



SATURDAY, DECEMBER 21, 1929.

CONTENTS.

| | PAGE |
|--|------|
| The National Museums and Education | 937 |
| Aviation and the Future. By Dr. G. Merton | 939 |
| Persuasion and Belief | 941 |
| A Bibliography of Applied Science. By Dr. S. C. Bradford | 942 |
| Our Bookshelf | 943 |
| Letters to the Editor : | |
| The Earthquake South of Newfoundland and Submarine Canyons.—Prof. J. W. Gregory, F.R.S. | 945 |
| Method of Determining the Position of the Symmetry Axis of a Crystal by means of X-Rays.—W. Linnik | 946 |
| Weitere Beobachtungen über die Dissymmetrie der Emission von Serienlinien.—Prof. J. Stark | 946 |
| Chemical Biogenesis and the Development of Secretion Cells.—Dr. A. Leemann | 946 |
| Variations of Intensity Distribution of the Auroral Spectrum and the Possible Influence of Sunlight.—Prof. L. Vegard | 947 |
| A Haploid <i>Echinotheca</i> .—Prof. R. Ruggles Gates | 948 |
| The Perfect Elasticity of Wool.—J. B. Speakman | 948 |
| Continents and Oceans.—Dr. G. C. Simpson, C.B., F.R.S. | 948 |
| The Proposed New 200-Inch Telescope. By W. M. H. G. | 949 |
| The Locust Problem. By Dr. A. D. Imms, F.R.S. | 950 |
| Irradiation and Health | 952 |
| Obituary : | |
| Dr. Harold Wager, F.R.S. | 953 |
| Sir Sainthill Eardley-Wilmot, K.C.I.E. By Prof. E. P. Stebbing | 954 |
| Mr. W. R. Bower | 955 |
| News and Views | 956 |
| Research Items | 961 |
| British Museum Expedition to British Honduras. By T. A. Joyce | 964 |
| New Sundial in the Royal Botanic Gardens, Kew | 965 |
| Filterable Viruses | 966 |
| Radio Communication in the British Navy | 967 |
| Antarctic Meteorology | 967 |
| University and Educational Intelligence | 968 |
| Calendar of Patent Records | 968 |
| Societies and Academies | 969 |
| Official Publications Received | 971 |
| Diary of Societies | 972 |

Editorial and Publishing Offices :

MACMILLAN & CO., LTD.,
ST. MARTIN'S STREET, LONDON, W.C.2.

Editorial communications should be addressed to the Editor.
Advertisements and business letters to the Publishers.

Telephone Number : GERRARD 8830.
Telegraphic Address : PHUSIS, WESTRAND, LONDON.
No. 3138, VOL. 124]

The National Museums and Education.¹

TO-DAY, as at no past period in the history of the museums of Great Britain, active and enlightened minds are applying themselves to review the accomplishments of these institutions and to devise means for their greater participation in the life of the nation. In endeavouring to interpret the 'new museum outlook' which loomed through this outburst of interest, we alluded in a leading article in NATURE (June 29, 1928) to a museum feeling in the air. Fresh and welcome evidence of this spirit is afforded by Part I of the Final Report of the Royal Commission on National Museums and Galleries, to which references have already been made in our columns.

The whole field of museum activity in Great Britain has now been covered. The Carnegie United Kingdom Trustees, through Sir Henry Miers, surveyed the land of the provincial museums, and they found a desert, brightened, it is true, by occasional oases, but nevertheless an arid country which could be made fruitful only by an infinitely patient and plenteous irrigation, some of the streams whereof must be of pure gold. The Royal Commission, facing another quarter, has looked upon the great institutions where are housed the nation's treasures, and although barrenness is here replaced by a certain amount of jungle growth—for the golden streams have been running steadily if not copiously for many years—yet here also is envisaged in the near distance a land of promise towards which the museums must strive.

