

Television Camera Demonstration

Over a four-day period representatives of foreign and British broadcasting authorities, programme contractors, correspondents from the technical and national press and others came to Chelmsford by special trains for the introduction of the Mark VI television camera and to see something of



The new Mark VI camera introduced at a demonstration held at Waterhouse Lane, Chelmsford, in December 1966.

the technical advances made in the field of sound and vision broadcasting during the past year.

Interest was centred on the Mark VI camera both in a telecine role and as a high-quality, low-cost studio camera, to supplement the popular Mark V. Six Mark VI cameras were at an early stage ordered by Ulster Television.

Designed to use fixed focus or zoom lenses the Mark VI is fully transistorized, except for the Nuvistor head amplifier and the cathode-ray tube in the now famous tilting view-finder. The Mark VI was demonstrated at varying light levels giving excellent pictures with only 50-ft candles illumination.

Those who saw the original demonstration of the Mark VII colour camera in December 1965 were surprised at the improvement made in sensitivity to an already sensitive camera and appreciated the immediate value of the newly developed Vertical Aperture Corrector.

Colour pictures were shown with a light level of 100-ft candles, normal for a black-and-white camera, but with the illumination reduced to 15-ft candles and below, and a wider lens aperture, satisfactory pictures were still obtained. This greatly increased sensitivity is of immense value during outside broadcasts when light levels can be well below normal studio standards.

Joystick remote control, to adjust the gain of all three colour channels of the Mark VII, was a new innovation also seen for the first time.

As an indication of the value of solid-state circuitry in broadcast transmitters the new 10-kW medium-wave broadcaster was displayed. All transistor, except for the final tetrode amplifier, the total floor area required is less than 20 sq. ft, no rear access or under floor ducting, a higher degree of reliability than possible with a comparable valve transmitter and of course lower running costs. This is certainly a transmitter with a great future in overseas markets.

Tyne Tees Television Outside Broadcasting

After seven years of reliable and valuable service with Tyne Tees Television the original Marconi O.B unit, with Mark III cameras, is to be joined by the latest O.B vehicle with the most modern cameras and facilities.

The new unit, which will be delivered later this year, will be fitted with four of the successful Mark V black-and-white television cameras using servo-controlled zoom lenses. These fully transistorized cameras have been designed specifically to take advantage of the modern zoom lens system, giving greater flexibility, during outside broadcasting in particular, than is possible with any turret lens arrangement. Show jumping, racing and similar fast-moving programmes require speed of action, by camera operators, impossible to achieve with any optical system not using a servo-controlled lens.

The Mark V cameras to be supplied to Tyne Tees are also completely stable in operation and once set up do not normally require adjustment, an essential feature during complicated outside broadcasting.

The new O.B vehicle has been designed to incorporate facilities required by Tyne Tees and found necessary after years of

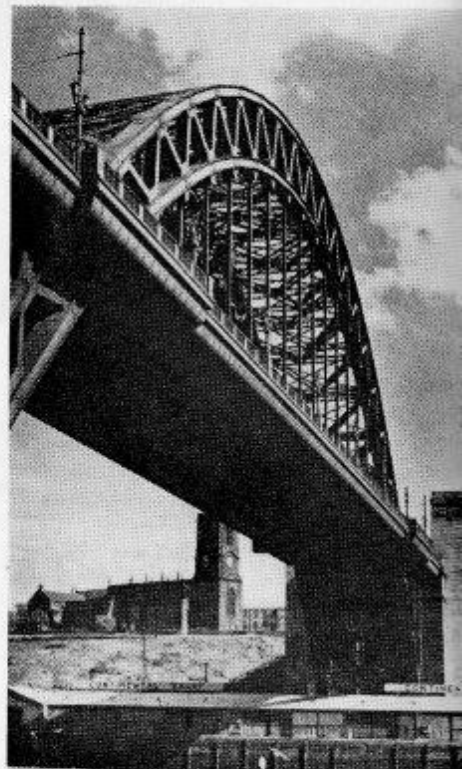
outside broadcasting experience. Cameras are stowed in compartments with external access and can be removed and set up without disturbing staff working in the vehicle. Provision is also made for a video tape recorder so that programmes can be transmitted to tape or live as circumstances dictate.

