

regional museum boards to be formed and to base their constitution on the regional advisory boards of the Ministry of Education.

During the Conference the whole of one day was devoted to museums in the Commonwealth, this being an especially appropriate subject to discuss in the seaport of Bristol. It was a particularly interesting session, and the problems of struggling institutions in distant lands was considered under two headings: first, building, administration and finance; and secondly, training of staff. Speakers from Canada, India, Sarawak and various parts of Africa contributed to a stimulating discussion, and for comparative purposes there was a paper from Miss Toby Rose, of New York. In the majority of cases finance was not the major difficulty and most speakers agreed on the greater difficulties encountered in the training of staff. Dr. D. B. Harden, chairman at this session, announced that both South Africa and Canada had initiated training schemes for the diploma of the Museums Association. It was suggested that the Museums Association should appoint an honorary overseas officer who would have the services of a salaried official. It was considered important that a public demand for museums should be created and that they should be aware of these institutions.

Another session was devoted to scientific and technical problems under the chairmanship of Dr. H. J. Plenderleith. Dr. W. E. Swinton described the progress in these matters that he had recently seen in the United States. Dr. A. E. A. Werner, of the British Museum Research Laboratory, who followed, dealt with the subject of heating and ventilation. He first discussed the cardinal principles which must be observed if damage due to unfavourable environmental conditions is to be avoided, and pointed out that it was necessary not only to maintain the atmospheric relative humidity within reasonable limits—the minimum being 45 per cent and the maximum 65 per cent—but also to prevent rapid changes in humidity, particularly in art galleries where panel paintings are exhibited, as well as to ensure continuous and adequate air circulation around the museum objects. The practical problems involved in the control of relative humidity, air circulation and also air cleaning to remove harmful atmospheric pollution were outlined, and this was followed by a brief description of the various types of standard self-contained units that are commercially available for complete or partial air-conditioning. Emergency methods that can be used in stores and repositories, involving the use of simple apparatus such as electrically heated tea-urns and fans, were described. The importance of having some means for continuous recording of relative humidity (and of temperature also) was emphasized, and attention was directed to the precautionary measure of using a sling psychrometer to detect air pockets in which a high relative humidity may build up and encourage both mould growth and metallic corrosion.

Mr. W. E. Rawson-Bottom (Ministry of Works), after a brief review of the evolution of museum lighting from the days of the 'fish-tail' gas burner, stated that at the present time developments were proceeding rapidly chiefly because it is recognized as an essential aid to display. Museum lighting is a problem for the co-operation of the lighting engineer, architect, display designer and curator, and it is essential that attention should be directed to the

exhibits rather than to bare lamps or fittings of high brightness. In other words, lighting should produce an effect without an apparent cause. One method is to use a type of louvre fitting. In case lighting, not only are the position and colour of lamps important, but also the selection of background colour.

Mr. B. S. Cooper (Research Laboratories, General Electric Co.) directed attention to some recent work on the fading and tendering of dyed fabrics, and pointed out that the humidity requirements most suitable for minimizing fading might well be far from the optimum in respect of loss of strength of the fabric. He also pointed out that in considering possible photochemical hazards to exhibited material, the level of illumination was usually a far more important factor than the spectral character of the light used.

At the annual general meeting Sir Philip Hendy was re-elected president for 1957-58; it was decided to hold the next annual meeting in July 1958 in London and to invite Museum Dag from The Netherlands to take part. Honorary fellowship of the Association was bestowed upon Dr. Paul Coremans, of the Central Laboratory of Belgian Museums, Brussels, and others, including Dr. H. C. Blote, of Leyden, Holland, were elected to fellowships.

F. S. WALLIS

LARGE TELESCOPES

DR. R. v. D. R. WOOLLEY, the Astronomer Royal, delivered the James Forest Lecture to the Institution of Civil Engineers on May 14 on the subject of "Large Telescopes". Dr. Woolley dealt with the different kinds of telescope and their mountings and with the construction of domes and the methods for rotating them. He then explained the serious difficulties—and the methods adopted for circumventing them—encountered in large telescopes, owing to flexure in the glass of the mirror, and also flexure in the tube itself. When all these troubles have been overcome, there are still serious limitations even with the largest telescopes, some examples of which were given. For first-class stellar spectra the 200-in. telescope at Mount Palomar will only go to magnitude 8 and to magnitude 12 for reliable radial velocities.

Some years ago a number of British astronomers launched a project for building a 100-in. telescope, and obtained Government approval in principle for financing the scheme. This Isaac Newton telescope will be situated at Herstmonceux and will, it is hoped, be completed by 1962. The sky at Herstmonceux is, as England goes, remarkably good, and as Dr. Woolley says, "It is hoped that the Isaac Newton telescope will do much to promote a vigorous resurgence in the practical as well as in the theoretical problems of astronomy in this country". Informing his audience that science and scientific techniques are closely interlocked, and that even if astronomers fail to convince the public that large amounts of their money should be devoted to the disinterested survey of the heavens, he proceeded: "We may remind them that in this technical age, survival as a first-class nation can only be secured by a thorough realization of the fundamental importance of science and technique. As an integral part of this, we may urge the importance of astrophysics: and as an essential tool of astrophysicists, astronomers feel justified in calling for public support for large telescopes".