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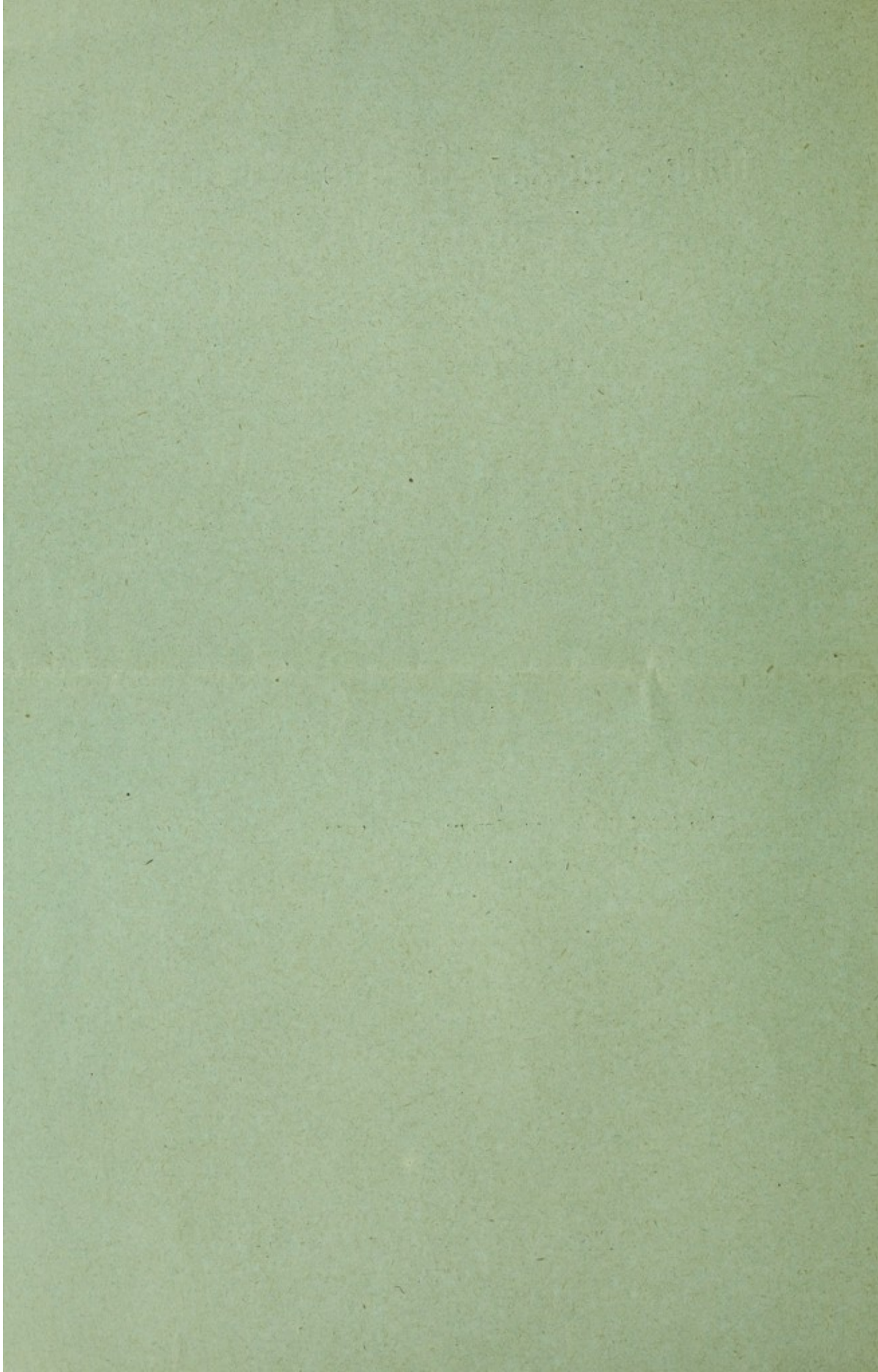
JAMES METCALFE, M.D.,

Honorary Surgeon St. Catherine's Home for Cancer and Incurables, Bradford.

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IONIC SURGERY IN THE TREATMENT OF CANCER.

By JAMES METCALFE, M.D.,

Honorary Surgeon St. Catherine's Home for Cancer and Incurables, Bradford.