In order to handle a wide variety of programmes a full range of Marconi television equipment will be fitted in the new vehicle. In particular, the vision mixer includes the latest special effects modules while in a separate sound control compartment a 24-channel mixer is mounted. Synchronizing pulse generators and processing amplifiers, with vision pulse distribution amplifiers, are rack mounted.

All the equipment has been comfortably installed in a diesel-engined 8-ton Bedford vehicle without overcrowding and with a considerable degree of operator comfort.

A new era in outside television broadcasting will begin when the new unit is put into service by Tyne Tees Television later this year.

Newcastle, the centre of Tyne Tees activities. Mobile O.B. Units cover the entire North East area.



Broadcasting Services for Qatar

More than 60,000 people are employed in the oil industry alone in the wealthy Persian Gulf Sheikdom of Qatar, but without any local radio programmes, listeners using conventional domestic receivers are limited to news and entertainment originating mainly in the nearby Middle East countries.

Qatar is now to have its own broadcasting service, provided by a 10-kW Marconi medium-wave transmitter supported by a

high-power Marconi 100-kW short-wave transmitter having a range great enough to be heard reliably over a radius of at least 1,200 miles. Listeners all over the Middle East will soon be able to hear programmes from Qatar.

Studios are to be built in the capital, Doha, with radio links carrying programmes to the transmitters 3 miles outside the city. All the studio equipment, radio links,

transmitters, aerials and ancillary equipment will be supplied and installed by The Marconi Company.

Qatar now joins the company of seven Middle East countries whose broadcasting equipment has been supplied by Marconi, including Kuwait, who last year ordered three 750-kW m.f transmitters which will form the most powerful medium-wave broadcasting station in the world.



The capital city of Doha where the new transmitters are to be installed.

Source: Sound and Vision - Spring 1967

T.V. studio equipment for Rediffusion Hong Kong



Rediffusion, Hong Kong, have placed further orders for Marconi television equipment including three of the very successful Mark V camera channels.

Acknowledged as the world's leading black-and-white image orthicon camera, the Mark V has already been sold to fourteen countries, including two in the Far East.

The latest order from Rediffusion, Hong Kong, for Marconi equipment needed in the new Rediffusion studio complex, includes four broadcast vidicon cameras, twenty-four each of the vision and pulse distribution amplifiers, four four-channel vision mixers and two dual synchronizing pulse generators.

Rediffusion, Hong Kong, has previously ordered Marconi television equipment such as Mark IV camera channels.

Rediffusion have for many years produced sound and vision programmes in Hong Kong.

Mark VII Camera at N.A.B 1967

The National Association of Broadcasters' Convention (N.A.B) was held this spring, in Chicago. An important aspect of the convention for manufacturers is the large equipment exhibition which is attended by several thousand visitors each year. The visitors are mainly from America although many attend from Canada, Mexico, South America, Europe and the Far East, and nearly all are professionally interested in broadcasting. The Marconi Company has demonstrated equipment at N.A.B, in co-operation with the Ampex Corporation, every year since 1959.

At the 1967 Exhibition in the Chicago Hilton, colour television equipment was foremost in everyone's mind, with production colour cameras being shown by all the major colour camera manufacturers.

The Marconi Mark VII colour camera showed superior results for resolution, noise, colour fidelity, sensitivity and stability, and became such a talking point that engineers unable to attend the exhibition heard about the Mark VII performance from other exhibitors.

