RADIUM THERAPY.

WESTMINSTER HOSPITAL'S NEW RADIUM BOMBS.

Four grammes of Radium, electrically controlled, now working day and night as one Unit.

Four grammes of radium (estimated value £30,000 to £40,000) are now working at Westminster Hospital's Radium Annexe, Fitzjohn's Avenue, Hampstead. Two "bombs," incorporating new ideas in "bomb" construction and manipulation, have been made, each in turn carries this radium. They are in use night as well as day five days a week.

Owing to the combined power of these four grammes, which are used as one unit, and the necessity of restricting as far as possible any near approach by surgeons and operators, an entirely new method of automatic electric control has been devised, whereby the radium, in its container, can be lifted from a leaden safe into one of the bombs and swung into position over the patient. By reversing the action the radium can be returned to the safe and then transferred to the second bomb. All these movements are controlled from a switchboard by an operator, who stands 14 ft. from the couch upon which the patient lies. The switchboard is an interesting piece of mechanism, with a main switch, under lock and key, six levers, a control key and a handle, all of which are brought into operation at one time or another when the bombs are in use.

Only for one instant may it be necessary for an operator to approach a loaded bomb, and that is at the moment when the bomb is about to enter an applicator strapped to the patient, when the operator, without being exposed to the direct rays of the radium, is able with a quick movement of the hand to ensure that the bomb is properly in place. The couch upon which the patient lies is mechanically operated and can be steered into position, tilted, raised or lowered from the farther end by the working of hand wheels.

Electrical Distant Control.

The bombs are suspended from a rotating beam securely bolted to a steel girder, an empty bomb acting as counterbalance to a charged bomb. Each bomb weighs 68 lbs. when loaded. They differ in the size of the aperture through which the rays are directed, a factor which enables a larger or smaller area to be irradiated. The transfer of the radium from one bomb to another is effected by swinging each in turn over the safe, a delicate process beautifully controlled and carried out by the movement of the levers on the distant switchboard.

The safe from which the radium is taken in its container is a stout bottle-shaped hollow mass of lead, weighing three hundredweight. Within it there is a small motor, operated from the switchboard, which lifts the container into position and pushes it into the heart of the bomb, where it is held safely by catches during treatment. On the return of the bomb the catches release their hold electromagnetically and the motor enables the radium container to descend once more into the lead safe.

The two bombs and the radium container are made from a new heavy ray-proof metallic compound recently invented. This compound is an amalgam of 80 per cent. powdered tungsten, 10 per cent. copper, and 10 per cent. nickel, the whole fused together by heat and afterwards worked as one metal. Within each bomb there are electromagnets, wired up to the control board, which hold or release the radium-container as required.

A Platinum Collar.

One of the two bombs, having a narrower aperture, is used in cases in which the passage of the rays must be restricted to a small area. To control more effectively the direction of these rays, and prevent "scattering," the neck of this bomb carries a collar of platinum, the value of the latter metal being £225. Exclusive of the cost of the radium the installation, which has required months of experimental construction, presenting many electrical difficulties, and the use of very expensive metals and special tools for working them, has cost in the neighbourhood of £800. The radium has been purchased by the Hospital, hired to it, and lent to it. Some of the radium has cost Westminster Hospital £10,000 a gramme, and a portion £8,000 a gramme.

Important Results.

This very large expenditure has been justified. Results are now being obtained of an important character.

At Westminster Hospital Annexe, a new technique has been evolved by the surgeons in charge. Having found, in operating five earlier and smaller bombs, that deeper penetration could be obtained by removing the radium to a greater distance from the point of application, additional radium has been acquired to give effect to this conclusion. The larger bombs call for a stricter control of direction, and a new system of distant control for the better protection of the operators. These requirements having been successfully incorporated in the bombs now installed, the whole constitutes a notable advance in the practice of radium therapy, and there are hopes of further successes in this most difficult field.

The arrangement of the radium in its container, so as to give the desired flat field, and generally, the physics of the apparatus, is the work of Dr. H. T. Flint and Dr. Wilson, respectively Physicist and Assistant Physicist to the Hospital. The design and construction of the whole apparatus was in the hands of Mr. F. R. Carling, formerly Technical Adviser for Radium Work to the Hospital, and of Mr. D. R. Carling. The desiderata from the radium-treatment point of view were obtained from the experience of the Honorary Staff.

When the new Westminster Hospital is completed, as it is hoped may be the case by the end of 1938, the whole of the Radium and work will be transferred to it.

BRITISH DOCTORS AWARDED INTERNATIONAL PRIZE FOR CANCER RESEARCH.

Professor E. L. Kennaway, director of the Research Institute of the Royal Cancer Hospital, London, and Dr. J. W. Cook, research chemist at the institute, have been awarded the prize offered by the International Cancer Union for scientific work on cancer. The award was made at the second International Congress on Cancer, which was held recently in Brussels and was attended by representatives of 45 nations. There were representatives of 42 nations on the adjudicating committee by whom the award was made.

The prize is the gift of the Union Miniere du Haut Katanga, a Belgian company which produces a large proportion of the world's radium and consists of 50,000 francs (Belgian) together with 50 milligrammes of radium. It is the intention of Professor Kennaway and Dr. Cook to use the radium for research work at the Royal Cancer Hospital.

AIR RAID PRECAUTIONS.

So much discussion is taking place at the present time on the subject of Air Raid Precautions, that it may be of interest to mention how keenly the nursing profession is taking the matter up.

A course of lectures organised by the British Red Cross Society is being given at the present time at St. George's Hospital, London; the majority of the Sisters at St. Thomas's Hospital have obtained the Society's certificate in the subject. A course of instruction is to take place shortly at the Princess Louise Hospital, Kensington, and one is being organised at University College Hospital.

previous page next page