



TAKE 625 LINES, BOY — By Post Office Cable!

By P. M. NEWEY

The Post Office will be supplying the coaxial cable network for the new closed circuit television-education service which will be made available to 1,300 schools and colleges in Inner London by 1970

Student teachers at the Avery Hill College of Education watch a map-reading class in progress at the Kidbrooke Girls Comprehensive School, a mile away.



THE Post Office will play a big part in the closed circuit television education service which the Inner London Education Authority will be setting up in the next few years.

It will provide the whole of the coaxial cable network which will carry the service to 1,300 schools and colleges in the Inner London area.

The new scheme—the biggest project of its type in the country and probably the largest in the world—is expected to be brought into operation in some of the London schools by September, 1968, and in all schools and colleges by 1970. The first to receive the service will be schools in the three

boroughs of Islington, Hackney and Tower Hamlets.

The transmitting studio, which will be set up in an old school building at present used by the Laycock Secondary School in Highbury, will be equipped by contractors to the Inner London Education Authority who will also provide the receivers in the schools. Ultimately, the system will be able to transmit simultaneously at least six programmes on 405 or 625 lines and in colour when required. For a teacher to be able to select from a number of programmes at classroom level is an essential aid to proper educational time-table planning. This flexibility, coupled with the facility



An Avery Hill College lecturer and pupils at Kidbrooke during a map-reading lesson. The TV camera transmits the scene to the student teachers.

to plan programmes to meet a local education authority's own requirements, gives multi-channel closed circuit television its special attraction.

The Post Office network will be based on a transmission system designed to operate on a single pair coaxial cable and, by means of frequency division multiplex techniques, to transmit the six television channels in vision and sound in the very high frequency range of about 40-140 Mc/s.

After leaving the Highbury studio, the network will branch into a number of main and subsidiary feeders to serve the schools. Transistor line amplifiers and branching devices recently developed by the Engineering Department and designed for mounting underground will be installed mainly in existing underground accommodation or in telephone exchanges. The use of modern transistors is expected to provide a high degree of reliability within a very compact design.

The integrated planning which a scheme of this type allows, and its extensive use of existing ducts has made Post Office rentals highly competitive. The total annual cost to the Inner London Education Authority of providing and maintaining the 300 or so miles of coaxial cable and about 1,700 amplifiers which the system will use will be about £100,000.

Local authority interest in closed-circuit television education began in a big way in 1963 with

the introduction of television programmes for schools in Glasgow over a network provided by a relay company. At about the same time, the Engineering Department of the Post Office was carrying out studies into ways of reducing the cost of closed-circuit television. These studies led to the conclusion that for schools television requiring the simultaneous distribution of several programmes, a VHF system was likely to be more economical. On the other hand, single channel point-to-point links are more economically provided by means of low loss pair type cable, each pair being equipped for transmitting one vision channel in the 0-5 Mc/s range. Suitable equipment for this method has also been developed by the Engineering Department.

Examples of this latter type of facility are isolated links between schools and training colleges or contribution links from remote sources in a schools network to a central studio for general distribution. The cost of providing channels on pair type cables, which require a separate pair of conductors for each channel, varies roughly according to the number of programmes. In the VHF system, each additional programme requires terminal equipment only and costs are therefore increased only marginally.

The Post Office has been asked to submit quotations for providing the communications links

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TELEVISION in schools is not new. For several years many local authorities, including London, have provided the means for the BBC and ITA schools programmes to be received in school classrooms by way of aerials erected at the schools or over relay company wires.

Nor is educational closed circuit television entirely new to Britain. Small-scale experiments have been carried out at Hayes, Middlesex, and Havant, Hampshire, and a few teachers' training colleges have been linked to local schools for appraisal and training purposes.

It is a big step, however, from using television to supplement the curriculum with broadcast programmes, or as a training aid, to producing programmes locally as an integral part of the timetable. This was first done in Britain by the Glasgow Education Authority which, since last August, has been distributing modern language and mathematics lessons to its schools and colleges from its own studio.

Closed circuit educational television has a number of considerable advantages. Apart from what it can offer in teacher training, it enables specialist subjects and intricate or dangerous scientific experiments to be



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shown to a very wide audience of pupils; gives additional impact to certain subjects; and helps to overcome the shortage of specialist teachers. A full complement of teachers will still be needed at the receiving end to supervise classes and follow up the televised lessons which will remain only a part of a class's timetable.

for closed circuit television education services in a number of other cities and a scheme for 100 schools in Plymouth has been approved. The University of Sussex has been considering the introduction of a similar Post Office scheme to link it with a group of schools and colleges in Brighton and the Engineering Department is studying the plans of other universities to link groups of their buildings by closed circuit television.

Other authorities are almost certain to follow London's lead. To plan the allocation of its resources as far in advance as possible, the Post Office has now written to the education authorities of all the largest boroughs in the country telling

them of the facilities available.

The new transmission systems whose development has been stimulated by educational closed circuit television promise to have applications in a much wider field. Indeed, the new equipment designs have already been applied to single channel links for traffic control on sections of the M4 and M6 motorways.

THE AUTHOR

MR. P. M. NEWBY joined the Post Office as a temporary Principal on secondment from the South Eastern Gas Board in January, 1964. Since then he has been engaged on the private services duty in the Inland Telecommunications Department's Tariffs and Legislation Branch.

New Post-Graduate Awards

WITH the primary aim of furthering research and development expertise of special value to the Post Office, a number of awards is to be made to selected staff each year for post-graduate courses at universities with facilities for research or advanced studies into problems of particular interest to the Post Office.

The awards—for periods of one, two or three years—will, in appropriate cases, enable the holders to qualify for a Master of Science or a Doctor of Philosophy degree. Initially, they will be granted for courses in telecommunications science and engineering. The scheme is expected to come into operation in September.

This new scheme is a further step forward in the Post Office arrangements for providing special training for its technical staff. Student apprentices, normally recruited straight from school with qualifications to take a Science or Engineering degree course, are given a year's practical training in the Post Office before being sent—at Post Office expense—to a university or college of advanced technology. In addition, an annual competition is open to Post Office staff who have obtained an Ordinary National Certificate with high marks in Engineering or an appropriate combination of GCE certificates at "O" and "A" levels, and successful candidates are sponsored for a full-time sandwich course leading to a B.Sc. degree.