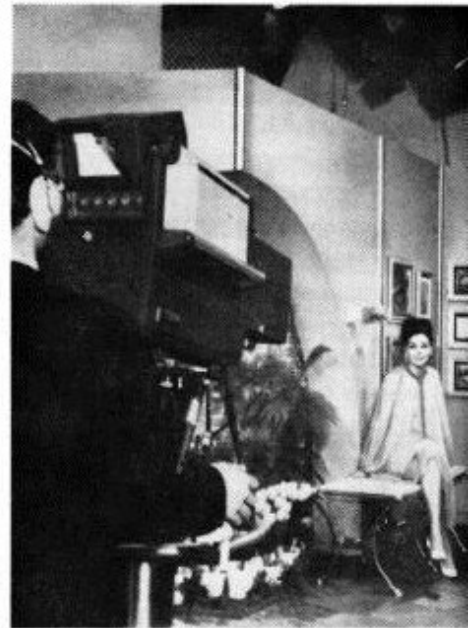
The stand was devoted to the Mark VII with a set depicting an art gallery, carefully designed to raise problems normally associated with colour cameras. The set comprised one red and one blue wall hanging various paintings, with a fountain

playing between and plants and flowers to provide interesting camera shots. The large red and blue walls, which would have highlighted shading, noise or colour fidelity problems, showed clear and true, and large black areas on either side would have shown up black balance and noise problems had they existed.

For movement, as well as general interest, seven top fashion models appeared in a 15-min programme presented every hour. These models wore a variety of clothes chosen to show the capabilities of the Mark VII camera. One such dress, a \$3,000 evening gown completely covered in sequins, created dazzling highlights which the camera had no difficulty in handling without affecting the fidelity of the picture.

Visitors could operate the colour camera controls themselves although adjustment, apart from iris, was unnecessary as the cameras were operated 'hands off' through the exhibition. The camera monitors were shown side by side to compare the similar colour balance simultaneously from each camera.

The demonstration was shown thirty-seven times to capacity audiences during the four days of the exhibition and excellent picture quality was maintained throughout.



The Marconi Mark VII colour camera, cited for technological innovation in the Queen's Award to Industry.

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Twice Blessed—



The Marconi Company Mark VII colour camera, now accepted as the standard by which colour cameras are judged, has been cited in the Queen's Award to Industry to be conferred upon The English Electric Company for technological innovation. The award recognizes the 'firsts' incorporated in the camera; first to use four photo-conductive pick-up tubes, first to make use of thin-film circuits techniques and first to provide the 'hands-off' operation so successfully pioneered by The Marconi Company in their monochrome camera (see article 'Hands Off The Camera', this issue). Although 'firsts' can mean teething troubles, the success of the camera is borne out by the enthusiastic acceptance, particularly in North America, traditional home of colour television. The B.B.C has so far ordered seventeen in preparation for the start of colour transmissions in Britain. At three exhibitions, the I.E.E in March, N.A.B in April and Montreux in May, where the camera has been exhibited in direct comparison with other leading manufacturers colour cameras, there has been almost unanimous enthusiasm for the Mark VII performance.

The Mk. VII colour camera being demonstrated on the Marconi stand at the N.A.B. convention.



Westward Hoe!

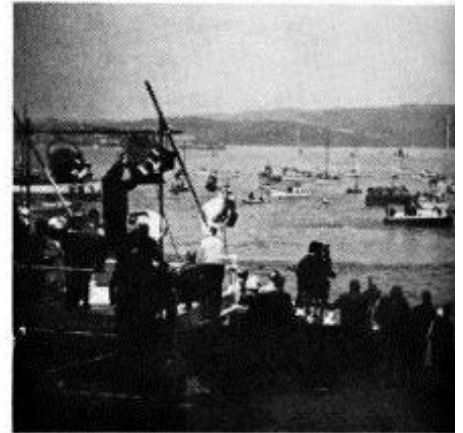
Plymouth—silent spectator of so many historic voyages to and from these shores—was thronged again for the arrival, on May 28th, of Sir Francis Chichester. Apart from about half a million sightseers, the occasion brought together the largest gathering of reporters and photographers in recent years—900 plus—to welcome the solo circumnavigator home after 4 months at sea. Local publicans were said to be jubilant.

