

moner as age increases. Women are more frequently affected than men because amongst them cancer of the breast and uterus is so prevalent. Cancer of the alimentary tract is rather more common in men, cancer of the mouth and tongue far more common in men than women. No race is immune. It is often said that Jews do not suffer from cancer so frequently as Gentiles. Careful enquiry has shown that this is incorrect. It is also stated that aboriginal races are more or less immune. This again is a fallacy. The more careful the investigation, the greater the opportunities of observing native races, the clearer it becomes that differences between them and the Western races are no greater than between some of the Western races themselves. Diet plays no part in the causation of cancer. Amongst domestic animals the horse and the dog are the commonest victims—the one exclusively vegetarian, the other carnivorous. It is obvious, too, that since fishes, reptiles, birds and mammals all suffer from cancer it must be impossible to find any article of diet which is common to them all.

Now what *does* cause cancer? Here one thing at least is clear. Chronic irritation is a cause of cancer. Chemical irritants, if applied with sufficient frequency over a long enough period of time will cause it, *e.g.*, tar, petroleum, pitch, mineral oil, and arsenic are all proved causes. In the East chewers of Betel nut—a mixture of areca nut or leaves with lime—suffer from cancer of the inner surface of the cheek. Certain physical agents are also efficient causes, *e.g.*, heat as applied by Thibetans who carry burning charcoal in a Kangri basket held against the anterior abdominal wall for purposes of warmth. X-rays are another cause, and most of the original workers in radiology later died of cancer caused by the rays. Finally it appears probable that certain chronic infections may cause cancer. The long-standing, indolent ulcers which may be due in the legs to varicose veins, or about the face to lupus, are liable to develop malignant changes, though it is also maintained that the change is due not to the ulcer but to the treatment, *e.g.*, X-rays, arsenic, etc. In women who have borne children tears in the cervix may become infected and later develop cancer. In the breast, cancer may supervene upon a chronic mastitis though, curiously, it rarely follows an acute mastitis which has resulted in the formation of an abscess. It is said that irritation of the side of the tongue by a jagged tooth may give rise to cancer there. In all these cases the connection between chronic irritation and cancer is more or less clear, but in other cases no such association has been proved. It is possible that slight but constantly repeated injury to the rectal mucosa by the passage of hard faecal masses may be responsible for cancer of the rectum, but what may be the irritant which causes cancer of the stomach it is difficult or impossible to suggest.

It is often said that cancer never arises in a healthy tissue. Whether or not this be strictly true it is certain that in a large number of cases there are two stages: first, the alteration of a cell or cells to an abnormal but non-malignant condition; then the further change to cancer. The first is called the pre-cancerous stage, and it is clear that if every pre-cancerous condition could be recognised and cured cancer would cease to be. Some of these conditions are recognisable and can be successfully treated. Warts are a pre-cancerous lesion, and any such growth upon the tongue or lip should be adequately removed. On the tongue and vulva leucoplakia may appear. The moist lining membrane becomes thick, white and opaque as though covered with white paint. It is due to overgrowth of the superficial cells. Later the thickened membrane cracks so that fissures form and in these fissures cancer is very liable to develop. Any chronic ulcer about the lips is suspicious, *i.e.*, any ulcer which does not heal in a week or so, and especially if it is not painful. The less painful

the ulcer the more likely it is to be malignant. The importance of this fact cannot be too strongly emphasised, *viz.*, that all cancers in the earliest stage, most cancers until a relatively late stage, are painless. A cancer is late when it has spread away from the local mass, though this may be but a very short time after its appearance. When pain commences it is highly probable that the cancer is late. Nodular thickenings in the breast indicate chronic mastitis and should therefore be taken seriously as likely to lead to cancer. In short any wart or mole which is increasing in size, any chronic ulcer which refuses to heal, any lump or thickening where none should be, is suspect, and should be submitted without delay to skilled examination.

In my opinion recognition of the pre-cancerous condition is the essential point in the treatment of cancer. I do not believe that any cure for the disease will ever be found. Much can be done to alleviate suffering and prolong life, but if we can discover the cause of cancer and, by removing the cause, can prevent the development, then and then only, will this scourge be controlled. If I was pessimistic at the outset now I am an optimist. I have no doubt that eventually the cause of cancer will be found, and it may quite possibly be discovered in the comparatively near future. Probably all the causes will not be found, probably the causes which are found will not always be avoidable; in other words it is unreasonable to expect that cancer will ever be excluded as a cause of death. Man is mortal and must die sooner or later, but the number of deaths from cancer will be very materially diminished.

It is commonly stated that the number of deaths from cancer, *i.e.*, the cancer mortality, is at the present time increasing. The number of recorded cases is certainly increasing, but it is not absolutely certain that this is a real increase. Several things have to be taken into account. First of all, attention is now very much more closely focussed on the disease than used to be the case, hence it is more carefully looked for. Secondly, methods of diagnosis are more accurate so that cases formerly overlooked are now recognised. On the other hand it is not unlikely that many non-malignant cases used to be diagnosed as cancer. Thirdly, the average length of life is greater than it was, and therefore a larger proportion of the population reach the cancer age. But here again it is argued that although the average age is higher, this is almost entirely due to reduction of infant mortality, and that the number of persons reaching the cancer age is not appreciably greater than it was fifty years ago. How these various factors balance it is difficult to be sure, but the best informed opinion seems to favour the view that cancer is increasing somewhat, but not to the extent that appears at first sight.

(To be continued.)

TREATMENT OF DISSEMINATED SCLEROSIS WITH LIVER.

The *British Medical Journal* publishes an interesting account of the treatment of a number of cases of disseminated sclerosis with liver, contributed by Drs. Goodall and Slater, of the Royal Infirmary, Edinburgh, who carried out the treatment because beneficial effects on the spinal cord had been observed after liver treatment in cases of pernicious anaemia.

The authors gave $\frac{1}{2}$ lb. of lightly cooked liver daily to each patient, and made the following observations:

We record five consecutive cases of disseminated sclerosis of varying duration and severity treated with whole liver with remarkable improvement. Two of these patients, previously totally unfit, have returned to work, as a mechanic and a farm hand. One man unable to stand is now walking briskly. One woman who could walk only with assistance can now walk well. One young woman who had given up games for two years can now play hockey.

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