

CANCER AND ITS TREATMENT

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Cancer and Its Treatment by A. W. Mayo Robson

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A. W. MAYO ROBSON

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The Bradshaw Lecture

DELIVERED BEFORE THE ROYAL COLLEGE OF SURGEONS
OF ENGLAND ON DECEMBER 1, 1904

BY

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CANCER AND ITS TREATMENT

MR. PRESIDENT AND GENTLEMEN,—

My response to your kind invitation to deliver the Bradshaw Lecture was prompted by a profound sense of the honour conferred on me ; but as I began to realize the full responsibility of the step, my difficulties as to the choice of a subject sufficiently important have given me many anxious moments. In selecting the treatment of cancer I offer no apology, for no one can question the importance of the subject, or that it holds a most prominent position in the thoughts both of the medical profession and the public ; moreover, I felt that such an opportunity as the present might be utilized to offer a protest both against the fatalistic tendency to delay and the senseless running after false gods in the treatment of this fell disease. I cannot lay claim to being alone in my advocacy of these views, for several of my colleagues on the Council of this College, and many other workers, have also urged them ; but as a practical surgeon I can contribute facts both from my own experience and from that of others which will, I hope, help to carry the conviction that cancer, if it be discovered early and thoroughly removed, is by no means so hopeless a disease as is usually thought.

Of the true cause of cancer we really know nothing: even if we could accept the view of those pathologists who consider malignant disease as simply due to an alteration of somatic into generative elements we should be still begging the true cause; nor can we accept unreservedly the statement of the able superintendent of the Imperial Cancer Research Fund that, from the histological character, method of growth, and absence of specific symptomatology, it is not permissible to seek for the causative factor of cancer outside the life processes of the cells, for our present knowledge does not warrant such a positive statement, and it would appear from the observations of several competent pathologists that facts are not incompatible with the theory that cancer may be produced by an intracellular parasite which stimulates the cell to excessive multiplication. The fact that no parasite has been hitherto discovered is no proof that the quest is hopeless, and should be no deterrent to a continuance of research work. How many years were spent in fruitless search before Koch found the tubercle bacillus—a discovery that has placed tuberculosis on quite another platform, and one which bids fair to the stamping out of the disease! Does anyone doubt the origin of measles, scarlet fever, or syphilis from organisms? yet how much uncertainty there is! Recently Councilman has apparently proved that vaccine bodies form one phase of the life-history of the protozoon said to cause small-pox, and Dr. Roswell Park and Dr. Gaylord regard the cell inclusions in cancer as being of the same nature, though the presence of these organisms in cancer tissue is, of course, no proof that they are the cause of the disease, and the same remarks apply to Bosc's arguments and experiments on sporozoa. That bacteria are not the only possible pathogenic parasites the history of malaria has proved. We are

still in almost total ignorance of some of the lowest forms of life and of their biological peculiarities, nor are we sure that Koch's laws will be valid for them.

Until recently our ideas of the infinitely small were limited to the atom; but the atom has been split up, and the bombardments witnessed within a Crookes tube are said to be due to the broken-up particles termed 'electrons,' which in size are reputed to present as great a contrast to an ordinary bacterium as a bacillus does to the human body. Have we any proof that there are not organisms infinitely smaller than the smallest known micrococcus—organisms which may be ultra-microscopic, and which may be contained within the cells known as cancer cells, and be the true cause of their eccentricities? I had the privilege of seeing a microscope at the Royal Institution in April of this year which bids fair to give us a range of vision far beyond anything that Helmholtz conceived possible when he argued that from physical reasons it was impossible to construct a microscope which would give a large scale image; and experience has so far justified his conclusions that the best work has been done with magnification of from 400 to 500 diameters, yet I saw distinctly there objects under a magnifying power of 10,000 diameters. It will help the appreciation of this point to say that the eye of the house-fly, if depicted on the same scale as shown by the microscope in question, would be an object 24 feet long by 13 feet broad. This discovery will doubtless reveal much that was previously unknown, and possibly bring into view our quest, though as yet this is a mere anticipation.