For West of England viewers, the arrival was covered by Westward Television, using an O.B unit hired from The Marconi Company. The van, a standard unit equipped for the occasion with two Mk. IV and two Mk. V camera channels and associated control equipment, was otherwise unmodi-

fied for Westward Television's use. The installation, initially set up to cover the press conference, was changed at the last minute and used all four cameras on the jetty, on top of the van, on top of the yacht club and on top of an ice cream kiosk. Marconi engineers went with the van, and assisted in the installation.

The Marconi equipment hire service caters for television companies not wishing to lay out capital on what may prove to be an often idle, and therefore uneconomic piece of equipment, yet still maintain a high standard of service to their viewers. The range of facilities offered runs from a complete broadcasting system to individual items of equipment and includes staff if required.

Despite extremely low light levels t.v. cameras, used by Westward Television to cover the arrival of Gypsy Moth IV, picked out more detail than could be seen with the naked eye.



Outside Broadcast Units



To date 69 Television Outside Broadcast Units have been sold by The Marconi Company to various organizations in Britain and abroad. The latest of these has been ordered by a department of the Mexican Government and includes two Mark V cameras. The Mexican O.B unit is different from the others in that it was not ordered as a self-contained automobile but as a container which could be swung onto a railway flat car or road tractor for transport to the required site. This arrangement provided the degree of operational flexibility required by the Mexican Government.

Another recent purchase was by Redifusion Television, London who needed an O.B van fairly urgently. They bought the unit which was originally commissioned and built for the Marconi Operational Services Group in October 1965. This van was designed to accommodate eight Mark V camera channels or six Mark VII camera channels however, as supplied to Redifusion, the van is equipped with four Mark V camera channels.

An order from Tyne-Tees Television for an O.B unit requires an interior layout radically altered to conform with the specific requirements of the Tyne-Tees engineers. This van is to be equipped with four Mark V monochrome camera channels.

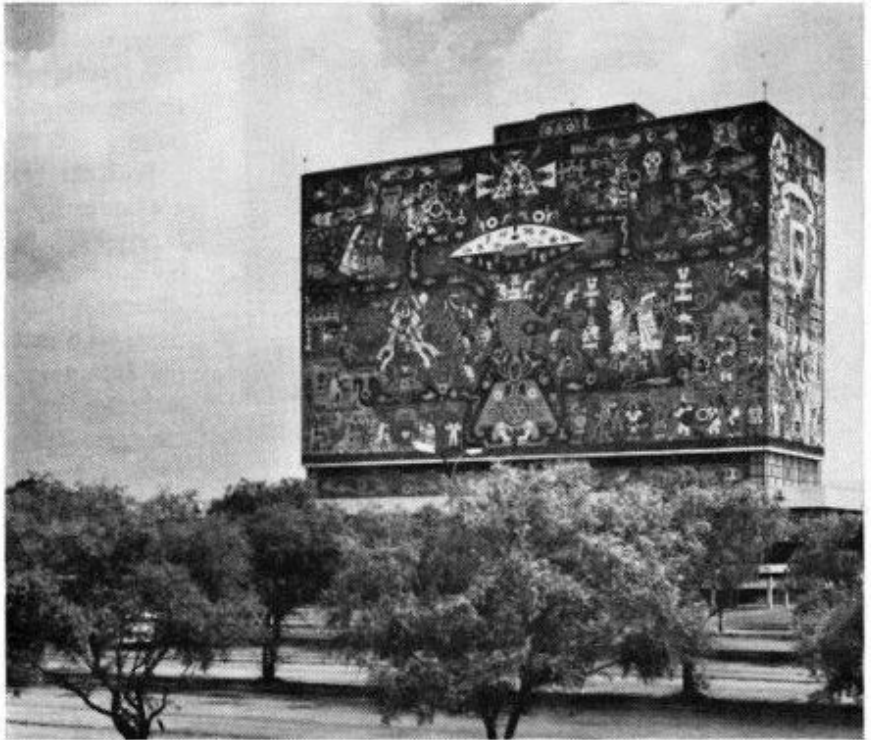
The Marconi Company has exported over 60% of their total production of O.B vans.

