



*Confederation Square, Ottawa. On the right are part of Parliament Buildings, and in the centre is the National War Memorial, with the Post Office beyond*

## CORONATION REBROADCAST IN CANADA

*R. H. Marsden, our engineer in charge of the installation of the Television transmitter in Ottawa, sent us this account when we cabled him after the successful broadcast on Coronation Day.*

TOWARDS THE end of last year, the Canadians were planning their Coronation programmes, and they decided to bring forward by quite a few months the installation of the TV station at Ottawa, the capital city of Canada. Ottawa would then join in with the only other two TV stations, Montreal and Toronto. The studios of these two cities had been fitted with Marconi equipment throughout about a year ago, as was described in this magazine.

Further, the installation of a microwave link connecting these two cities with ten intermediate relays was also to be put forward, so that not only could they then exchange their programmes, but one Coronation programme would do for both. This link, being installed by the Bell Telephone Co., would actually pass through Ottawa on its way, and it would carry at least two video channels for renting to the Canadian Broadcasting Corporation (the C.B.C.).

It was then necessary to buy at short notice a suitable transmitter for Ottawa, extend the connection of the link from the Ottawa relay station to the TV station, and, a very important thing, to arrange for a complete film of the

Coronation ceremony to be flown across the Atlantic Ocean within an hour or so of being taken.

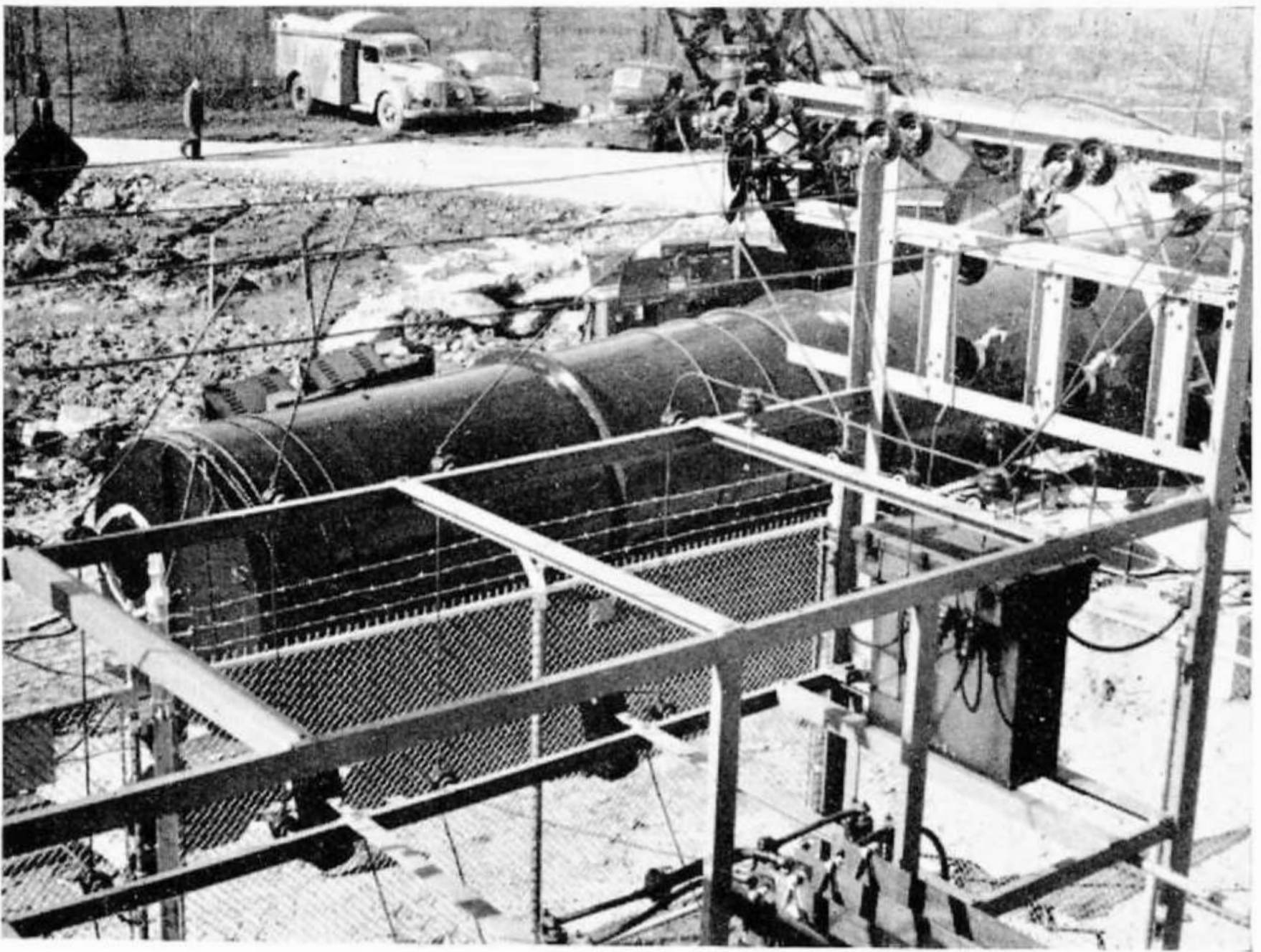
But there was a slight complication. The Americans were also going to do the same thing, and if in the horrible possibility of *our* Coronation getting onto the American network first, the Canadians would be compelled to take their relay. The arrangements here are that Toronto is connected with the American TV networks via another microwave link through Buffalo and New York, which in turn is also connected with Chicago and all stations West.

