THE ELECTRICAL CURE OF CANCER.

PERSONAL experience has a value of its own, and I believe this paper is more likely to be useful if I preface it by a bit of autobiography.

In the year 1889, and again in 1890, I had the misfortune to require treatment for epithelial cancer. The hopeful medical prognostics which followed the first knife operation had a less assured ring after my relapse, and it was while facing the terrors of my situation that, by the merest chance, I heard vaguely of an untried means of cure.

No puffing advertisements trumpeted the remedy, and with considerable difficulty I followed up my slight clue, and discovered, to my entire surprise, that galvanic currents were affirmed to be not only, as I already knew, a sedative and tonic medicine, but also a surgical instrument more effective than steel. I read carefully the scientific grounds on which this claim was based, as fully and temperately set forth by one of its latest exponents, and to my unlearned mind they seemed eminently reasonable.

But I was well again, and hoped never to find my quest of any service. Suddenly, with hardly a day's warning, I learnt that if I cared to prolong life I must resort again, and at once, to the old treatment. I say "prolong," for trustworthy medical advisers now spoke only of respite which the knife would bring, though deprecating with varying urgency as dangerous or futile any trial of electric batteries. I might have hesitated but for two considerations. A fresh experiment safely carried through would give me hope, the best of boons, and the simplicity of the process would preserve others from suspense and alarm, just then specially perilous. So, backed only by two professional opinions against a chorus of warnings, I took the

leap. The result so far has been absolutely satisfactory; but it is not on the individual result that I desire to dwell. The months that have yet elapsed afford no warranty, and at best a single case of success goes for little.

The indirect outcome of my venture was, however, a second revelation. I naturally wanted every possible confirmation of the belief which had become my sheet anchor, and I found by diligent search that it existed embodied in works written by many hands in many countries and through many years, all maintaining that in certain diseases electricity did better work than any knife could do. This corroborative testimony, not easily accessible to ordinary readers, I collected for my own encouragement; but as it grew under my hand, I began to think how helpful it would have proved to me when forced to an instant and difficult decision, and the impulse to make it known to others in like straits has been quickened by piteous letters of inquiry from sufferers who have heard of my past trouble and present well-being, and also by the following facts, increasingly borne in on my mind:

1. The ignorance of the "patient" world concerning the very existence of electrical surgery.
2. The admitted disadvantages attending certain knife operations.
3. The benefits which, according to the authors I consulted, follow electricity applied to certain growths.

As touching the first head, this general ignorance is easily explained. There are only certain ways in which a medical man who respects the rules of professional etiquette can make known his observations and results. He may publish a book or monograph. He may read a paper before a medical audience, or he may send written communications to one or other of the medical publications. For the production of a book much material and leisure may be required, often involving for a busy man long delay. Articles sent to the medical papers may *or may not* obtain admission. If they do appear, they by no means necessarily attract the notice even of medical men, and scarcely ever meet the eye of general readers, who, when well, take little interest in such literature, and when ill dread the alarming ideas it suggests. Nor does chance conversation often enlighten cancer patients, who mostly shun all reference to their maladies. Consequently their only likely sources of information are their doctors.

But doctors, as a rule, do not offer alternatives. They recommend a certain course with more or less insistency, and the patient either meekly acquiesces or seeks further advice, which leaves him, should the oracles differ, wholly at sea. Probably many doctors might be consulted before any would be found even mentioning electricity as a substitute for the surgeon's knife. In one of the leading

medical periodicals there appeared, during the years 1889, 1890, and up to May 1891, four long papers on cancer, three dealing with knife operations, the fourth reporting on the action of caustics. Only one of these papers, the Morton Lecture delivered by the late Professor John Marshall, contains any allusion to electrical treatment, and while he allowed that it may "come to be specially useful," yet this commendation was qualified by the opinion that it will perhaps "ultimately be regarded as inferior to the knife."

