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## LECTURE.

### SOME EXPERIENCES WITH RADIUM.

By Dr. Browne Carthew.

Sir Alfred Rice Oxley, C.B.E., M.D., was in the Chair when Dr. Browne Carthew gave his lecture on "Some experiences with Radium," on February 6th, and there was a large attendance of Members. What he told us was exceedingly interesting and enlightening. We are sorry that we can only give a short résumé of the lecture in the space at our disposal.

Recently, when opening the X-Ray department of the Royal Northern Hospital, H.R.H. the Prince of Wales had asked "What about Radium?" The reply was to the effect that Radium is no longer so popular with surgeons as a means of combating cancer. Thereon the Prince remarked, "I have myself seen cases in which the treatment by Radium has been very painful for the patient, and has been followed by unsatisfactory results." This remark of His Royal Highness, the lecturer said, reveals a state of things that is, unfortunately, only too true. Not only with surgeons, but with the public generally, Radium is unpopular. "But," said Dr. Carthew, "is this the fault of Radium? May it not be the fault, perhaps, of the method in which Radium has been, and is, at the present time, being used?"

Dr. Carthew said that he had been amongst the first in this country to use Radium. That was now some thirty years ago. The *Daily Telegraph* published an article of his on "The Medical Uses of Radium"; that was twenty-eight years ago. His own experiences with Radium had impressed him very greatly with its value as a remedy, and he was glad on that account to have the opportunity of saying a few words in its favour, to stem, to whatever small extent he might be able, the current of unpopularity which had set in against it. The effect of prejudice would be to prevent Radium from being tried as a remedy in new directions and in many cases where, he believed, it could be used safely, painlessly, and with very good results. But he believed that the time would come when Radium would not be used, as it was used at present, as a destructive agent, but when it would be given the opportunity to prove its wonderful power of restoring diseased tissue to a normal and healthy condition.

The lecturer then put before his audience a few elementary facts regarding Radium. It was, he said, a metal obtained from certain ores, as iron is obtained from iron ore, lead from lead ore, etc. But the one from which Radium is obtained is exceedingly scarce and the quantity in the ore extremely small, having been estimated to be in the proportion of one part to three-and-a-half million parts! The scarcity of the ore, the small quantity in the ore and the expense of extracting it, account for its high price.

Radium is one of those metals which are what is called Radio-active. This means that it has the power of emitting rays somewhat similar to those of an X-ray tube, with the difference that, whereas the voltage behind a modern X-ray tube runs into hundreds of thousands of volts, the voltage

at the back of Radium is estimated to run into millions of volts.

It was very soon after the discovery of the Röntgen rays, in 1895, thirty-seven years ago, that the attention of chemists was directed to various metals which have this property of radio-activity, and in 1898, three years after the discovery of the Röntgen rays, Mons. and Mme. Curie and a Mons. Bémont presented to the Academy of Science in Paris a joint paper on a new radio-active substance which they called "Radium." The rays emitted by Radium have been divided into three kinds. They have different wave lengths, different composition, and different penetrating power. They are:—

(1) The Alpha rays—least penetrating and generally considered to be practically useless for therapeutic purposes. With this view the lecturer said that he was not entirely in agreement.

(2) The Beta rays—more penetrating.

(3) The Gamma rays—the most penetrating.

These rays travel at an immense velocity, comparable to that of light. The gamma rays have the greatest velocity. It has been estimated at 186,000 miles per second! What a voltage power, remarked the lecturer, must it require to produce such a velocity—millions of volts—the voltage of our electric lighting system is 200 or 250 volts!

The lecturer here held up to the view of the audience the small case containing the Radium, in the form of Radium Bromide. Its radio activity had been measured in the Institute de Radium, Paris. When placed upon the back of the hand for five to ten minutes, a brown spot will appear on the skin two or three days afterwards, and will then gradually disappear. But a longer exposure of twelve to fifteen minutes will produce a sore obstinate and troublesome to heal. Practical experience is very necessary in regulating the duration of an application. The lecturer then gave a description of a large number of cases which he had treated with Radium, and passed round photographs and drawings, showing the conditions prior to and after treatment. The results were exceedingly interesting. What impressed us was the variety of cases in which Radium could be applied. In some of the cases the results had been most successful. In others, those of advanced malignant disease, they were less so. But even in these cases, where the Radium was applied the condition was greatly improved, broken down scars healing and tumours diminishing in size. In no case, said the lecturer, had the patient complained of pain or discomfort during, or arising from, the treatment. On the contrary, pain and discomfort, when previously complained of, were relieved.

With regard to Rodent ulcer, the lecturer hoped that it had now lost its terrors, for whereas, formerly, even extensive operation was frequently unsuccessful, now a cure could almost certainly be promised, and not only a cure, but a cure which would leave no scar.

The lecturer also gave us an interesting account of his experiences in the application of Radium in Ophthalmic cases, where good results had been obtained.

There were a number of questions after the lecture and

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