24th August 1967

Dear Mr. Alexander,

Replying to your letter of 17th August I attach herewith the Preface for your special Colour Issue. I hope you will find this satisfactory but if you would like to change anything please do not hesitate to do so.

Yours sincerely,

F. O. McLEAN.

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Copy to: H.P., H.E.I.D.

PREFACE FOR International Broadcast Engineer

by

Sir Francis McLean, Director of Engineering, BBC

Black-and-white television started comparatively slowly in all countries but after an initial period of slow growth expanded very rapidly. This was also particularly true of colour television in the U.S.A. but the growth there after the initial period has been so rapid that the indications are that colour will be found so attractive that it will grow rapidly in almost all countries right from its introduction. Colour in Europe has been delayed by many factors, the most important of which was the long argument about the colour system to be used. This has now been settled and colour is well under way in many countries in Europe. Unfortunately two differing systems will be used. In the U.K. BBC Colour Launching using the PAL system began on 1st July. Colour is due to start in Germany in August, in France and the U.S.S.R. in October, and in the Netherlands by the end of the year, and possibly in some other countries. To meet this very rapid growth much equipment and expertise in many new techniques must be acquired by large numbers of people in a very short time.

Most of the things required on the equipment side are independent of the system used. Cameras, transmitters, video tape recorders, telecine machines and most test equipment are basically the same whatever the system, with some modifications or additions to take care of the particularities of the actual system used. Discussions still go on as to whether the cameras is best with three tubes or four tubes, and development work is proceeding on cameras using less than three tubes. Such cameras are, however, still a long way from realisation and all expansion at the present time will surely be on the basis of 3 or 4-tube cameras. For colour work the lead-oxide type of tube is at present dominant but thoughts are being given to other types of tube also. In telecine equipment practice is still not stabilised and use is made of flying-spot type equipment and of camera type equipment using both three-tube and four-tube cameras. All have advantages in performance and price, and it looks as though it will be some time before practice becomes stabilised.

It is very important for all colour equipment that it shall be so designed that studio productivity is not less in colour than has been established in black-and-white. Consistency of performance is even more important in colour than it is in black-and-white.

Because of the unfortunate fact that in the world as a whole there will be areas using NTSC 525-lines, possibly NTSC 625-lines, and certainly PAL 625-lines and SECAM 625-lines, it has been necessary to develop some means for converting colour signals between any of these systems, and in some countries it is unfortunately necessary that receivers are capable of operating on two systems.

Colour television is much more complex than black-and-white, the receivers needing more careful adjustment in manufacture and installation, while the public is likely to be much more critical of colour quality than it is of black-and-white quality. This establishes a requirement for much more sophisticated test equipment and for the establishment of accepted test methods, both as regards operations within a broadcasting organisation are concerned and, of course, for the international exchange of television programmes which are sure to become much more widespread. The test equipment requirements for the radio servicemen are also much more exacting.

All transmitting aerials will be made fully adequate for dealing with the colour signal. The colour signal can, however, be ruined by an inadequate receiving aerial and proper attention to this by the radio servicemen on installation is absolutely necessary.

For all these colour operations very considerable training facilities are necessary both for the technical and the programme staff concerned. Studio practice in colour necessarily differs appreciably from black-andwhite operation. Schools have been set up both within the broadcasting organisations and the Radio Industry to give this training to all the personnel involved.

It is essential that, if we are to make an immediate success with colour television, we must have the right equipment at all stages from the studio right through to the receiver in the viewer's home, and moreover all the men dealing with this equipment must be adequately trained and have adequate test equipment.

Given all this, however, there can be no doubt as to the additional satisfaction that the public will derive from colour television.

FCMcL/CVC
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