It is hardly strange that leading surgeons should have a bias in favour of the weapon they wield with such consummate skill, and, moreover, their class conservatism (often a safeguard for the sick) creates in them, as a rule, a strong distrust of novel methods. With some notable exceptions, they like electricity little for simple tumours, and still less for cancer; and though unable to bring against it, in orthodox and skilful hands, any grave indictment, except an alleged degree of risk not proven by statistics, they are yet for the most part slow to believe in reported cures, and when these are undeniable they shift their ground and become sceptical as to the original malignancy of the disease. Now and again, indeed, some one may go so far as to admit that, if worth anything, the process will make its way in time. True enough, no doubt, for medical recruits are steadily coming in to join the band of believers contending against heavy odds; but in the meanwhile, alas for the poor men and women who, living now and not a few years hence, linger in torture, or die in the prime of life! As things are in these days, the doctor probably issues his terrible decree, and the unhappy patient submits, to what he blindly believes the only possible escape from sure and speedy death.

Yet to pass to my second head—*i.e.*, the disadvantages of knife treatment—the dread it inspires is so great that many sufferers conceal their disease till their condition has become desperate, or, having once undergone it, resort afterwards to any quackery rather than again face the ordeal. For the more courageous, knife operations, even if successful, may leave lasting disablement or disfigurement, and, where cancer is concerned, if we accept the evidence of some of the first surgeons, the chances are much smaller than their patients guess that (except in very early and favourable cases) such measures will greatly lengthen life, while by the same showing they sometimes shorten it.

As to the better hope afforded by the electric current, the authors I am about to quote must bear their own witness, and if it be objected that this is an *ex parte* statement, the reply is obvious. The merits of the knife, despite its acknowledged limitations, are upheld, sometimes vehemently, by a great majority of the profession, and its triumphs fill a large portion of those medical organs which only at rare intervals reserve a corner for electricity.

There is another objection to which my quotations may seem open,

based on the doctrine governing much medical procedure, that patients are not the best judges of their own interests. But even if it be admitted that the interests of patients are never subordinated to those of the profession, still in one way or another choice of treatment always must practically rest with patients. They or their friends, in selecting a physician, usually decide as a natural sequence for the course he recommends, but since the selection depends mostly on public fame or private praise, and since men of equal mark advise widely different steps, the treatment, an unknown factor, is really chosen at haphazard.

Surely it seems reasonable that, instead of merely exercising an unreliable judgment as to the respective excellencies of Dr. A. or B., they should—the nature of their complaint once ascertained—have some clear knowledge, such as in surgical cases they obviously can have, of the *pros* and *cons* attending all legitimate kinds of treatment. The properties of drugs, the rules of regimen and hygiene, can doubtless only be mastered by long study and much experience; but no surgeon, however able, skilful, or impartial, can realise as well as the patient himself how far the loss of a limb will embitter his existence, or whether present risk, if risk there be, is worth braving for better future possibilities.

"More than thirty years ago I had put galvanism to the test, and had gathered in various ways evidence of its potency both in destroying and repairing tissues," * said a great English surgeon in 1888, when testifying from his own experience to its "wonderful influence" in one special form of disease, and his emphatic declaration, "We are face to face with an important revival," † was echoed by a Scotch contemporary, "we are at the beginning of a great change in the treatment of many diseases by electricity in some form." ‡

"Electricity," observes a Heidelberg professor about the same time, "has proved in so many different cases a powerful and unique means of cure, that it is the duty of every physician worthy of the name to devote some attention to this agent;" § and then he goes on to relate how in Germany for a long time past, and more recently in America, medical and surgical electricity has been studied and practised with an interest and zeal it has never aroused in England. Yet even in Germany a fellow-professor had seen cause to wish "dass die Elektrolyse auch weiter verbreitet werden möge um durch ihre wohlthätige Wirkung den Zustand von so manchen trostlosen Kranken zu erleichten." ‖

On the other hand, there had been, many years before, converts here and there in England who had the courage of their opinions.

* Sir Spencer Wells, *Brit. Med. Journal*, May 12, 1888, p. 995.
† *Braithwaite's Retrospect of Medicine*, vol. 98, p. 327.
‡ Dr. Thomas Keith, *Braithwaite's Retrospect of Medicine*, vol. 100, p. 405.
§ Erb's "Electro-Therapeutics," translated by Dr. de Watteville, preface, p. 5.
‖ "Die Elektrolyse in der Chirurgie," by Franz Groh, Professor of Clinical Surgery Olmutz.