A Review and Appreciation of Dr. G. Betton Massey's work.*

IN the appendix to the English translation of Professor Leduc's small book on Electric Ions it is stated that "treatment with ions has up to now been neglected, because its efficacy had never been properly demonstrated." It is rather startling to discover that the work before us "embodies the results of 16 years' surgical employment of the electrically diffused ions of zinc and mercury in the destructive sterilisation of cancerous growths, and contains a description of the latest technical and operative details of the method." The question of the treatment of cancer is such a serious and important one that any alternative procedure to the usually adopted ones is worthy of the most careful consideration. We have read this book with more than usual care, and with some sense of responsibility in putting its methods before the medical profession. The first point that strikes the reader is the undoubted good faith and careful scientific spirit in which the author approaches his subject. A large number of cases treated are considered, and the results, whether favourable or the reverse, duly noted. The earlier portion of the book is devoted to a survey of the nature and differential diagnosis of malignant growths. This is concise, and although containing most of the accepted views on the subject, leaves out of consideration many of the recent researches made in scientific laboratories all over the world. The general question of the destruction of malignant growths by the local cataphoric diffusion of metallic ions follows, and the history of the author's specific method is related. Some consideration is given to the physics of the ionic sterilisation process, and evidence of the diffusion of metallic ions demonstrated.

The author's apparatus requires careful consideration. He finds it necessary to work from the electric mains, and rarely uses 40 to 60 freshly manufactured dry cells to obtain the necessary power. If used off an alternating current it is necessary to utilise a motor transformer. Two forms of operation are carried out according to

* New York. The A.L. Chatterton Co. 1910.

the nature of the case—the minor or the major. Anything from 5 to 200 m.a. may be used in the minor operations, and 300 to 1,500 or more in the major. A good rheostat, with a slowly graduating scale, a reliable milliampère-meter and serviceable electrodes are, of course, indispensable. And the form and preparation of the electrodes are the essentials of the method. Dr. Massey says that he was accidentally led to employ zinc coated with mercury as the material for the soluble electrodes. He found the zinc and mercury ionization from pointed zinc instruments the most effective form in which to cause necrosis and sterilisation in cancer. The smaller electrodes are readily made by any operator. They are cut from sheet zinc, approximately half a millimeter thick, and are in the form of slivers, $1\frac{3}{4}$ in. long, $\frac{1}{8}$ in. wide at the butt end, tapering to a fine point, and well sharpened by filing. All except the length of point required is insulated with ordinary sealing wax. The butt end of the electrode is bent over with pliers and made to grasp cotton-covered wire, except at the point of junction. Longer needles, and some with spade-like ends, are made for some of the major operations. Immediately before operation the needles are dipped for an instant in weak sulphuric acid, then in mercury, and then in water. A bright metallic coating of mercury is found over the zinc after this process. Here, we may say, is the whole of Dr. Massey's armamentarium. The apparatus is not elaborate, and the actual electrodes are almost costless.

