

SCIENTIFIC EVENTS

RADIUM AT THE WESTMINSTER
HOSPITAL, LONDON

THE London *Times* states that Westminster Hospital, already equipped with a £20,000 radium bomb for the treatment of cancer, will shortly be in possession of a new bomb containing at least double the amount of radium—namely, 4 grams—and therefore worth at least £40,000. It will be available in a few weeks for treatment at the Westminster Hospital annex in Hampstead.

Portions of the new bomb are being made in the annex workshop, and the whole will be assembled and tested there by the hospital physicist during the next few weeks. The making of the new bomb will be in itself a costly undertaking. A new tungsten alloy, one and a half times the density of lead, will be used in the construction of the hollow globe within which the radium will be concealed. This alloy, a new discovery, will enable the size to remain as at present although the weight must be greatly increased. Within the lower circumference of this globe there will be a solid gold collar. The superior density of the gold will assist in confining within a narrower compass the gamma rays which issue from the radium, and will thus prevent the rays spreading and causing injury to healthy tissues.

The present bomb has now been in use day and night for two and a half years, and over 600 patients have received more than 7,000 treatments. It has been found that there is a great advantage in working at a greater distance from the patient, and this will be made possible by the employment of a much larger quantity of radium within the bomb; the patient will receive a more effective dose at a greater depth below the surface. Minor improvements will be made in the suspension of the new bomb. New types of applicators will be introduced, and it will be no longer necessary to adjust the distance of the radium from the patient by raising or lowering the internal tube to which the radium container is attached.

For five days of the week the present Westminster bomb is in constant use throughout the whole 24 hours of each day. Three shifts of operators enable the work to go on. During the remaining two days of the week, Saturday and Sunday, the bomb is used by the physicist and surgeons for experimental work, the need for extensive research into questions of effect and dosage being always present. The new buildings in Horseferry Road will enable the radium and x-ray work now carried on in Hampstead to be brought again to Westminster. At least 1,400 square feet of space has been allotted in the plans of the new Westminster Hospital for this work.

MIGRATORY WATERFOWL REFUGES

RECENT executive orders have established two neighborhood refuges in North Dakota that when complete will cover 80,000 acres and will be one of the largest duck-producing areas in the United States. These sanctuaries are under the supervision of the U. S. Biological Survey and are designated the Upper and the Lower Souris Migratory Waterfowl Refuges. Both are being improved by CCC workers.

The two refuges lie on the Souris River, a stream that comes out of Saskatchewan and meanders through North Dakota for 358 miles, cuts a valley 170 miles long through the heart of one of the great hereditary nesting areas of the Northwest, and then goes north into Manitoba. Prior to the disastrous drainage activities of the early 1900's, hundreds of duck hunters went to this region every autumn.

The Upper Souris Migratory Waterfowl Refuge, a 30,000-acre tract in Ward and Renville Counties, not far northwest of Minot, will contain a large storage reservoir to furnish a more uniform water supply for that area and also for the Lower Souris Migratory Waterfowl Refuge. The principal dam for the storage reservoir will be about 27 feet high, requiring 302,000 cubic yards of earth fill, with concrete and steel outlet works and a separate spillway of rubble and reinforced concrete.

The Upper Souris dam will have a storage capacity, at normal water-level, of about 112,000 acre-feet and will provide water for flood-irrigating parts of the valley that have never been agriculturally productive since the costly drainage activities of 30 years ago. Flood storage will also improve the sanitary conditions of several valley towns.

Two CCC camps on the upper refuge are constructing smaller dams, dykes, ditches, spillways and two outlet structures in the development of an 8,000-acre marsh area in the valley. They will plant food and cover and construct firebreaks, roads, fences and buildings.

The Lower Souris Migratory Waterfowl Refuge, a 50,000-acre sanctuary 70 miles down the river from Upper Souris, is in Bottineau and McHenry Counties and northeast from Minot. This refuge has greater potentialities for geese and duck production than any other area now administered by the survey. The refuge is a strip of original marsh 40 miles long and varying from 1 to 3½ miles in width. The natural depressions are filled when the spring run-off occurs, and, in the restoration, the 40-inch annual summer evaporation will be counteracted by water drawn from the large storage dam at Upper Souris. This assured water supply means that the marshes will provide food