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Winds of Change

The research programme of R.S.R.S. is under continual review, but an especially intensive examination has been made in recent months, particularly in the light of the S.R.C. policy as stated in its latest Annual Report to devote an increased proportion of its effort (at least in the short term) to topics which are expected to have practical and economic benefits. It has been decided that one of the most promising fields of research meeting this criterion, is that involving the development of millimetre-wave techniques, and the understanding of the propagation mechanisms, with potential application to commercial communications. For the next two or three years, therefore, emphasis is being given to this work, and several possible projects have been discussed with the Post Office. New work which is being undertaken as a joint project with them involves the measurement of the effects of rain on short communication links at millimetre wavelengths. A proper understanding of the phenomena will be an important step towards the efficient use of this part of the spectrum for practical purposes, a use which is required to accommodate the ever-increasing demands for frequency allocations.

Useful practical information on millimetre-wave propagation is also expected to emerge from the programme of the solar physics observatory, and a study of the records will be made with this end in view.

Another way in which we aim to help communications is by studying ways of applying the considerable quantity of new ionospheric data which have been collected in the last few years. This work is proceeding well and it is interesting to note that efforts to apply the data to communications have already resulted in the uncovering of new scientific facts about the ionosphere.

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Now that the Chilbolton aerial is back in commission the research which had been planned, much of which is applicable to both terrestrial and space communications, can proceed and will be in line with the general philosophy which is being followed.

In present circumstances, the additional effort to carry out this programme must be at the expense of other projects. Some activities have already been stopped during the past year, to concentrate our effort, and others, such as the preparation of the ESRO I payload, are naturally coming to an end. In addition, we are not accepting the ESRO invitation to have the TD 2 particle experiment reconsidered for another vehicle, and the development of the programme of magnetic field measurements, using rockets, is being stopped and cannot be resumed in the foreseeable future. On the other hand, we intend to continue a vigorous programme of space research and the changes will include some expansion of the rocket measurements of electron densities and ionising agents in the D-region, a programme which is well-integrated with our theoretical and other experimental work on the D-region.

These changes are occurring at a time when some reorganisation is necessary in any case, owing to the retirement of Mr. Wilkins, the appointment of Professor F. G. Smith as part-time Deputy Director, and of Dr. Horner as Assistant Director (Admin.). This reorganisation should not be confused with the re-orientation of the programme, but their coincidence is opportune. The expanded work on millimetre waves is closely related to the existing work on radio-meteorology and together, these will form the major part of the Division which will be led by Mr. Lane. The Solar Physics group will also form part of this Division. Various individual staff changes will take place over the next few months to conform to the changing pattern of research.

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