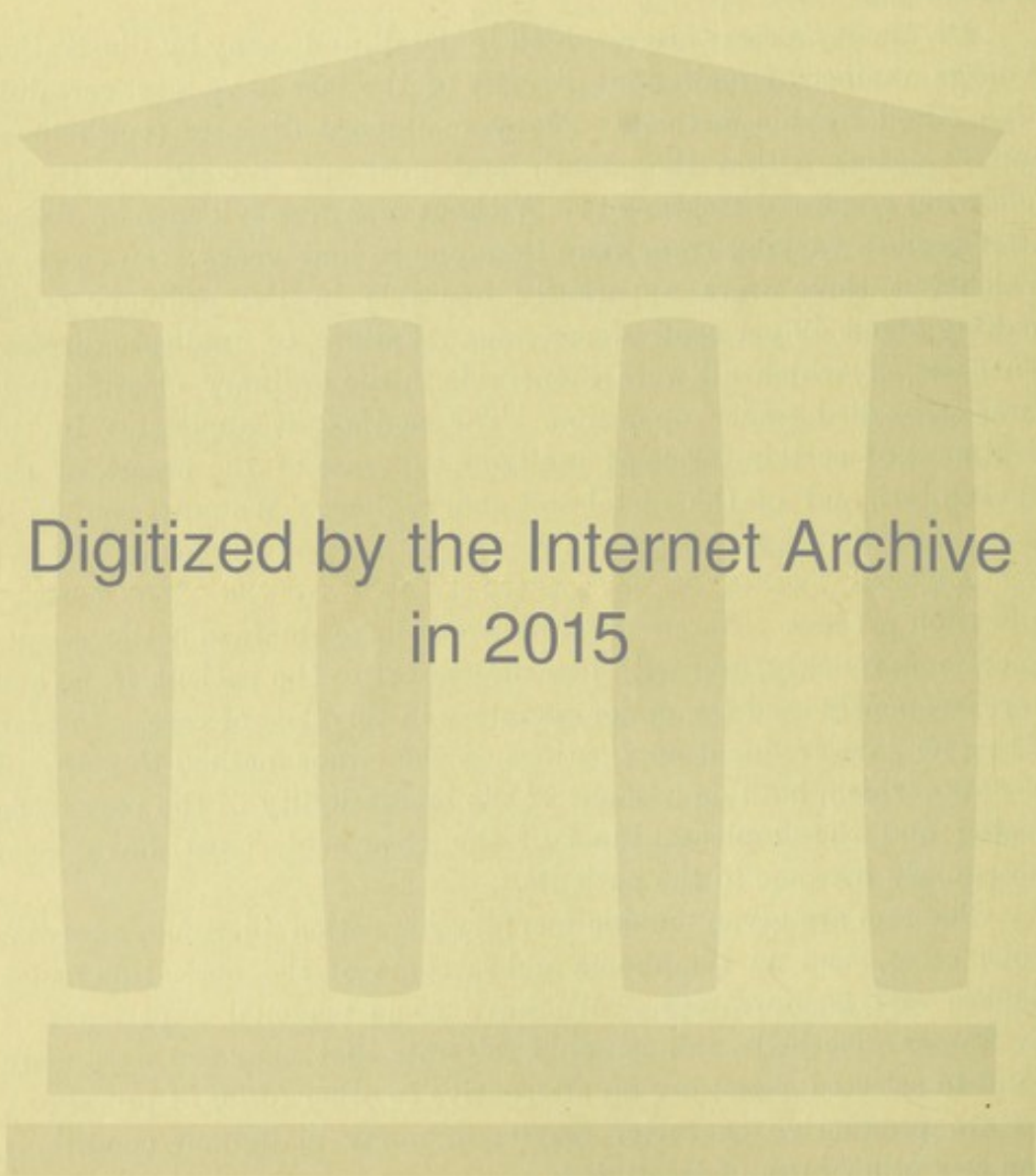
Several needles are attached to the positive pole of the battery, and the indifferent or negative pole is either applied in the form of a piece of zinc covered with gauze, and wet with sulphuric acid and water, and pressed on the centre of the growth (the bi-polar method), or a large kaolin pad covering a pliant metal is placed on some distant part of the body (the monopolar method). For major operations a general anæsthetic is necessary, but minor operations can be done with the aid of a local anæsthetic.

The author does not claim that his methods are applicable for the treatment of all cases of cancer. Far from it: where the growth is removable by wide excision, as in many cases of cancer of the breast, cancer of the body, of the uterus, and other similar situations, the knife is a necessity. But where it is difficult or impossible to remove a cancer with any certainty of thoroughness, then he claims his method has so many obvious advantages that it is *par excellence* the operation to be adopted. It is impossible to give here all the reasons urged in favour of Dr. Massey's methods. Those that he gives are plausible and reasonable. Cancer cells are destroyed *in situ*: operative re-infection prevented: it is bloodless, and it allows of a strictly localised bloodless destruction of growths within accessible cavities,

such as the nose, mouth, vagina, and rectum. The method is not that of the thermo-cautery or caustic paste. This ionisation is more controllable, and can be made to reach the periphery of the growth at once, and the slough is sterilised, and remains odourless, for the greater portion of time until separation occurs. In some cases where ionisation fails to eliminate the disease in the first application, and shows little sign of success after repetition, Dr. Massey gives X-ray applications.

Dr. Massey's cases are recorded in detail, and many by illustration. A large number of malignant diseases of the face have most certainly been cured by his methods. Many malignant diseases (epithelioma and sarcoma) within the mouth and nose are recorded with the following results of treatment:—Without manifest evidence of disease after periods varying from more than one to four years: ten cases, of which but three were apparently operable in the ordinary sense, making about 42 per cent. of successes. Failure to eradicate disease: ten cases, of which all were inoperable in the ordinary classification, three cases died under operation. The method is applicable in the treatment of certain forms of malignant disease of the breast, of the cervix uteri, and of the rectal and anal regions. We must confess to some sense of disappointment in reading Dr. Massey's records of cases of malignant disease of the cervix treated by the zinc mercury ionization process. To our mind he would have obtained better results much more quickly, and with less discomfort to the patient, if he had more frequently used the major operation in this class of case. Instead of this he gave frequent applications of the minor method to many of his cases, which, both on account of the inaccessibility of the part to be treated and the unpleasantness of the treatment, must have been exceedingly irksome to the patients.

Chapters are given on zinc mercury ionization in some miscellaneous cases, such as lymphoma and sarcoma of the neck, tubercular adenitis and hæmorrhoids. We have some personal experience of Dr. Massey's methods, and can only reiterate that they are extremely useful in selected cases; are an alternative to other forms of procedure, and are productive of better results in many malignant conditions than any other form of treatment.



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