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FACSIMILE SYSTEMS - A REVIEW OF RECENT AND CURRENT WORK IN THE FIELD

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One of the more important aspects of police work is to identify a person suspected of an offence so as to be able to quickly check for any previous conviction. There is a need for the rapid transmission of identikit construction, photographs, copies of documents etc. There are two basic requirements, namely a high definition system for detailed photographs and finger prints, and a low definition system for documents, diagrams etc. From experience it has been found that the former requirement is best met by low speed, phototelegraphic facsimile methods. The same equipment could of course be used for all purposes but this would be extravagant both in line time and apparatus usage.

Until recently the Criminal Record Offices used high definition phototelegraphy to exchange information over specially selected public Post Office circuits.

Unfortunately its use was discontinued for two reasons:

- a. it took too long to set up the equipment and obtain Post Office circuits, and
- b. the photographic development needed the services of an expert who was not always readily available.

Trials have been carried out using automatic phototelegraphic equipment to work over private circuits. Tests between Maidstone, Leeds and London have shown that it is well suited for the transmission of finger prints.

On the low definition side we have been using facsimile equipment for a number of years. Bristol police force use an internal network in place of the more usual teleprinter system.

We are currently examining high speed, low definition equipment from a number of companies, and police forces are co-operating in experiments. The purpose is to decide whether the equipment could be considered as either a full or a partial replacement of the teleprinter. There are in addition to the above aims, special requirements such as those in the Metropolitan Police Force, where large volumes of document traffic have to be transmitted in a short period. It is expected that the tests will be completed early next year when we hope to be in a position to discuss the relative merits of the various companies' products, and the possible fields in which they could be used.

Although we are dealing in the main with emergency organisations, and operational effectiveness is of prime importance, we must still consider costs. It is interesting to note that a work study of the Bristol system suggested that the cost of the system would have to be reduced by about 40% before it could become a direct competitor to the teleprinter. The basic price of the facsimile equipment then in use was £1,650. These comments related to a compact force with short lines of communication; the picture may be different in a force covering a large area with expensive circuits to rent.

We have also to consider the problem of compatibility of the different types of equipment and we share in this particular field our radio colleagues' constantly recurring problem of 'amplitude modulation' versus 'frequency modulation'. The CCITT regulations recommend FM for facsimile over public circuits and offers the choice of either form of modulation on private circuits. Manufacturers with efficient and well tried AM systems say that the CCITT regulations are in need of revision - this is currently being considered.

The Directorate of Telecommunications and representatives of the Metropolitan Police have taken part in discussions with Interpol authorities on the use of high and low definition facsimile. In this area also we met the problem of compatibility and the recommendations of the CCITT. Experiments are currently being carried out using high definition phototelegraphy over the international public network, and the need for a separate high speed low definition system is being examined.

Another direction the Home Office and Bristol Constabulary are currently co-operating in is an experiment to explore the operational value of transmitting written and illustrated documents from Force Headquarters to police vehicles using the force's mobile VHF radio system.

Ten police vehicles have been fitted with facsimile receivers connected to the normal mobile radio installations. The system is capable of transmitting documents of unlimited length but restricted to a width of 4.25 inches, such as sketches, maps, typescript, manuscript, photographs etc. These are reproduced identical in size within the vehicle on a continuous roll of electrolytic paper at an output rate of about four inches message length per minute.

Speech transmissions over the Bristol radio system are unimpeded by the facsimile signals and either facsimile or speech may be sent singly or simultaneously by the same radio transmitter. Apart from the value of being able to transmit a wide variety of types of documents this mode of transmission offers a considerable measure of privacy since messages are only decipherable by using a similar type of receiving equipment. Another advantage is that a message can be received whilst the crew are temporarily absent from the vehicle. The trials in Bristol are expected to last for at least six months.

A committee has been set up to examine potential usage of facsimile systems, and a questionnaire covering the whole field of possible requirements was circulated to all forces earlier in the year. The returns are being examined, and with this information we shall be able to obtain an idea of the pattern of development.

Both in the national and international field there is need for extensive trials and examination. In addition to operational aspects we have to consider such matters as reliability, cost, performance compatibility and maintenance arrangements etc. Until we are satisfied about these items we shall not be able to make firm recommendations.

Mr Glaysher has spent most of his career with the Post Office in the engineering and traffic grades. About 8 years ago he transferred to the Home Office. He is presently a Chief Communications Officer dealing with line network research and development and is chairman of the British Standards Committee on Intruder Alarms.