Mexican Colour Service by Marconi

Telesistema Mexicano S.A, who operate the three most important television networks in Mexico, are to start live transmissions in colour this year, using Marconi Mark VII colour cameras. This new export order, for seven cameras, followed extensive evaluation by Telesistema engineers at the National Association of Broadcasters' (N.A.B) Convention.

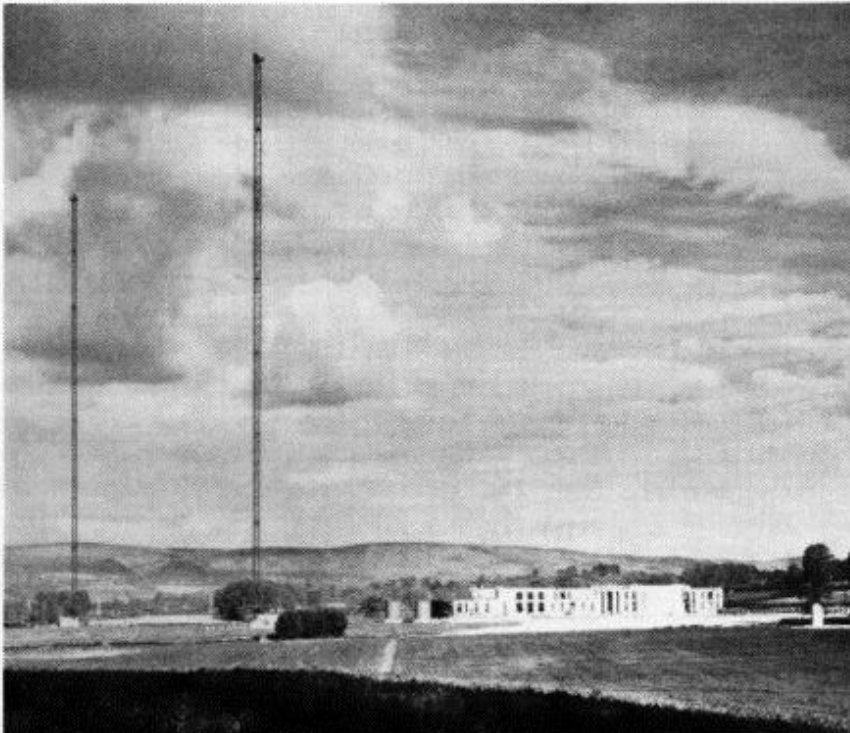
This is the first Mexican order for live colour cameras, although Telesistema Mexicano have thirty-six Marconi black-and-white cameras in current operation. Three of the new cameras will be installed in a new outside broadcast cruiser with videotape facilities. The other four will be used in two studios, which have recently been completed in Mexico City.

Telesistema Mexicano, who started regular telecine transmissions in colour early this year, will transmit live colour programmes on channels 2, 4 and 5, in Band I, from Mexico City, and these will also be relayed to repeater stations across the entire country. It is expected that colour programmes will also be recorded on tape, for sale to other countries.



Mexico City University.

Transmitters for the BBC Popular Music Programme



Six Marconi 1-kW transmitters are to fill gaps in the existing medium-wave Light Programme coverage to enable the new BBC Popular Music Programme on 247 metres to be widely heard.

These transmitters were designed to provide a simple, inexpensive unit with high-quality performance for local radio operation. The BBC has already ordered two for one of the Third Network stations.

Controlled by a single contact switch, the transmitter can be operated untended after 'switch-on', and is being used extensively in foreign countries where lack of manpower, or lack of trained manpower, would make a more complicated transmitter impracticable. Although the coverage depends on the type of aerial system used, the accent is on *local* radio where the ubiquitous transistor receiver has provided a hitherto impossible link for minority language, or interest, groups.