The Americans had laid on two special airliners to bring the films across—a Stratocruiser and a Constellation, I believe. So the Canadians wanted some-

thing even better: they asked the Royal Air Force and the Royal Canadian Air Force to co-operate by using their English Electric Canberra jet-bombers for the Atlantic crossing, and to use a new very high-speed jet fighter to relay these films from Goose Bay to Montreal.

To put the final touch to the plan, they also made arrangements for a helicopter to pick these precious parcels up at the Dorval airport at Montreal and land them on the roof of a building adjacent to the C.B.C., right in the centre of the city. And at the English end of the trip the R.A.F. also was to use a helicopter to make the link between Alexandra Palace and Heathrow. What could be needed more? Since the film would, of necessity, be quite lengthy, it

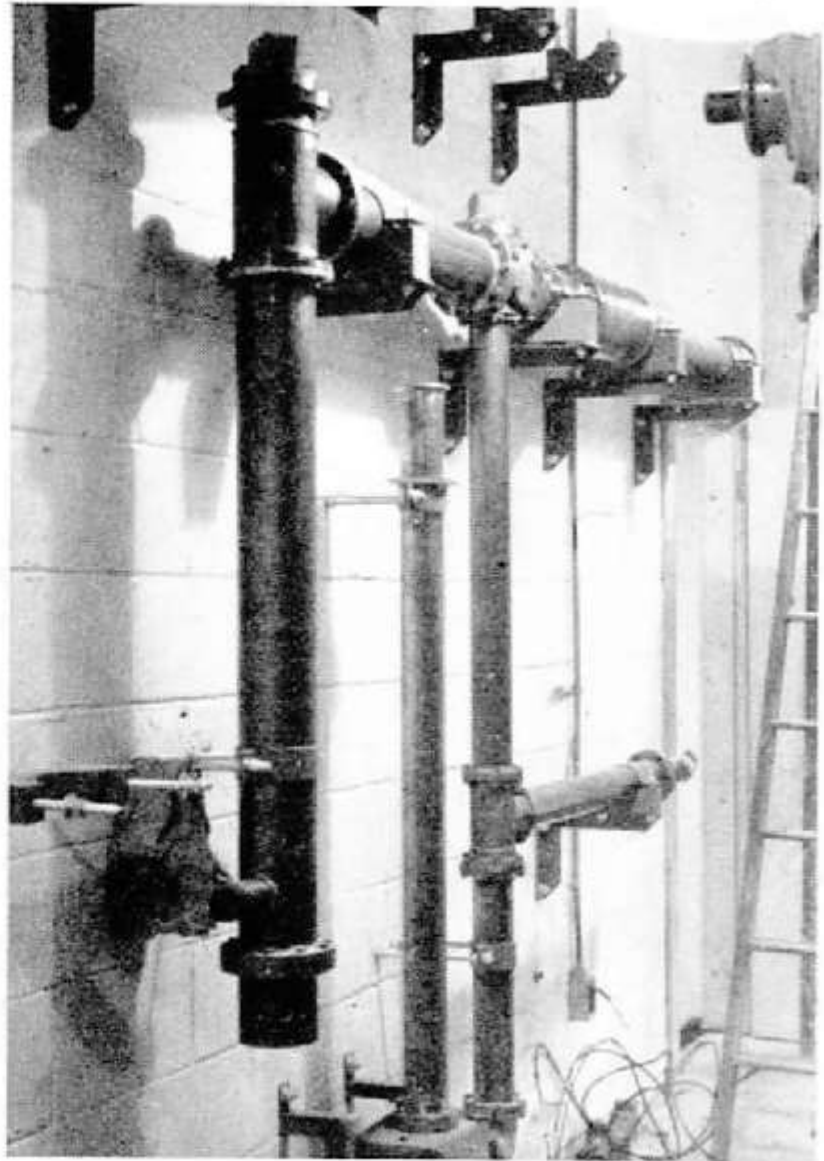
*The aerial ready for lifting, by the sub-station. On the right can be seen the concrete mounting ready to receive it*







