a certain low grade pleasure being derived from an occupation of the jaws and tongue and teeth. Apparently such occupation lessens worries in some people and keeps such minds as they have from being a burden to them.

Betel Nut Chewing.
Some years ago it was noted that special forms of cancer of the tongue were much more frequent in Ceylon and India than elsewhere, and eventually the origin of these cancers was traced to the chronic irritation set up during the process of betel nut chewing. The inhabitants recognize the danger now, but as only a small proportion of those who have the habit develop cancer, the habit continues to be popular and doubtless will remain for many years. There is no doubt about the connection between the irritant and the subsequent cancer, but people seem quite willing to face the risk so long as the danger is not inevitable and attacks only comparatively a few of those who have the habit.

In China the people in many of the country districts have acquired the habit of eating rice very hot. This is sometimes so hot that it would be quite impossible for one unaccustomed to it to hold the material in the mouth at all. Apparently rice has so monotonous a taste when used as a staple article of diet that those who consume it in large quantities are very glad to have even the change of sensation that is induced by the intense stimulation of very hot food. Cancer of the tongue and of the mouth structures is common in regions where such hot materials are eaten, and there is no doubt of the direct connection between the chronic irritation produced by the hot rice and the cancer development.

A very curious custom prevails in Kashmir, a district in the Himalaya Mountains, which gives origin to a specially localized cancer. The cold is often extreme in the mountains and the variations of temperature very marked. As a consequence of this many of the people in this district are in the habit during the cold weather of wearing under their rather loose dress a small portable charcoal stove. This is usually fastened round the waist by a girdle and is applied directly to the abdomen in front. As a consequence of the intense irritation set up by this heating apparatus cancer develops in these persons rather frequently; just beneath where the little stove is worn. Cancer in this location in the skin surface is almost never seen anywhere except in Kashmir, though it is not at all infrequent there. There can be no doubt, then, of the connection between the chronic irritation and the development of cancer.

Cancer of the Tongue.
Some similar causative conditions have been studied among our own people. Over and over again it has been noted that men who smoke short pipes, which they keep almost constantly in their mouths,

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drawing hot smoke directly against the end of the tongue, the mouthpiece of the pipe often being rough and itself a second source of irritation, develop cancer at the irritated point. Nearly all of the mouth cancers seen in this country develop in men; only rarely are they seen in women. Men indulge in many irritants of the oral mucous membranes—smoking, chewing tobacco, the use of alcoholic liquors, especially undiluted, and the like. These irritations do not cause cancer, but they produce conditions in which those who are predisposed to malignant disease develop it. Only a comparatively

small percentage of men have this tendency to cancer, less than one in twenty, and as a consequence most men may be said to be immune from these irritants with impunity. No one can tell beforehand, however, just who has or has not a cancer predisposition, so that there is a certain amount of danger for all who become the subjects of such habits. It is quite sure now that without these habits cancer of the mouth—that is, the lips, the tongue and the tonsils—and the larynx would be much less frequent than it is at present.

Whether this lessening of cancer in the facial region would not be compensated for by the occurrence of the disease in other parts of the body is not quite sure. Only such persons as indulge in the irritant habits to a great extent are likely to set up enough chronic irritation to occasion cancer. The man from whose mouth a cigar is almost never absent during the day develops cancer of the tongue or tonsils or larynx. The man with a short pipe, who has worn down a tooth in a particular place or takes advantage of a broken tooth in order to accommodate it, gets cancer of the tongue or of the lip near the broken, jagged tooth.

Watch Irritations.
There are other forms of chronic irritations that may prove the origin of cancer, or at least furnish a site for it. Certain lesions, sores, chronic eruptions and the like need to be watched carefully if they have continued to exist for a considerable period in spite of reasonable care of them. This is particularly true

of sores on the eyelids and the lips. It is at points where skin and mucous membrane meet—that is, where one form of covering of the surface, the dry skin, passes over into the moist, softer mucous membrane—that there is particular likelihood of the development of these disturbances of cell growth that we call cancer. Sores on the lips that refuse to heal in spite of ordinary treatment are always suspicious and must not be allowed to continue for more than a week without consulting a physician. If they are somewhat indurated, then this warning is particularly important. Some-

times long continued sores are due to deep sinuses that lead down to the root of a tooth, and these do not readily degenerate into cancer, but on the edge of the lips, and especially in the middle of either angle of the mouth, or at the angle of the eyelids, suspicion is a much better attitude of mind than neglect.

It is surprising how many people will permit a sore that proves to be cancerous to run on for months without giving it proper attention. To do so is nearly always fatal, because the glands beneath the angle of the jaw and deep in the tissues become affected, and after this it is often practically impossible to remove the cancer completely.