The BBC transmitting station at Washford Cross, Somerset, proposed site of one of the transmitters for the Popular Music Programme on 247 metres. A Marconi 100-kW transmitter is installed in this station to broadcast the Welsh Home Service.

International Broadcasting Convention



Lord Hill of Luton (centre) talking to Mr Tom Mayer (left) Manager, Broadcasting Division of The Marconi Company, Lord Aylestone (Chairman ITA) and Mr D G Smee (right) Commercial Director of The Marconi Company, on the Marconi stand at the IBC.

The International Broadcasting Convention, held in London's newest Hotel, the Royal Lancaster, from the 20th to the 22nd September, was opened by Lord Hill of Luton, Chairman of The Board of Governors of the BBC. Lord Hill said, in his opening speech, that although television broadcasting had expanded slowly and naturally, no such leisure would be possible with colour, which, being able to spread rapidly over the existing organizations, would soon have to reach the same

high standard and wide coverage as present monochrome broadcasting, despite the engineering problems involved. Lord Hill also envisaged the possibility of home reception direct from satellites for international link-ups, initially in areas with difficult land-based communications, and eventually even in densely populated areas.

The convention attracted papers from Britain, America, Hong Kong, Austria, Singapore and Italy on such subjects as 4-tube colour cameras, planning a t.v in-

stallation in a developing country, and high-power u.h.f television transmitters. A supporting feature was an equipment exhibition covering 10,000 square feet, in which many of the major international broadcasting manufacturers displayed their products. 584 invited delegates from 25 countries attended the convention and exhibition.

The Marconi Company again confirmed the superiority of the Mark VII colour camera in two 15 minute programmes presented each hour. The programmes, one showing top fashion models and the other a West Indian steel band, against a background of oriental screens were specifically designed to highlight noted areas of 'difficult' reproduction for a colour camera, and visitors were able to compare the colour and movement fidelity on monitors with the actual scene before them. Each of the programmes was shown twenty-one times during the three days of the convention, the success being demonstrated by the packed audience on each occasion.

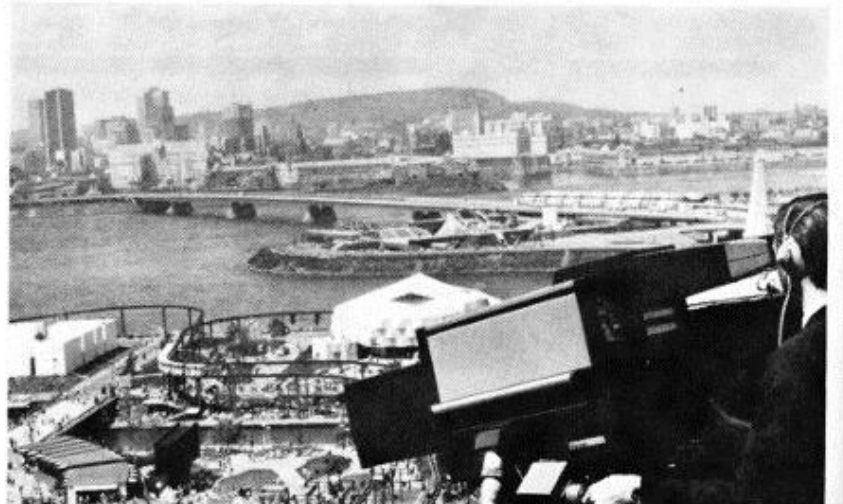
Pictures of the scene outside the Royal Lancaster Hotel were produced from the latest Marconi outside broadcast vehicle, now delivered to Tyne Tees Television, while a Mark VII colour camera on the twelfth floor of the hotel provided views of Hyde Park. A variety of other studio equipment was also exhibited together with the latest 10 kW transistorized, medium-frequency sound transmitter, designed for completely automatic operation, and using only one valve.