*Raising the aerial, which was to carry the finest television broadcast yet produced*



*The combining unit for sound and vision was partly assembled when this was taken*

would not be convenient to wait till the end of the ceremony before starting to send off the first few reels, and so the arrangement was to employ three Canberras to fly across in relays, about two hours apart.

It was about last Christmas-time that the Canadian Marconi Company gained the order for the transmitter at Ottawa, and that is why one of the two double-transmitters in the High Power Test at Chelmsford found itself in urgent demand.

But the best laid plans can go astray, and it nearly happened that those of the C.B.C. nearly went that way too. The authorities completely torpedoed their plans, when permission to erect a TV station on the selected site was refused. However, another site, not at all suitable, of course, was found at the far West end of the city, and "Ottawa" again headed the lists of priority.

Our worries were to arrange for these

transmitters to be completed, then tested (a matter which could take up to eight weeks or more), then packed, then to catch a suitable ship and to be transported some 1000 miles into Canada by train, and then to be built and tested fully (another matter which could take at least four weeks, if not many more), and in working condition at least two weeks before the Coronation on 2 June. It was a case of making ends meet—ends which at first sight couldn't possibly meet within the six months then available.

Well, by guessing dates, extracting promises from people, and generally expecting the impossible, it was agreed that the equipment would have to catch a certain ship to enable it to arrive in time to be erected and adjusted. This left Test a very few weeks to complete their part.

I can remember seeing the sets in the Test Room one Friday afternoon—13 March—and at about 4 p.m. they



were switched off for the last time in England. Within a few minutes the Packing Department were turned loose on them, and they rapidly started to disintegrate under their intense attention. Saturday, Sunday, Monday and Tuesday went by, and each day the sets looked less and less, as, bit by bit they were stripped down, and the parts packed away in the boxes that had been prepared for them several weeks before.

On Wednesday, 18 March I see my diary merely says "sets gone". By the following Monday they were all on board the s.s. *Empress of France* in a Liverpool dock and ready for their Atlantic crossing: they had travelled to Liverpool by road during the latter part of the week.

During the last month or so, I had met J. D. V. Lavers who had been working in the Television Camera Test, and who was to come to Ottawa with me partly to look after all the ancillary apparatus such as monitors, and sync-generators. We couldn't get a passage on the same ship as the equipment, but sailed some five days later, also from Liverpool, on the s.s. *Franconia*.

We arrived at Montreal on Easter Monday and although the equipment had actually reached Ottawa by train, when we visited the site, we found that the house itself wasn't ready. After a week of waiting in Montreal, we went to Ottawa on 14 April—exactly seven weeks to go. It was cold, too, for the Canadian spring is about four weeks behind the English one.

*To get the cabinets in, the door frame had to be dismantled, and even this left precisely a quarter of an inch to spare*

*At the back of the group is Des Lavers, of M.W.T., who assisted Mr. Marsden. In front are two mechanics and an engineer of the Canadian Marconi Company*

*The station begins to look finished. Here the transmitters are in position and being assembled*





*From highly organised chaos emerges the transmitting station. With the set ready for power and testing are G. Williams and D. Lavers, M.W.T., and G. Elliot, C.B.C.*

Things were rather hectic for the first few weeks, for the builders were still making the house, the electricians were fitting in the lighting and also making a full-sized outdoor sub-station at the back, the ventilation people were busy making ducting for the warm air (and the noise of their hammering on the sheet metal was very trying).