This section of the Final Report embodies the general conclusions and recommendations of the Commissioners; a second section to be issued at an early date will contain the findings relating to individual institutions. While the latter, therefore, will fix the milestones along the highway of museum progress, to the former we look for the finger-posts pointing the general direction of advance and indicating the objective of the museum body as a whole. Three big problems are involved in any forward movement—the inter-relationship between the national museums and galleries themselves, the relationship of the national institutions to similar provincial bodies, and the share to be taken by the national institutions in education. This last lies at the very heart of the matter, and its proper solution can be the only means of

¹ Royal Commission on National Museums and Galleries. Final Report, Part I: General Conclusions and Recommendations, dated 20 September 1929. (Cmd. 3401.) Pp. 93. (London: H.M. Stationery Office, 1929.) 2s. net.

enabling the museums to play their due part in the life of the nation.

That lack of vision of the educational possibilities of museums and galleries which appears to be characteristic of British administration is painfully evident in the terms of reference set for the guidance of the Commission. Education is mentioned there only once, and with a negative emphasis which does not make for encouragement—"to consider in what way, if any, expenditure may be limited without crippling the educational and general usefulness of the Institutions"—and not in all the eight instructions is there a word to suggest that in the possibility of creating new contacts with childhood, youth, and manhood, might be a field worthy of the closest inquiry.

The Commission, however, has been bolder than its mandate, and appreciating that "the National Museums and Galleries are *essentially educational institutions*", makes many suggestions the adoption of which would add to the teaching efficiency of the institutions. It cannot be said, however, that the attainment even of these suggestions will bring the educational facilities of British museums within measurable distance of those already in full force in the museums of the United States of America, to which we have made favourable reference again and again in the pages of NATURE. To take one example: the report, in recording certain outstanding deficiencies in the national museum service of Great Britain, suggests the creation of a museum of ethnography, a museum of casts, a folk museum, and an Oriental museum, but there is no hint of a prospective children's museum, such as that which has been so successfully developed at Brooklyn, New York. Yet it is obviously unfair to expect children, though they do their best, to grapple with exhibits arranged and labelled for adults.

Part of the present-day deficiency in the educational organisation of museums and the like is undoubtedly due to that lack of vision which is apparent in the terms of reference. Whilst the stock educational bodies have advanced relatively by leaps and bounds, the museums stand still. The report reveals the insufficiency with unanswerable statistics:

"For the last twenty-five years, the development of the National Institutions measured in terms of State support has advanced hardly at all as compared with the development of elementary education, secondary education, or university education. The exchequer expenditure in respect of these three forms of education in England and Wales has in this period increased approximately

as follows: elementary education threefold: secondary education and technical education eightfold: university education nineteenfold. In the case of National Museums and galleries expenditure has increased twofold: in other words, taking account of the change in the value of money, it has almost stood still. . . . It seems to us that so great a disparity is an indication not only of a lack of appreciation of the purpose of these Institutions, but of a definite defect in the relations between them on the one side and governmental authority on the other."

To three main lines of development the Commissioners look for increased efficacy in the spread of knowledge: the enlargement in scope and improvement in quality of circulating collections, the more effective display of exhibits, and improved methods of contact with the public. We cannot follow here the recommendations in detail, but we note that while the further development of the loan system of the Victoria and Albert Circulation Collection to schools of art, secondary schools, and training colleges is contemplated, no suggestion is made of participation in these great privileges by elementary schools, although the success of the system organised by the great American museums rests on this lowly basis. Nor is it quite clear that natural history material is to be included in the enlarged Victoria and Albert central circulating agency, though experience elsewhere has shown that the circulation of life-histories and natural groups of common creatures and plants is perhaps the best appreciated of all the activities of museums in relation to school work, and although the Commission views with favour the ultimate circulation of natural history and other scientific objects.

It need scarcely be said that much could be done in existing space to improve the appeal and the teaching quality of exhibits. We are reminded of the comment of a young German friend, familiar with the Deutsches Museum in Munich and the other great German institutions, who after a visit to London a month ago, remarked that one of the leading museums there was more like an antique shop than a museum.