This is the first convention of its kind ever to be held in Britain but the organizers, the Electronic Engineering Association and the Royal Television Society, encouraged by the undoubted success of the venture, are hoping that it will become a permanent feature on the international broadcasting calendar.

The Mark VII at Expo '67

A Marconi Mark VII colour camera was installed on top of the British Pavilion at the World Fair, Expo '67, held in Montreal, Canada. The camera, approximately 200 ft up, provided spectacular panoramas of the Fair and the St Lawrence Seaway. The pictures were mainly routed to monitors within the Pavilion, and were also connected, by the Canadian Broadcasting Corporation, to the International Broadcasting Centre for network viewing and by satellite to Australia.

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Colour for Yorkshire

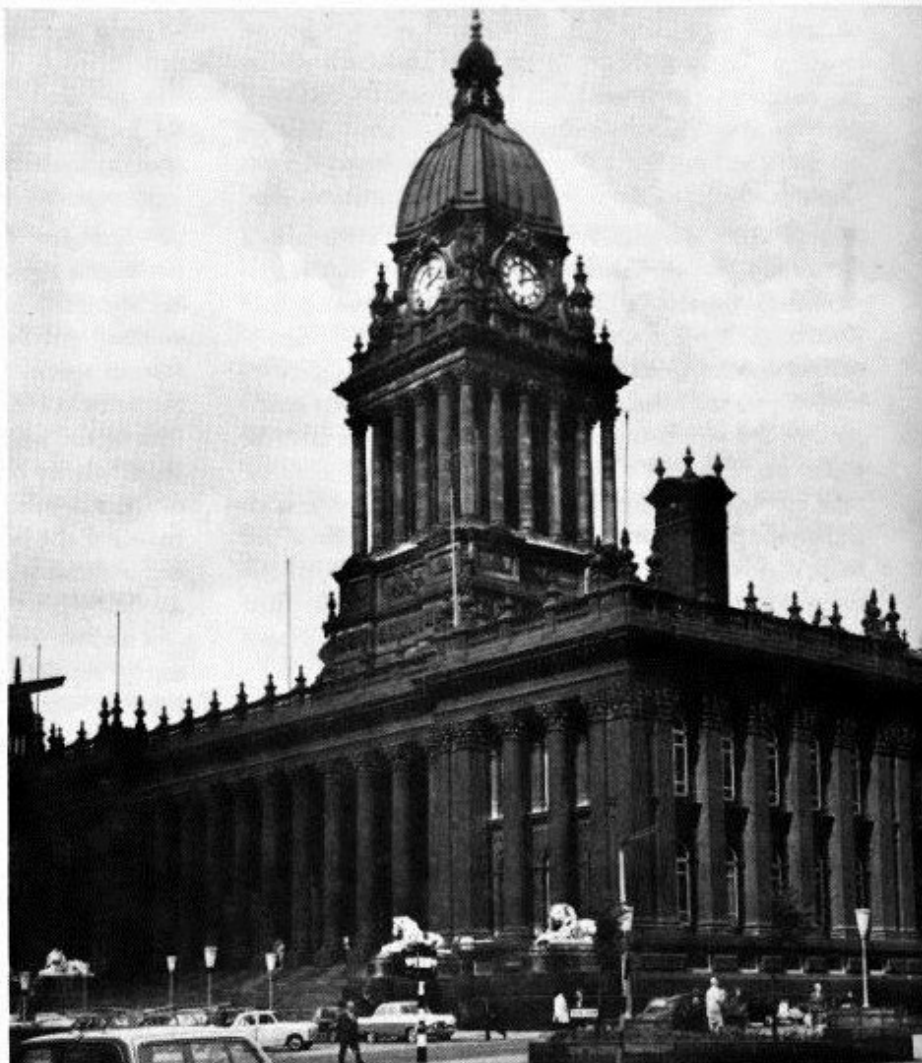
Yorkshire Television Ltd, one of the new independent television programme contractors, has ordered Marconi colour television cameras, teletext equipment and outside broadcast units worth nearly £650,000. The order, which is the largest of its type ever placed in the U.K, will provide Yorkshire with the main programme origination equipment for their initial development.