Even of the predisposing causes of cancer we know next to nothing, though of theories there are many. My friend the late Sir William Mitchell Banks and others thought overfeeding might afford an explanation; one physician asserts that it is uric acid, and

would limit the intake of nitrogen; whereas others consider it due to an excess of carbohydrates, and suggest that starches and sugar should be limited. The teetotalers, of course, find in alcohol a possible cause, and the non-smokers decry tobacco. Some advise us to eschew salads and all uncooked vegetables, and others would have us abolish salt as an article of diet. In fact, there is scarcely any form of diet or luxury that has not at one time or another been condemned. Do not all these theories make one feel that until something more definite is found out, the public have a just cause of complaint against those who, on insufficient evidence, not only would cut off their luxuries one by one, but would even tax the necessities of life with suspicion?

The investigations conducted by Dr. E. F. Bashford and Dr. J. A. Murray, of the Imperial Cancer Research Fund, confirm those of previous workers, that malignant growths exist in all branches of the vertebrata, and the idea that domestic animals alone are affected with cancer is also exploded by the facts now made known to us. A special interest attaches to the cases of carcinoma in fish, two of these occurring in fish living in the open sea. A wild mouse also has been found to be affected with spheroidal-celled carcinoma. As to men in a state of nature, during some weeks that I spent in the wilder parts of North America this year, I made inquiries among the natives themselves, and also from medical men who had had experience of their diseases, and I was told that cancer is not unknown among them, even in the wilderness away from civilization. From the great diversity of the food, habitat, and conditions of life of men and animals in which cancer occurs, it may be concluded that external agencies of food, climate, and general environment have apparently little or no causative influence. The new tumour that

arises in an animal from the transplantation of a portion of a growth arises by cell division from the tumour cells introduced, and presents in all stages of its increase the same minute structure; further, growth can apparently only take place in animals of the same species, and fails in even nearly related animals. Any agency which destroys the vitality of the cell renders the results of transplantation completely negative, showing that the virus is a living one.

One exciting cause only we are certain of, and that is irritation in a variety of forms. Another fact we can absolutely prove is that cancer is at first a local disease, and only later a constitutional malady. Mr. Jonathan Hutchinson insisted on this thirty years ago, and it has been confirmed by modern research, as the following statement by Dr. Bashford will show :

‘Our observations on animals show that malignant growths are always local in origin, and of themselves produce no evident constitutional disturbance whatever. These facts are in full accord with accumulated clinical experience in man.’

The question of infectivity is of such importance that I cannot pass over it without expressing my views on the subject.

INFECTIVITY.

Although cancer is not infectious in the ordinarily accepted sense of infection, there is a very large accumulation of facts which seem to prove that it is locally infective and capable of distribution by contact and inoculation. Bosc* has given a number of examples of transference of cancer from man to animals and *vice versa*, as well as from animals of one species to those of other species; but further researches must be made and the results verified before these can be

* ‘Le Cancer Maladie Infectieuse et Sporozoaire.’

accepted and used in argument, especially in view of the work to which I have just referred.

There is ample proof of the possibility of the transference of cancer artificially from animal to animal of the same species, and clinical evidence not only of auto-infection, but of infection from man to man. In 1889 Hanan proved the possibility of inoculating cancer from rat to rat. In 1894 Moran conveyed the disease from a cancerous mouse to other mice. Later, Jensen, of Copenhagen, made a great number of successful inoculations, and from the same graft of cancer Dr. Bashford and Dr. Murray have performed a large number of successful experiments, which have been, and are being, carefully recorded. Through their kindness I have had the opportunity of seeing a number of the mice with tumours in various stages, and of seeing microscopic sections of growths that have been removed. The tumours arise from the actual cells introduced, without any participation of the cells of the host, acting in every way as a parasite. I understood Dr. Bashford to say that healthy mice mixing with the cancerous ones had not become infected; but Borrel, of the Pasteur Institute, found that on putting cancerous mice into a cage with healthy ones a considerable number of the latter became infected with the disease.

With regard to contagion from man to man, a considerable number of well-verified cases of genital cancer, apparently communicated from the wife with uterine cancer to the husband, have been reported. Gueniot collected twenty-eight; other striking cases have been communicated by Duploux, T. G. Laslett, E. Hooper May, and by my colleague Mr. R. Clement Lucas. There are many single cases of infection from man to man recorded which it would not be safe to argue from; *e.g.*, among others, Dove recorded two cases of epithelioma said to have been conveyed by