Quite early in the century we come upon an enthusiastic tribute to electricity:

"As a medical preparation there is not yet discovered in nature any which possesses so much power . . . . . It has been applied in complaints where all other means have been resorted to without success, even to the preventing the operation of amputation or other operations of excision which had been suggested as the last and only means of saving life, by men who are, notwithstanding, justly called eminent in their profession." *

In 1849, Golding Bird, then Professor of Materia Medica at Guy's Hospital, when lecturing at the Royal College of Physicians, put forward a more sober claim: "Conscientiously convinced that the agent in question is a no less energetic than valuable remedy in the treatment of disease, I feel most anxious to press its employment upon the practical physician, and to urge him to have recourse to it as a rational but fallible remedy, and" (a needful injunction) "not to regard it as one capable of effecting impossibilities." †

About twenty years later, Dr. Hughes Bennett coupled his testimony to its destructive and stimulating efficacy with another warning as to the profound knowledge not only of electricity itself, but of anatomy, physiology, and diagnosis, which "should be possessed by him who undertakes the difficult task of employing so powerful although manageable an agent for the relief and cure of diseases;" ‡ and Dr. Russell Reynolds struck the same note in his University College lectures on its purely medicinal applications: "Electricity is one of the most powerful agents that you can employ in the treatment of disease, but it is useful, useless, or mischievous according to the manner in which it is applied." §

In such cautions, reiterated again and again in various forms by the champions of electricity, we find the explanation of the otherwise inexplicable fact that a remedy declared to be of such high value should, so far as surgical uses are concerned, be so little regarded by the profession at large.

"The danger lies, not in the method, but with the operator," ‖ and the paucity of skilled operators has apparently been, at any rate till very lately, both the cause and effect of its disfavour.

In an article on "Medical Electricity," which appeared in the *Practitioner* many years ago, there occurs this passage:

"There are men, some of them even highly placed in the profession, especially in England, who pertinaciously refuse to acknowledge any real worth in the treatment. The especial incredulity of English medical men may be readily accounted for by two facts. In the first place, medico-electric quacks have been especially rampant and exceptionally dishonest and incapable in this country; and secondly, the ignorance of the English

* Essay on the "Medical Application of Electricity," by James Price, surgeon, p. 13.
† Lectures on "Electricity and Galvanism," by Golding Bird, p. 123.
‡ "Clinical Lectures," by Dr. Hughes Bennett, p. 330–1.
§ Lectures on the "Clinical Uses of Electricity," by Dr. Russell Reynolds, p. 101.
‖ Sir Spencer Wells, "*Braithwaite's Retrospect of Medicine*, vol. 98, p. 397.

medical profession concerning the elements of electrical science was something profound and amazing."

To quote another writer :

"The differences of opinion about the therapeutic value of electricity are readily to be understood if we bear in mind that the mode in which electricity is applied has an all-important bearing on the results. . . . . In ninety-nine cases out of a hundred empirical galvinists, being unacquainted with the physiological effects of electricity . . . . have brought the remedy into undeserved contempt." *

And the Electro-Therapeutist to the New York State Women's Hospital tells us :

"Electricity, although the legitimate property of the educated physician alone, draws to it, more than any other therapeutic means, the folly, ignorance, and cupidity of the land. . . . . In all probability, its future status is secured, for it rests on foundations too broad to be easily overthrown. But it has grown, and is still growing, in spite of the opposition of many who would relegate its use to ignorant attendants, or to the patients themselves. . . . . It is only within the last ten or twelve years that . . . . any approach to systematic investigation has been attempted, and an agent powerful for good, but capable of vast injury, given a place in the armamentarium of the profession. . . . . Skill and the requisite knowledge in this special branch come only by close observation, hard study, and much experience." †

This last sentence throws light on the "curious fact" recorded by Dr. W. Playfair, "that while every one who has fairly, patiently, and impartially tried this method of treatment has been able to say that he believes it has at least some power for good in it, and is well worthy of further study, not one single opponent (and its opponents are both numerous and influential) seems to have taken the trouble to put it to the test of clinical experience, but has founded his objections on mere theory, and on second-hand evidence as to its possible dangers." ‡

That the test is not an altogether simple one is very evident :

"Electricity, despite its value . . . . as an electrolytic destroyer of diseased tissues . . . . and as the most manageable cauterising agent . . . . is superseded for these purposes by less efficient means. The expense of electrical apparatus, and the want of knowledge concerning it, are not the chief reasons for this neglect. The explanation is to be found in the extreme inconvenience attendant upon the methods of generating electricity at present employed." §

"I think that nothing but the want of information as to the choice and management of instruments can explain the little headway that the practice of electricity has made with the mass of the profession, too much occupied in their daily work to spare time to study the uses of this agent in the hands of the very few physicians in this country who have given attention to the subject." ‖

* "Treatise on Medical Electricity," by Dr. J. Althaus, p. 1.