This is the first equipment to be ordered by one of the new programme contractors created in the reshuffle of independent television earlier this year, and will give Yorkshire the first studio centre in the country to be designed from the outset for full colour capability.

A total of sixteen of the latest Marconi Mark VII colour cameras have been ordered. These will be used in a new studio centre at Kirkstall Road, in Leeds, and in two four-camera, colour outside broadcast units to be built by Marconi. The studio centre will contain a four-camera studio, a three-camera studio and a remotely controlled presentation studio, with a single Mark VII camera. The very high stability of the camera, which can be operated 'hands off' for long periods, will be of particular importance in this latter application.

Three colour teletext channels will also be supplied to Yorkshire Television. These new units, which will be introduced later this year, employ a modified version of the Mark VII camera, and provide similar advantages in terms of stability and high-quality performance.

The Mark VII camera, which has been universally acclaimed, was awarded the Queen's Award to Industry for technological innovation, recognizing the 'firsts' incorporated in the camera, the use of four photoconductive tubes, the use of thin-film circuit techniques and 'hands off' operation.



Deliveries of the equipment will start in February of next year, and the majority will be supplied by the summer when Yorkshire Television is due on the air.

Leeds, headquarters of the new programme contractors Yorkshire Television Ltd who will begin operations in July 1968.

Source: Sound and Vision - Spring 1967

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WGBH Educational Foundation

One of the new Marconi 25-kW u.h.f television transmitters, designed for simple parallel operation to provide a carrier power of 50 kW, is to be used in Boston by the WGBH Educational Foundation. The Foundation includes senior officials of Harvard University, the Massachusetts Institute of Technology, the Lowell Institute and the Boston Symphony Orchestra, operating station WGBH, TV, as a non-profit making television service.

The 25-kW u.h.f transmitter being supplied to the Foundation was also ordered by WFLD, Chicago, and in quantity by the British Broadcasting Corporation. The transmitter was chosen because of its ex-

cellent performance at ultra-high frequencies and the simplicity of conversion at a later date to parallel operation to provide a carrier power of 50 kW. How these transmitters can be used economically in parallel is described by Bill Kusack of WFLD elsewhere in this issue.

The staff of WGBH have been able to see similar equipment installed at WFLD and operating under American conditions.

Boston Educational Television. Dave Davis and Tom Keller, of WGBH, Boston, who recently visited the Marconi Television Laboratories in Chelmsford, with Cyril Teed and Norman Parker-Smith.



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U.H.F for Sweden

An order for thirteen u.h.f transmitters has been received by The Marconi Company from the Swedish Telecommunications Administration. The order is for eleven 40kW and two 10kW transmitters to launch a second television programme service in Sweden, and follows an existing order for one 40kW transmitter, to be delivered in November 1967. The deliveries of the thirteen are to be phased over 17 months, starting in October 1967 and finishing in February 1969, the tight programme on the first being met by introducing round-the-clock working at the Chelmsford factory. Past sales to Sweden include 81 v.h.f television and 186 f.m sound transmitters and translators.

The transmitters, operating in the frequency range 478 MHz to 702 MHz are to be installed, mainly in southern Sweden, at Varberg, Stockholm, Emmaboda Västervik, Uddevalla, Västerås, Bäckefors, Halmstad, Sundsvall, Borlänge, Visby, Nassjö, Sunne and Karlstad (see map), and will eventually be operated unattended.

Apart from two vapour cooled tetrodes, the transmitter employs solid-state circuitry throughout. Due to the system of diode modulation, the transmitter is equally suitable for colour or monochrome application. Although the transmitters are to be operated singly, they are suitable for parallel operation without major modification.

This is the largest order for this type of equipment ever received from a Scandinavian country.

Locations of u.h.f transmitters to be installed in Sweden.

