

row view of the etiology of cancer who has read in Mr. Hutchinson's *Archives of Surgery* the series of admirable clinical records, in which is shown the connection of cancer with other morbid processes, especially chronic inflammatory lesions. While bearing in mind as much as possible of what has been imparted to us by eminent observers, I have no wish to dissemble my personal bias towards a belief in a specific parasitic agent as one factor, and that probably a necessary one, in the causation of cancer. Leaving this for the present, I will glance very briefly at some contributory influences, which have received more or less general acceptance.

*Heredity.*—Under this head we have to distinguish carefully between diseases in which the disease itself is unmistakably inherited, and those in which a want of resistance or vulnerability of certain tissues is inherited, which may lead to the development of the disease if certain other conditions are favorable. To the first class belong syphilis and hæmophilia; to the second, in the great majority of cases, tuberculosis and cancer. It must also be remembered that in dealing with such a common disease as cancer the influence of heredity may be apparent rather than real; for although the same disease may affect the offspring as affected the parent or grandparent, yet the explanation may be that the individual was in both cases exposed to similar extraneous influences. Among private patients Sir James Paget estimated that a history of hereditary influence could be obtained in one case of cancer in every three. This estimate, high as it may seem, would still leave 66 cases in every 100 to be otherwise accounted for. Well authenticated cases have been recorded of cancer affecting many members of the same family, and extending over several generations.

*Age and Sex.*—Statistical tables and daily experience inform us that cancer is most commonly met with in persons between the ages of 40 and 60, and not infrequently between 60 and the end of life. The sudden rise between 40 and 50 is due mainly to the liability of the breast and uterus at this period of life to become cancerous. Females are about twice as liable to cancer as males; but if the reproductive organs are left out of account, cancer is much more common in males. Cancer of the lip is a hundred times as common in men as in women, and cancer of the œsophagus four times. In Constitutional statistics the stomach is invariably at the head of the list as regards liability to cancer, the position of the uterus, and still more of the breast, being comparatively insignificant. While allowing due weight to the obvious fact that cancer is, in the majority of cases, a disease of the decline of life, it would be a mistake to allow ourselves to be so dominated by this fact as to ignore the occasional occurrence

of cancer before the usual age. I think some light may possibly be thrown on etiology by a more careful study of cancer occurring comparatively early in life. I may quote four instances of early cancer which I have come across quite lately without being at any trouble to search for records. The first case, which came under my own notice, was one of cancer of the breast in an unmarried woman of 33. Careful inquiry failed to elicit any evidence of hereditary transmission. The second case, also of cancer of the breast, was related to me by a medical friend. The patient's age was 34, and no evidence of hereditary influence could be discovered. The third and fourth cases have been recently reported. One was a case of cancer of the rectum in a woman, of 30, and the other of cancer of the cæcum in a girl of 22. In neither case is anything stated for or against the influence of heredity.

*Chronic Irritation.*—It has been said that parts which have long been in a state of chronic inflammation or irritation are liable, under the influence of heredity or senility, to become cancerous. The well-known records of "lupus cancer" are a case in point. The cancerous process is something so specific, so different from ordinary chronic inflammation, that I cannot bring myself to believe in the evolution of the one condition from the other, without the superaddition of a specific cause. To my mind such influences as heredity, senility, local damage to parts, and the involutional changes in organs whose functional days are overpast, are so many predisposing causes to a specific disease, which prepare the way for the entrance of specific poison to the tissues. While saying this I must, however, admit that Mr. Hutchinson's records of warts and moles in the aged becoming malignant appear to afford strong ground for a belief in the evolution of cancer from simple and innocent modifications of structure. Some rare cases are on record in which cancer has followed the long-continued administration of arsenic.

*The Seat of Cancer, etc.*—It is a well-established observation that those parts which are frequently the seat of primary cancer are little liable to secondary deposits and *vice versa*. While these propositions will be generally admitted, it would be no easy matter to give reasons for all the observed facts on which they rest. For instance, in the case of mammary cancer, why is the live so often affected by secondary growths while the lungs may escape? If cancerous emboli can get lodged and grow in the capillaries of the liver, why does the same result occur but seldom in the case of the stomach, spleen, intestine, and kidney, which are nourished by the same cancer-laden blood? Auto-inoculation has been observed occasionally where a healthy surface has lain in contact with a cancerous one. Cases are also known in which inoculation of the stomach or in-