† "Lectures on Electricity," by A. D. Rockwell, p. 1, 2, 3, 23.

‡ "On the Value of Electricity in Gynæcology," by Dr. W. S. Playfair (*Lancet*, July 21, 1888), p. 103

§ "Electricity in Medical and Surgical Practice," by Professor A. Ogston (*Lancet*, April 3, 1887, p. 867).

‖ "Handbook of Medical and Surgical Electricity," by Dr. H. Tibbits, p. 2.

Certainly "the uses of this agent" would appear to demand much study. An American physician thus summarises a few of them: "The nerves, muscles, and many of the secretions can be more surely and more uniformly called into their natural action by means of electricity than by any other known agent, and the degree and kind of the effect is widely different, according to the form, quantity, or intensity of the electricity employed, and that again is modified as widely according to the methods of administering the dose." *

"Simple chemical cauterisation," says Dr. George Apostoli in a paper read before the British Medical Association at Dublin in 1887, "is not the only matter we have to take account of. . . . . The electrical current . . . . in its course through the tissues acts prolongedly and profoundly on every molecule, and thus causes ulterior changes . . . . which may well astonish both by their extent, safety, and certainty." † And Dr. Massey, of Philadelphia, has lately described "two essentially different means of rendering electrical applications useful; . . . . the one consisting of a therapeutic use of faradic and weak galvanic currents, ... the other a surgical disintegration of diseased tissues and neoplasms by strong but accurately measured currents." ‡

Such, we are told, are the effects. As to precisely how they are produced one of the surgeons of St. Bartholomew's observes: "So long as the exact chemical composition of the tissues of the human body is unknown, we must be content to remain in ignorance of the exact chemical change which takes place when they are electrolysed . . . . and to gauge the efficacy of the process by the results which it yields. . . . . It is to these results, therefore, that I appeal as a testimony of the value of the procedure." §

The adherents of electrical treatment are the first to allow how much remains unlearnt, though one of them cites as among its healthiest signs "the gradual development; . . . . every step enabling the operator to employ it with greater safety and efficacy." ‖ And Sir George Macleod, no enthusiast, prophesies "that, with the aid of improved batteries and the modern accumulator, better work will be done in the near future." ¶

But it is time to pass from general evidence concerning electricity to the more special inquiry as to its influence on various forms of tumour. It will be simplest to take them separately, beginning with cancer, the most dreaded and deadly.

More than a century ago, Dr. Duncan, of Edinburgh, proposed the

* "Medical Electricity," by Alfred Garrett, M.D., preface, p. 12.
† "Gynæcological Electro-Therapeutics," by Dr. H. Bigelow, p. 49.
‡ "Electricity in the Diseases of Women," by G. B. Massey, M.D., p. 2.
§ "Treatment by Electrolysis," by W. Bruce Clarke, *Practitioner*, vol. 37, 1886, p. 187.
‖ Dr. Aveling, *Brit. Med. Journal*, May 12, 1888, p. 1013.
¶ *Lancet*, August 11, 1888, p. 253.

use of electricity in cancer ; and Mr. Cavallo, who practised about the same period, mentions a case "where the excruciating pains of cancer were mitigated by the electric aura." * But if at this remote time good really resulted, it made little impression on the professional mind, for in 1849 Alfred Smee in his "Electro-Biology" observes, *àpropos* of cancer: "It is doubtful whether the application of electricity can favour or prevent its growth. I have occasionally met with females who declare that cancerous swellings have been dispersed by its agency, though I myself am inclined to believe that the party who named the malady erred in judgment." †

In the same year, however, under the auspices of Mr. Hinton and Mr. Bransby Cooper, electricity was tried in an advanced case of cancer with some success ; and in 1854 Sir S. Wells saw a case, "with Dr. Lawrence, of Connaught Square, in which we decided, on consultation, to adopt this method, and Dr. Lawrence carried it out most effectually." ‡

We are told, too, of an electrolytic institution, "founded at Moscow, under the direction of several medical men, who report to have cured sixteen cases of cancer without the use of the knife or the tying of an artery." §

Up to this date the apparatus seems to have consisted of a piece of zinc, which, when connected with an electro-galvanic machine, became a cauterising agent ; but a little later, needles were employed, and the process ("electrolysis," as it now came to be called), aimed at far more than the mere removal of existing growths.