In very recent times certain special intense forms of irritation are known to produce cancer. A series of physicians and electrical experts who have devoted themselves to X-ray work have developed chronic skin diseases in the midst of which cancer has developed. Sometimes there has been a series of cancer developments so that in spite of a succession of amputations death finally took place from further development of cancer. At first when the X-rays, which had been hailed as a cure for cancer, began to cause that disease the world was startled, but we know now that it is only the intensely irritant effect that brings about the development of the cancer. The scar of an X-ray burn is only more intensely irritant than the scar of any burn, and it is this that proves the occasion for cancer development. Any other form of intense irritation, as, for instance, that set up by radium, will do the same thing. Even radium carried in

the vest pocket has been reported to have produced a burn of the abdominal region, with development of cancer. Any prolonged, protracted burn made by acids produce scars in which cancer often develops. This is particularly true of the sequence of swallowing strongly caustic fluids.

Danger of Pigmented Spots.
Other areas where set up over prolonged periods develop cancerous tendencies, for instance, ar-

then breaking down again, are often sites of cancer. Cancer of the stomach very frequently develops on the site of an old ulcer. The presence of gall stones sets up a chronic irritation in the gall bladder often followed by cancer.

Cancers in the digestive tract usually occur at the points most subject to irritation. For instance, in the esophagus cancer occurs particularly just where the swallowing tube is narrowest as it passes through the diaphragm. In the stomach it occurs with the greatest frequency at the pylorus, or gateway; that is, the place of exit for food from the stomach. It is here that unchewed portions of food with rough edges or pieces of bone or other hard materials are likely to produce frequent areas of irritation. All through the intestinal tract it is at the curvatures where irritation from rough materials in the food is likely to be most noted that cancer occurs with greatest frequency. Practically all the structures of the human body that are especially liable to cancer have a history of frequently repeated irritations, and these seem to form a basis of that change which comes over the tissues and produces what we know as cancer.

The essence of that change is a tendency for certain kinds of cells to overgrow. There are two kinds of malignant disease, or cancer, as it is popularly called. One of these is sarcoma, which develops in the connective tissues and is seen particularly during the younger years before full growth has been attained. The other is carcinoma, which develops in the epithelial or glandular tissues; that is, those structures which produce various substances for the use of the body. Health consists to a great extent in a state of peace and co-operation between these two kinds of tissues, the connective tissues and the glandular tissues.

Whenever either of them overgrows at the expense of the other the whole organism suffers. The connective tissues are much less important than the glandular tissues, for they only support and help to move the body, while the glands perform the wonderful chemical work with its fine adjustments on which human nutrition depends. During the growing period the connective tissues are very important and receive an abundant nutritive supply, and consequently sometimes overgrow locally with the production of malignant tumor, the so-called sarcoma. Later in life the glands get most of the nutrition and then they may overgrow, with the production of true

The Fatal Delay.
It is not surprising, then, that cancer should have been described as a sort of rebellion or revolution in the tissues. When the supporting cells, which may well be compared to the working classes, receive their due amount of nutrition and carry on their work, without wishing to absorb more than their share of the nutrition of the body, then all is well. When the glands, the aristocracy, as it were, of the body, the chemists and other professional men, the directors and administrators of various functions, are willing to take their proper share, but no more, then the body is healthy. In the younger years sometimes the connective tissues claim more than their share, overgrow at the expense of the neighboring tissues and usually kill the organism, to which they belong. Later in life the glandular cells may make a similar mistake, and, insisting on more than their share, may produce like serious effects.

We know that heredity has a certain very definite but limited place in predisposition to cancer. It is evident that the equilibrium between the various tissues in the body which represents health may be disturbed by some defect in the tissues. Disease is not hereditary, but defects are. Certain deficiencies in cell equilibrium may be transmitted from one generation to another, and this represents the predisposition to cancer which evidently must be present before the malignant process is set up.

An English imperial research commission has dwelt particularly on the question of the increase of cancer. This reported increase is causing great solicitude among sensitive people. In its last report the commission says:—"For the first time it is fully demonstrated that it is erroneous to make statements of a disquieting nature about the increase of cancer in general."

Cancer in some parts of the body, as for instance in the tongue in men, is apparently increasing, but the editor of the report ventures to doubt the significance of the figures and thinks that they require further study and elucidation. A significant increase has come in the digestive tract, but this is evidently due to the fact that the diagnosis is better than it used to be and that cancer is now recognized where not so long ago much more general diagnoses were made. Cancer on the skin surface, where it has always been easy to recognize it, shows little or no increase. In general, wherever cancer may be observed locally the increase in cases is no more than might be expected from the growth of population and the fact that people are generally now living longer lives and pass more years in the higher cancer ages. Every year after thirty that a person lives increases the liability of death from cancer.