A great future lies in the tightening up of contact with the people. Better publicity, publications with a popular appeal, the development of the guide-lecturer system, lecture theatres and evening lectures, are some of the most obvious methods. The report passes lightly over the question of the inadequacy of the present staffs of the national institutions to carry out the many reforms that are foreshadowed and are indeed long overdue. It suggests the appointment in the larger institu-

tions of a whole-time officer whose duty it would be to keep contact between the public and officials. We doubt if this step, progressive though it is, would meet the case, and we look further to a closer *rapprochement* between education authorities and museums, and the consequent delegation of teachers wholly set aside for the conduct of school classes in museums, for the foundation of that close contact which alone can bring the nation's treasure-houses of art and science adequately into the educational life of the day.

Aviation and the Future.

The World, the Air and the Future. By Comdr. Sir Charles Dennistoun Burney. Pp. xxiv + 356 + 24 plates. (London: Alfred A. Knopf, 1929.) 21s.

THE vast significance of air transport to civilisation in general and to the British Empire in particular has as yet been appreciated by comparatively few. That Britain, which of all nations is the one most called upon to lead the way in the use of this wonderful instrument for linking the world together in peace and prosperity, should have fallen so far behind others, in particular the United States and Germany, in civil aviation developments as to be no better than third-rate, is little short of a tragedy.

Those who have realised this regrettable state of affairs have impatiently awaited a book that would enable the thinking man to appreciate the deep significance of air transportation for us in the progress of mankind. It is to Commander Sir Dennis Burney that we are indebted for the first real attempt to write such a book. The subject is big and contains many difficult problems, but, although some of his arguments and assertions may be subject to criticism, the main principles, propounded with marked sincerity and courage, may be expected to survive.

To all men, especially to men of science and men of commerce, it is increased *speed of communication*, whether by personal contact or by written document, that is daily in greater demand. It makes co-operation more effective and increases efficiency by enabling more work to be done in a given period of time, quicker contact to be established with minds in distant lands, and a better use to be made of leisure time. Air transportation, whether we like it or not, has arrived to impart this acceleration to our lives.

At present, aviation is in its infancy and its teething troubles must be recognised as such. It

is as ridiculous to point to the present limitations of aircraft and their operations and to the relatively high cost of air travel as an argument that they cannot be of any commercial use, as to say that a child which cannot work efficiently and pay its own way will never do so. There is a tendency to ignore the fact that there already exist air services which, due to special conditions, pay their way handsomely, and each day progress is made towards the establishment of economically run services where conditions are not so favourable.

The construction and mechanism of aircraft require the attainment of the highest perfection, and therefore their successful economic development will depend to an exceptional extent on the application of the results of the research work at present occupying the attention of several branches of science. It thus appears probable that the attainment, not perhaps of vastly higher speeds, but at least of the greater efficiency we require, is likely to be a very rapid process.

Just as the coming of the steamship, the railway, and the motor-car completely changed the life of each nation into which they intruded, so will aircraft entirely change the character and mode of life of the world. Whereas in the past the units influenced have been separate nations, in the future there will be but one unit—the world. Aircraft, in other words, will, by the nature of the operations, render all obstacles to free movement about the world at a speed of 100 m.p.h. or more, so objectionable, that the force of international public opinion will sweep aside all national barriers and other man-made obstructions. Aircraft “are going to create the conditions of their own development. Indirectly, and without altogether realising it, they will dictate policies, transform issues, solve old problems in a new way, and bring important new changes into the psychological structure of human society.”

Can we possibly doubt the far-reaching effect this will have on the human race? On the contrary, it is clear that we are indeed witnessing the beginning of a new phase in our evolution. It is perhaps prophetic that at a time when the world is struggling to free itself from the tangles of numerous man-made restrictions which prevent humanity moving on to a higher plane, this mode of locomotion in that free, universal medium, the air, should have appeared to aid it. Flight implies something more than an extra rapid means of transport; it implies a new framework in the mind, a new mental outlook affecting all our thoughts and activities.