Dr. Althaus sets forth at length its newly revealed powers:

"I believe that the electrolytic method will be found generally useful, not merely by removing the present tumours, but also by so modifying the nutrition of the parts concerned that no relapse is likely to take place there." ‖

"One point appears already settled in this matter, and that is, that there is no better means for relieving the pain of cancer than electrolysis. . . . . Observers are quite unanimous in this particular. . . . . Neftel says that electrolysis performed in a certain manner . . . . acts not only on the neoplasma, but also on the surrounding parts, which, although apparently healthy, are nevertheless already infected. . . . . The electrolytic effects spread wherever portions of the current travel. . . . . The histological researches of Kuhne, Engel, Mann, Goluben, and others, have shown that electricity has a powerful effect on the protoplasma. . . . . The protoplasma of the cancerous cells appears to be so altered by electrolysis that they lose their vital properties. Cancerous cells are more easily destroyed by the galvanic current than healthy cells, as is seen under the microscope. . . . . The general condition of the patient is improved by electrolysis in a remarkable manner, even in bad cases. The lancinating pains disappear ; appetite,

* "Observations on Medical Electricity," by Francis Lowndes, pp. 44–46.
† "Electro-Biology," p. 128.
‡ "Cancer Cures and Cancer Curers," by Sir S. Wells, p. 30.
§ "Application and Effect of Electricity," by R. M. Lawrence, M.D., p. 97.
‖ Paper read before Medical Society of London, Jan. 1867, on "The Electrolytic Treatment of Tumours," by Dr. Althaus, p. 23.

digestion, and sleep return. . . . . Professor Massey, of Philadelphia, has recorded a case in which a cancer . . . . had been excised. A relapse took place, and amputation . . . . was thought of. Electrolysis, however, was used. . . . . The tumour entirely disappeared, and after two years no relapse had taken place."

The same author also gives in detail the case of a member of the American Congress, who, after eminent surgeons had declared his disease cancerous, underwent two knife operations, and when "further surgical procedures appeared inadmissible," was treated by electricity.

"The patient, who had been very feeble, anæmic, and cachectic, became stronger from day to day, and the tumour gradually began to shrink. Two months after the first application it had almost entirely disappeared, and three months after no trace of it was left. The general health of the patient had improved *pari passu*, and was, when last seen, excellent . . . . He died three years afterwards of another complaint, no relapse having taken place." *

About the same time, in a report made to the Illinois State Medical Society, we are informed that "growths which exhibit the appearance of malignancy, or which stand upon the disputed boundary between scrofula and cancer, are induced to disappear speedily . . . . by an electrolytic process of very short duration." †

Dr. Vivian Poore mentions the pain-soothing power of electrolysis when applied to cancerous tumours as the experience "of most surgeons who have given this method a trial," ‡ and in quick succession, with differing degrees of confidence, follows the testimony of other independent workers.

"I have electrolysed a number of cancerous breasts. . . . . The severe pain has in all instances been relieved, and the rapid development of the disease, in the greater number of instances, arrested . . . . The general health has been improved, and, with better sleep and increased appetite, hope has returned to the patient." §

"I do not know any circumstances in which I should be inclined to treat by electrolysis a malignant tumour otherwise removable. . . . . Nevertheless, under certain conditions, electrolysis may prove beneficial in cancer. As has been remarked by various observers, it possesses a wonderful power of relieving the pain which often attends this disease . . . . I record the fact because it consists with my own experience and the observations of others. Moreover, in using it for this purpose in hopeless cases, one may also have some expectation of retarding the disease—I can hardly say of curing it. My colleague, Mr. Annandale, has just made trial of it in a . . . . sarcoma of the thigh, in which amputation was the only possible resource. . . . . After one application of the needles, not only has the pain been relieved, but the tumour has diminished." ‖

"Whether or not the voltaic current exerts a special destructive influence upon disease germs, it seems certainly proved that there is a less frequent

* "Treatise on Medical Electricity," by Dr. J. Althaus, pp. 696–704.

† "Galvano-Therapeutics," by D. Prince, M.D., 1873, p. 43.

