

Medical Matters.

THE HEALING POWERS OF THE HEALTHY BODY.



A case is recorded by the writer of a letter to the *British Medical Journal*, whose patient had a finger bitten clean off by a pig, through the shaft of its middle bone. He put the finger in his pocket, amongst a lot of tobacco dust and other rubbish, and walked with a friend six miles to the doctor, who demanded to see it. The finger had been off for about two hours. The doctor applied antiseptics to the end of the finger after wiping off the tobacco and ashes and dirt, similarly cleansed the stump that remained on the patient's hand, put the two together, applied a couple of splints, and the patient uses his finger to-day. Such are the healing powers of the healthy body.

There are, of course, well-authenticated instances of a similar nature, and instances of skin grafting, nerve grafting, and bone grafting. The underlying explanation is that the blood-vessels on a raw or cut surface have the power of growing into living tissue applied to it, and that this tissue becomes eventually incorporated in the body of the host.

THE GROWTH OF CANCER.

Great interest has been aroused by the discovery made by Professor J. B. Farmer, F.R.S., Mr. J. E. S. Moore, and Mr. Walker concerning the growth of cancer, which has received confirmation from Dr. Bashford and Dr. Murray, members of the Cancer Research Committee. These gentlemen last week presented a paper to the Royal Society in which they endorsed Professor Farmer's conclusions.

These conclusions go to prove that cancer cells do not multiply and develop like the ordinary cells of human tissue, but have a distinctive method of their own.

It is known that the cells in the higher animals and plants which eventually develop into sexual reproductive elements, go through a form of division totally different from those forming the ordinary tissues of the body. During certain stages of development of the process of division all the cells which compose the higher animals and plants exhibit very clearly a number of small, rod-like bodies which are technically known as chromosomes. The number of chromosomes found in the cells is

constant for each species of animal and plant. In man there are thirty-two, and when a cell forming any of the ordinary tissues of the body, such as muscle, skin, bone, &c., divides, each of these chromosomes splits lengthwise. Half of each of these split chromosomes goes to each of the two cells formed out of the original one, so that both possess the full number proper to the units of which the body of man is built up. The same thing occurs in both animals and plants, and it is thus that the body is developed from a single cell. But the case of the reproductive cells is otherwise. When these cells divide, something quite different, but equally distinctive, happens to the nucleus. The tiny chromosomes are no longer V-shaped, but consist of loops, and beads, and circles, arranged in a different way. But the most distinctive feature of all is that the chromosomes now appear in only half their proper numbers. This system of division is constant in the cells of the reproductive tissues of all the higher plants and animals, and it was not difficult, when once the discovery was made, to see the reason for it. These cells are formed to carry on life through the processes of sex. The fruitful marriage of two of these reproductive cells—in other words, the fusion of an egg cell with a sperm cell—each of which brings to the union half the proper number of chromosomes, will restore to the fused cell the number of chromosomes proper to the species.

The importance of the discovery is threefold. In the first place it disposes of the theories of the microbic, or bacterial, or parasitic origin of cancer. It is now clear that cancer is due to none of these causes. Nor is it due to the development, as has been recently suggested, of embryonic tissue. Consequently, research in the future will not have to concern itself with investigations on the lines of these theories. In the second place, it is suggested that the development of cancer cells from the cells of the tissues is analogous to the development of similar cells in plants from the ordinary cells of plants. Such "cancerous growths" in plants are known to be caused by irritating stimuli. It is suggested, therefore, that the cells of the human body are probably stimulated to a false method of development by some unknown stimulus, and further research is consequently directed into the path of finding what this stimulus or these stimuli are. It may then be possible to prevent this abnormal development, even if at present it seems hopeless to attempt to cure it otherwise than by extirpation, when it has once begun.

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