

SCIENTIFIC COLLABORATION BETWEEN THE UNIVERSITIES AND THE  
ENGINEERING DIVISION OF THE BBC

Two-day symposium : 20th/21st September 1966

Opening statement by Mr. F.C. McLean

Numerically the Engineering Division forms about one-third of the total personnel of the Corporation, being round about 8,000 of a total staff of 23,000. Of these 8,000, by far the greater part is concerned with the operational side of our work which of course, whenever claims conflict, has to take priority. We do however consider it absolutely necessary that we do a considerable amount of research and development work both as a means of ensuring that our service is technically as good as it can be, and to put ourselves in a position where we can foretell and prepare for future developments, know what is possible and what is not.

To this end we have a large number of people engaged on non-operational duties, in work connected with the development of broadcasting both in its fundamental and more long-term developments, in applications directed towards improving operational methods, and in dealing with problems that come up in operational use. Such work takes place in a number of departments in the Engineering Division, but the greater part of it in Research Department and Designs Department. It is something of what goes on and of our approach to this side of our work which we hope to show you during these two days. The number of people involved is of the order of 500. *we spend of the order of £1M*

It is our policy to do work in fields which are not covered by *Research & Development* other establishments or by manufacturing industry. This is both in order to make the best use of the funds and effort that we have available for such work and to avoid embarrassment to British industry. On the other hand we do have the means of making available to British industry developments which we have sponsored, and quite a number of firms make use of these facilities. In some fields, such as camera pick-up

tubes and transmitters, we do little or no work on the devices themselves but we do a lot of work on appraisals of such things and in determining optimum operating conditions; in other fields we do more I think than any other body in the U.K.

Our efforts in research and development fall into four categories:

- 1) Basic research work. This covers fields of radio propagation, aerials, information theory, optics and colorimetry, acoustics, essential characteristics of electronic devices, line transmission theory, and so on. The results of the above work are used in our own work and are published and used in international work.
- 2) Basic long-term planning. This covers radio transmission networks for both sound broadcasting on A.M., short-wave broadcasting, FM broadcasting on VHF, and television broadcasting including colour on all the bands from 41 MHz to 960 MHz, and gives some consideration to frequencies higher than this. We plan basic programme distribution networks, and we carry out systems appraisals of colour television, stereophony, and the like. The information obtained in this work is then passed on to other departments in the BBC concerned with the actual constructional work and forms the fundamental basis for their work. This basic information is also made available to international bodies such as the C.C.I.R. and the EBU, and to such bodies as the Post Office and the ITA.
- 3) Development of devices special to broadcasting which, from the probable small demand and the uncertain future of them, Industry is unlikely to produce. Outstanding recent examples of this are the cablefilm equipment which we used for trans-Atlantic television before the satellites came into operation, and the electronic standards converter, and the slow-motion TV equipment. We have done other things not quite so outstanding and some which on further

consideration we decided not to put into effect. In making such developments we are prepared to accept the risk that considerable effort and money will be spent, and there will be no financial return. In very important fields, we are prepared to examine more than one approach to a problem at the same time. As a result we do produce equipment of real value to broadcasting.

- 4) Problems which have to be solved in order to improve the operational facilities and needs of the service, such as, investigating troubles that cannot be cured by the operational people, and producing special devices, test equipment so on, necessary to keep our broadcasting services in the state of development we think they ought to be.

In these two days, we cannot of course show you anything like the full range of work that we do, but we have selected a number of items that we think will be of the most interest to you. These items have been selected not only for their intrinsic interest but also to show our manner of approach to a problem. These will be demonstrated by the people concerned, and after the demonstrations we will break up into groups for discussion with the people who are specialists in the various interests both of what you have seen and what you have not seen, in accordance with the objectives of the Symposium as set out in the brochure.

As I said at the beginning, we try to avoid any duplication with work that is going on elsewhere, and we also try to keep ourselves fully informed of what is going on elsewhere. We are always glad to hear of research work in the Universities. If there is any such work in which we could help or advise, we would be happy to do so, and during the course of these two days we would particularly welcome the opportunity of discussing all fields of research work in the Universities in which there could be collaboration between them and the BBC.

FCMcL/MKPR  
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*In fact discuss the four headings of our program are anything that covers them from Now send you one to the journal*