‡ "Text-Book of Electricity in Medicine and Surgery," by G. Vivian Poore, M.D., 1876, p. 242.

§ "Outlines of Medical and Surgical Electricity," by Hugh Campbell, M.D., p. 83.

‖ "Lectures on Electrolysis," by John Duncan, *Brit. Med. Journal*, June 10, 1876, p. 716.

return of cancerous growths removed by electrolysis than by the ordinary operative procedures or by caustics. . . . . The treatment of malignant tumours by electrolysis is yet *sub judice*, but the evidence in its favour has recently accumulated." *

"I am firmly convinced that the removal of a malignant growth by electrolysis does lessen the liability to a recurrence of the disease. That in any case in which operative interference is necessary, electrolysis is the preferable method; that in certain cases where interference by the knife is not to be thought of, electrolysis is advisable. . . . . I have had many cases . . . . which, having been previously operated upon by the knife, recurred in less than three months after the operation; but the secondary, and in some instances tertiary, growths having been removed by electrolysis, the patients recovered and remained free from any tendency towards recurrence. Some of these operations are of several years' standing, and speak for themselves as to their value. They represent almost every variety of malignant disease. . . . . That I have failed in preventing recurrence is true, but in each case of failure either the whole of the diseased part could not be removed, or else the system was so impregnated with the disease that the operation was undertaken with the view of prolonging the patient's life rather than with a hope of the disease not reappearing." †

"Electrolysis appears to have a sedative effect on the pains of cancer, and deserves a more extensive trial in this respect than it hitherto has had." ‡

And while English and American surgeons and physicians were recording their conclusions, Professor Groh, of Olmutz, treating eighteen cases of epithelial cancer by electrolysis, had cured thirteen, and of the remainder two had improved; in two there were no results, while one ended fatally. Professor Schwauda, of Vienna, electrolysing a dying cancer patient whose "pain spasms and sleeplessness were so severe as to defy all the usual means for the relief of these symptoms," had so relieved her that "the use of the current was continued up to the time of her death, and was the only thing which did any good"; § and Professor Semmola, of the University of Naples, proved the beneficial influence of a weak long-continued current on malignant tumours in six cases, in five of which "amputation of the diseased part had been recommended by experienced surgeons, and the sixth was a case of recurrence." ‖

A curious bit of evidence as to the curative virtues of electricity in its most intense and perilous form was contributed by Dr. Allison in a letter to the *Morning Post*, relating how a patient of his, about to undergo an operation for cancer of the lip, was, while out ploughing, struck by lightning. His team was killed, and he himself carried home insensible, but soon afterwards the cancer lessened; in a few months every trace of it disappeared, and for years he remained well. ¶

To continue the chronicle up to the present time:

* "Handbook of Medical and Surgical Electricity," by Dr. H. Tibbits, pp. 224–6.
† "Electricity in Surgery," by John Butler, M.D., 1882, p. 47.
‡ "Practical Introduction to Medical Electricity," by Dr. de Watteville, 1884, p. 202.
§ "Treatise on Medical Electricity," by Dr. J. Althaus, p. 696–697.
‖ "The Electrolytic Treatment of Malignant Tumours," *Lancet*, Nov. 26, 1881, p. 921.
¶ *Brit. Med. Journal*, Dec. 27, 1879, p. 1052.

"It is only in changing the action of the part and destroying the cells that any satisfactory issue can be anticipated. More and more it is becoming clear that at first cancer is local, and if it be then and there dispersed by this beautiful and life-giving process, there is far more hope of what practically amounts to a cure than by any other mode of treatment." *

"Electrolysis is no doubt sometimes very useful in cancer . . . . not only to destroy portions of the growth, and thus check the advance of the disease, but noticeably to diminish the pain." †

"The effects produced by the action of the electricity consist in a cessation of growth, gradual disappearance of pain. . . . followed by improved nutrition and a better state of the general health. . . . . So far, cases able to bear the full strength required have shown no sign of recurrence. . . . . The interrupted voltaic current apparently causes atrophy of the morbid cells from pole to pole in the path of the current if the details of the application are efficiently carried out." ‡

"Besides local destructive agency there is a possibility that currents of from 50 to 150 milli ampères may exert a toxic influence upon cancerous tissue at some distance beyond the point of electrode contact owing to its relatively lower vitality." §

So much for the treatment of cancer by electricity. It would be easy to multiply quotations till they became wearisome. As regards those selected, it will be seen that they are by no means all in accord either as to the certainty and range of its power or its best mode of application, but the unanimous assertion that it *has* power is all the more striking by reason of these very discrepancies.