So as not to choke ourselves with cases and the gear from them, we had to choose carefully which ones we needed. We managed to have delivered about eight or ten cases each day, and to get them all unpacked before the next lot arrived. When the cases containing the cabinets themselves came along we found that even by unpacking them outside the house, the doorway wasn't big enough to get them through without having to strip off all the woodwork—and then we just got them in with only a quarter of an inch to spare: and that day was the only sunny, warm, and rainless day for weeks.

For the following ten days Lavers and I, together with an engineer and two

mechanics lent to us by the Canadian Marconi Company went all-out to assemble and wire up the apparatus. This also meant fitting the air-ducting (which was done by an outside firm here) and all the aerial feeder pipework, together with the rack-mounted equipment and all inter-wiring. It took two of us nearly two days to put in all the 250-odd valves in the transmitters.

There was no water laid on, even though the site is in the town: and since the local requirements are that a pipe line shall be down at least 6 feet (and the ground just there is solid rock) to escape the frost, it wasn't possible to connect to the nearest supply, some 200 yards away. We had to buy and install a small pumping system that houses here usually use. Actually we were ready for testing some five days before the power lines were connected—which meant a maddening delay for us.

Just then, two other items were nearing completion—the erection of the aerial (by R.C.A.) and the erection of the tower for the microwave link with

the town and the Montreal-Toronto link.

The aerial was of special design, and I believe it is the first of its kind to be used on these frequencies. It is in the form of a 70-ft. funnel of steel, some 6 ft. in diameter standing on a block of concrete without any guy wires. Two vertical slots at the top—facing over Ottawa—provide the radiating element, and the power is fed there by means of a wave-guide inside the funnel, much in the same manner as radar sets use them.

On Thursday, 7 May, I got power connected at last, and for the following three weeks we were exceptionally busy with testing. Then we ran into some unsuspected technical trouble, which had not been of any consequence on previous models.

With only twelve days to go and with no real reason to expect to be able to overcome the trouble in time for the Great Day, I appealed to Chelmsford for help, and it was with a great measure of relief that I learnt that Robin Banks would be flying out to join us by the following Monday—Whit-Monday, 25 May.

But as often happens, immediately after cabling for assistance, I was able to find the cause of the trouble, though not necessarily to cure it. At least I was able to remove it for the time being and so allow the programme to be radiated: but it needed more expert attention than I could give to get rid of the cause in a proper manner.

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## BEAM PIONEER

IT WAS with great regret that we heard of the death of Mr. A. W. Hall, one of that small band of engineers who assisted C. S. Franklin in developing the Marconi short-wave beam system in the nineteen-twenties.

Mr. Hall joined just before the first world war, and on returning to the Company after war service, he worked for three years under Mr. Franklin

A few more hectic days, crossing of fingers, and holding of breaths, and 2 June came round. We were very relieved when, after over sixteen hours of continuous programme being relayed, we finally switched off and went home to bed—at 2.30 a.m. the following morning.

And the programme itself? The first Canberra left on time, and actually arrived at Goose Bay ahead of schedule, the TV from Montreal running a commentary of its flight, and the weather it would meet, and incidentally introducing the Ottawa Station to the network. The second jet developed trouble after one-and-a-half hours on the way, and turned back: this lost the second lot of reels some three hours, and so the first three-hour reels were put on again to fill in, together with a short film of the way in which the film was brought across. The third plane came across without incident.

On the Great Day itself, while the jets were bringing across the films, there was an official ceremony outside the Parliament Buildings in Ottawa, with the Governor General taking the Salute. To cover these, the Marconi-equipped Mobile Unit, recently supplied to C.B.C. from Chelmsford, was on duty here, feeding it all down the link to Montreal, who then relayed it back to Ottawa and Toronto. These programmes, too, went through well.

before being put in charge of the experimental telephone link between Hendon and Birmingham. Thus began his association with short-wave communication which was to continue through twenty eventful years of wireless history.

His work in designing short-wave transmitters produced the SWB8 and the SWB11, so familiar to all of us.

Mr. Franklin particularly wishes to express his appreciation of Mr. Hall's work and friendship.