

B. Lavrenčič (Kemični Inštitut "Borisa Kidriča," Ljubljana) gave an interesting account of the rheological properties developed when the unusual Yugoslav coals containing about 10 per cent of organic sulphur are heated; these coals have properties quite abnormal in comparison with classifications based on low-sulphur coals. D. W. van Krevelen, H. A. G. Chermin, H. N. M. Dormans and F. J. Huntjens described the dilatation of various blends of coals and coke on heating and its prediction from that of the components. Two papers, given by I. G. C. Dryden and K. S. Pankhurst (British Coal Utilisation Research Association), and by G. J. Pitt (National Coal Board), are usefully considered together, since the method of extracting, with chloroform, fusible material developed by coking coals on heating was common to both investigations, though in the second investigation scavenging by gas during the heating was considerable and in the first was eliminated as far as possible. A comparison of the two sets of results is of interest: for example, the rate of development of plasticity on heating at constant temperature (Pitt) is much smaller than that of the development of chloroform-soluble material by thermal decomposition. This indicates that the chloroform extract, though known to be associated with the development of plasticity, is by no means the only factor involved.

E. A. Depp and M. B. Neuworth (Pittsburgh Consolidation Coal Co.) discussed the pyrolysis of model compounds thought to embody the type of chemical structure that exists in coals. Interesting results were obtained, but the work is laborious and more variants of structure are needed before drawing firm conclusions; moreover, the existence of a few specially weak linkages in coal may determine the temperature and course of decomposition and to some extent invalidate comparisons with simple pure compounds (compare the different behaviour of synthetic polymers from that of their monomers). Prof. M. Letort (Nancy) presented a most interesting paper on a new type of adsorption isotherm (methane on graphite) which appears to show discontinuities corresponding to completion of successive molecular layers of adsorbate. Prof. Letort suggested that the necessary condition was a special correspondence between atomic spacings in the adsorbent and adsorbate, and that the method could be used to follow the development of graphitization in carbonaceous solids when heated.

Finally, those attending were privileged to see a remarkable colour film made by W. Spackman, W. F. Berry and A. H. Brisse in the United States which showed the behaviour of certain coal constituents on heating thin sections under the microscope. This was not only fascinating to watch but enlightening as to the different interactions between constituents that must occur prior to the formation of coke.

There was some private discussion as to the future value of conferences on coal science in view of the impact of atomic energy. There seems, however, little doubt that the use of coal will be maintained for several decades to come—in the United States it is expected to increase considerably—and that the emphasis will shift from combustion towards chemical conversion. The success and liveliness of this conference encouraged the view that further meetings were desirable at least in the immediate future. It is generally agreed that nowadays conferences proliferate too freely, and it is certainly necessary to

examine carefully the reasons even for maintaining an existing series. There is room for much experiment in methods of organizing, particularly in order to reduce the work involved for both organizers and participants, and the amount of irrelevant and repetitive material that has sometimes to be read before the real points for discussion become apparent. This meeting was partly successful in these respects; it is hoped that further improvements can be made on the next occasion. I. G. C. DRYDEN

MUSEUMS ASSOCIATION ANNUAL CONFERENCE

THE sixty-third annual Conference of the Museums Association was held in Bristol during July 8–12 under the presidency of Sir Philip Hendy, director of the National Gallery. Nearly four hundred delegates attended, and the Conference opened with a conducted tour of historic Bristol and an informal reception at the University, where members were received by the vice-chancellor, Sir Philip Morris. The official welcome by Alderman Percy W. Raymond (Lord Mayor of Bristol) was followed by a vigorous address from Sir Philip Hendy, who dealt with various activities within the museum movement during the past year. He referred to the successful outcome of the negotiations between the Durham County Council and the trustees of the Bowes Museum at Barnard Castle, and also to the slow progress of talks with the government officials regarding State aid to museums. The plight of some of the smaller museums was described as desperate, and although Sir Philip felt that the nation as a whole was far more museum-conscious than ever before, there was a lack of sympathy in Treasury circles. He felt that there should be a far more equitable distribution of cultural benefits among the organizations and institutions concerned.

The same theme was followed in an afternoon session under the chairmanship of Sir Mortimer Wheeler, who said that in spite of the Treasury's declaration to the contrary, the problem was not purely local, but a part of a general national educational problem. He recalled the scheme in Wales for mutual aid and affiliation between the National Museum of Wales and the museums of the Principality, and considered that it might serve as a model for other regions. Dr. Dilwyn John then outlined the Welsh scheme to which nineteen museums now belong, and Mr. S. D. Cleveland suggested a pilot survey in one part of Britain which might lead the way to a more general plan. Sir George Dyson, chairman of the Carnegie United Kingdom Trust, said that the first step must be to obtain common agreement between the various public and private authorities concerned. Mr. Philip James directed attention to the plight of many museums and art galleries owned by private trusts or societies, and emphasized the importance of ventilating these matters in the Press. Other speakers stressed the urgency of the situation, and in summing-up Sir Mortimer Wheeler said that he felt that a survey carried out in a relatively restricted area, such as south-west England, would yield information of value. Based on that experience, it would be possible to extend the survey to the whole country. As suggested by Mr. W. J. Deacon, it might be possible for

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".