When, however, we come to fibroid tumours, we find that though "the galvanic battery was used by Sir James Simpson forty years ago" ‖ for the dispersion of one of these growths, a special form of electrolysis, introduced by Dr. G. Apostoli in 1882, is now generally adopted. Of it he himself predicts "that it will henceforth be admitted we have in electricity a most powerful means of safely treating fibroid tumours, and that it will in future be felt as a duty by the surgeon to make use of it before adopting other measures." ¶

Let us see how others regard the treatment he initiated. "The labours of Apostoli," says Sir Spencer Wells, "have expanded and given a definiteness to our knowledge of the special power of galvanic currents. . . . . As to the permanence of cure, where cure there has been, one can only say that though five and a half years is but a short term to form estimates upon, when we are assured that during that time the return of symptoms or the necessity for further measures has been quite exceptional, it augurs well for the future, and the objection of the possibility of relapse becomes of little weight. . . . . There are tumours so large that no prudent surgeon would meddle with them.

* "Cancers and Simple Tumours dispersed by Electricity," by G. Edgelow, M.D., p. 4.
† W. E. Steavenson, M.D., *Lancet*, Dec. 7, 1889, p. 1198.
‡ "Arrest of Growth in Four Cases of Cancer by a powerful interrupted Voltaic Current," by J. Inglis Parsons, M.D., *Brit. Med. Journal*, April, 27, 1889; *Lancet*, Dec. 14, 1889, p. 1253.
§ "Electricity in the Diseases of Women," by G. B. Massey, M.D., p. 212.
‖ Dr. Aveling, *Brit. Med. Journal*, May 12, 1888, p. 1013.
¶ *Lancet*, Dec. 22, 1888., p. 1223.

Here, surely, is the occasion for the electrician to show his power. His method is a new resource for a desperate condition, and should be welcomed as such." *

Again we have the verdict of one whose success in knife operations for such tumours has been pronounced "phenomenal." Dr. Thomas Keith writes: "I have thrown . . . . over all surgical operations for this new treatment, and the longer I follow it the more I am satisfied"; and elsewhere, "We have already, my son and I, in scarcely five months, applied electricity in strong accurately measured doses upwards of 1200 times on considerably over a hundred patients, the majority in cases of fibroids." †

A Harvard professor tells us how, "Many years ago, ... when I argued that electricity, hygiene, and massage would do many things which the knife was called upon to do, I had not a sufficient array of facts to back my argument up, and I was somewhat mocked. But with the advance of years came riper experience, ... until it culminated in a personal association with Dr. Apostoli, a personal investigation of his cases reaching nearly 2500, and a personal witnessing for four hours at a time and three times a week of the large number of cases that came to his *clinic* in the Rue de Jour. . . . . What I have seen Apostoli do . . . . scores of observers all the world over are doing and repeating every week. . . . . I do not yet know that it will dissipate the tumour. I have not seen such an instance, but I believe the time to be in the near future when we shall be able to do even this. I only claim now that it will . . . . dissipate pain, improve nutrition, and diminish size without danger to life. Is there anything known to our science which can offer so much?" ‡

The "scores of observers" is no mere figure of speech. In more than one London hospital, in several provincial and Scotch hospitals, Apostoli's method is now employed. At New York, Chicago, Boston, Philadelphia, St. Louis, and Montreal "the treatment of fibroid tumours by the galvanic current has of late been . . . . universally recognised by the profession." § Dr. Championnière, of the St. Louis Hospital, Paris, reports favourably, || and M. Delétang, of Nantes, stated at a meeting of the Académie de Médecine that he had treated ninety-seven women suffering from fibroma by electrolysis with excellent results. ¶

Such are some of the attested successes to be set against failures

* "Electrical Treatment of Uterine Diseases," by Sir Spencer Wells, *Braithwaite's Retrospect of Medicine*, vol. 98, p. 397.

† Dr. Thomas Keith, *Braithwaite's Retrospect of Medicine*, vol. 100, p. 405, and *Brit. Med. Journal*, Dec. 10, 1888.