Unfortunately, after all the investigation very little can be said as to the cure of cancer. A few cures are supposed to have been discovered by serious medical investigators, but experience with them has proved a disappointment. The only cure for cancer that has yet

been found is the knife. That seems a rather rough way of putting it, but it is the only true way. And since cancer is an affair of life and death we must not unwise matters. External cancer can surely be cured by the knife completely if it only be taken in time. Unfortunately, people hesitate and delay and temporize in various ways and fear to know the worst, until often the cancer reaches such a stage that it cannot be removed completely, and then death is practically inevitable. The report of the Commission on Cancer of the State of Pennsylvania for last year covers the statistics of four hundred patients from various parts of the State. When the cases of external cancers presented themselves for treatment less than seven out of ten were suitable for operation. Many of the patients had been aware of the presence of the condition for considerably more than a year before they applied to the surgeon for relief. Delay probably leads to the fatal termination of at least one-half of all cancer cases. Even when the condition is suitable for operation, often it has been allowed to progress so far that infection has taken place deep in the tissues, so that, though the external tumor can be removed, recurrences take place in other parts of the body.

Best Medicine Is Knife.
Many a cured cancer patient owes his cure to bravely facing the danger, refusing to put off in cowardly fashion the knowledge of the worst, and then having the operation performed promptly.

Some of the external cancers can be treated successfully by plasters and pastes and caustic applications of various kinds. Indeed, some good authorities prefer these modes of treatment for forms of external cancer. It is extremely important, however, to have these applications made by expert hands. It is always suspicious when the applications are made by those who insist on how much can be accomplished for the treatment of cancer without the use of the knife. Any one who knows cancer well must recognize that the cleanest, best medicine we have for it is the knife.

Those who pretend to any other opinion are likely to use their various applications under circumstances where they cannot do good, and unfortunately death is the penalty for a mistake of this kind, and the wasting of a precious time means an inevitable fatal termination. Some external cancers must be treated by the knife. The physician who takes up their treatment then had better be one who is ready, judiciously and judicially, to select that mode of treatment which is likely to do most good. He must not be wedded to any one form of treatment. Even the man who is too ready to use the knife may make mistakes, and he should be willing to employ other means where they may do good. As a rule, surgery is the least painful, the quickest, the surest, the most satisfactory form of treatment of cancer, and it leaves the least scar.

The Death Rate.
The most serious factor in the death rate from cancer at the present time is undoubtedly delay in the proper treatment. Probably three-fourths of all cancers could be radically cured if treated in time. Nine-tenths of all external cancers could surely be eradicated. Most of the delay is due to the fear to know the worst and the failure to realize the awful significance of the condition, but not a little is due to the use of fraudulent so-called cancer cures, advertised as such, promising results without pain and without operation. These frauds are allowed by our laws to appeal through the various advertising mediums, and those who are afflicted with cancer, or fear that they are so afflicted, grasp at a straw and the hope of easy cure, and by the time they have been undeceived it is too late to have a radical operation done. Not a few people who are not sufferers from true cancer, but who have some form of tumor or swelling or chronic sore, apply to these cancer cures and in the course of time their condition passes away. These are the so-called cured cases so much advertised. They were not true cancers, but only some lesion thought to be a cancer by a timorous patient and pronounced such by some one either incapable of judging or whose personal interest dictated agreement with the patient in the matter. Many of these people after "the cure" is over go around for years with the burden of dread over them lest their cancer should return.

It is evident that cancer is a condition that cannot be temporized with, and that if its treatment is put off will surely have a fatal termination. Just as soon as that fact is brought home to the great mass of the people and the additional one that there are no simple, painless cures for cancer, and that any one who promises such is a fraud, scheming to make money, but not to do any good, then our death rate from cancer will fall to a marked degree. We have any number of cases now on record of patients who undoubtedly had cancer, who were operated upon or properly treated by some caustic or other adequate method, who are alive from ten to twenty years after their cancerous condition was first diagnosed. There are many who died after operation under ten years, but whose deaths were due to something quite different from cancer and whose lives were evidently not shortened by their malignant disease. In short, cancer is by no means the hopeless condition it is sometimes declared to be, and we need only the proper diffusion of our present information with regard to the disease to make its mortality less than it has been.

Results of Scars.
Scars almost anywhere in the body are rather frequently the site of cancer, through malignant developments that come about, as a rule, only in scars that have a tendency to contract and that, therefore, are constantly a source of irritation to the tissues in the midst of which they are situated. The scars after a burn, for instance, become the site of cancer frequently enough to have attracted special attention to them. Deep ulcers that have existed for a good while, healing and