‡ "Paper on Dr. Apostoli and his Work," by Professor H. Bigelow, *Lancet*, Dec. 22, 1888, p. 1222.

§ "Electricity in the Diseases of Women," by G. B. Massey, M.D., p. 117.

|| *Lancet*, Sept. 14, 1889, p. 571.

¶ *Brit. Med. Journal*, Dec. 22, 1889, p. 1412.

cited by opponents, which may or may not have been due to imperfect instruments, clumsy manipulation, or mistaken diagnosis.

Turning now to scrofulous and enlarged glands and goître, we again discover our first advocates for electrical surgery in the dark ages of the science.

Dr. Percival, in his "Medical Commentaries," relates how by its means he "removed a number of hard tumours from the neck, where they had remained during three years, and resisted a variety of applications."* And in Dr. Joseph Priestley's "History of Electricity" we read that "swellings in the face, neck, or other places, are oftentimes very much reduced by a few moderate discharges of the phial through the part; but these will frequently be found to yield to the drawing of strong sparks from the place without using the phial."†

Nous avons changé tout cela, but still there seems a certain significance in the belief which electricity, even in this crude form, was able to command. Between 1850 and 1880 Continental doctors were busy with their currents.

"Remak in his 'Galvano-Therapie,' mentions that he had succeeded in removing a number of swollen and painful lymphatic glands in the neck. . . . . Meyer, by the use of strong and often interrupted faradic currents, had succeeded in removing or diminishing multiple indurated lymphatic tumours. . . . . Choostek has treated in several instances strumous glands, many of long standing, with stabile galvanic currents, and has often reduced them with wonderful rapidity, sometimes completely. . . . Seeger claims to have been equally successful in inflammatory glandular swellings. Omnius and Legros give similar instances of cure in connection with glandular tumours."‡

More lately the Professor of Materia Medica in the Medical College of Philadelphia states: "Solid tumours, as goître, enlarged and submaxillary glands . . . . and similar growths have been repeatedly cured by electrolysis."

From Edinburgh comes the record of six out of fourteen test cases of goître absolutely cured by the same method. ||

A very few lines must suffice for one other form of tumour. In the *Lancet*, of March 20, 1875, there is mention of forty cases of nævus electrolytically treated by Mr. Knott, of St. Mary's Hospital, and he dwells upon the certainty and safety of the process, the faintness of the cicatrix and the absence of all after-pain; while the surgeon to the Children's Hospital at Nottingham says: "I am induced to give the experience of about ten years' use of electrolysis

* "Observations on Medical Electricity," by Francis Lowndes, p. 44.
† "Essay on Electricity," by J. B. Beckett, p. 64.
‡ "Electro-Therapeutics," by Erb, translated by Dr. de Watteville, pp. 678, 257, 259.
§ "Medical Electricity," by Roberts Bartholow, 1881, p. 263.
|| "Treatment of Goître by Electrolysis," by J. Duncan, *Brit. Med. Journal*, Nov, 3, 1888.

in the treatment of nævi, because in my hands it has answered so well, and seems to possess advantages which none of the more commonly adopted methods of dealing with these growths can be said to have."*

I now lay down my pen. As regards the conflicting theories touching the action of electricity on human tissues, and the comparative efficacy of weak or strong, interrupted or constant currents, it would be presumptuous to hazard an ignorant opinion, grounded only on one personal experience.

All I have aimed at doing is to collect and arrange the arguments and evidence of men of medical repute in our own and past times in favour of surgical electricity, and to present them fairly, omitting no word that modifies their meaning. Even this aim I have most imperfectly fulfilled, for I have only had means of access to a fraction of the American works on electro-therapeutics, and have perforce left unexplored a mass of foreign literature on the same subject, while time did not permit me to exhaust the mine of English medical periodicals. Probably this mine, however well worked, would not have produced a very abundant yield, for if it did there would hardly be, as I think there is, a *raison d'être* for this paper.

The little I have accomplished will have served its purpose well should it lead any deeply exercised about themselves or others to consult such authorities as are within their reach, and, if thereby satisfied that electricity deserves a trial, then, under the advice and at the hands of a master of the craft, to put its powers to the proof.

EDITH FAITHFULL.

* "On the Treatment of Nævi by Electrolysis," by Lewis Marshall, *Braithwaite's Retrospect*, vol. xcix. p. 288.