

but whose whole training fits them admirably to fulfil just that purpose which the Commissioners have in mind.

#### Volcanic Eruptions in the Andes

ALARMING reports of vast showers of volcanic ash from eruptions of Descabezado and other recent volcanoes of the group which occurs on the chain of the Andes south of Santiago de Chile, appeared in Tuesday's daily papers. The eruptions began on April 10, and the neighbouring towns of San Fernando, Curico, and Talca were said to be in darkness through the fall of fine dust from the volcanoes. The ash is reported to be three feet deep in Curico. Trains arriving at Mendoza, on the line about a hundred miles east of Santiago, were covered with volcanic dust, and the streets of the city were thickly coated with it. At Buenos Ayres, which is about six hundred miles farther east, there has been a steady fall of volcanic ash, and even at Monte Video (Uruguay), still farther east, the shower of dust is reported to have lasted for ten hours. Shocks have been felt over a wide area, but at the time of going to press no details are available as to the actual character of the eruptions or exactly what volcanic peaks have again come into activity.

#### Overlapping of Government Research Funds

It has been common knowledge, amongst those conversant with such matters, that a certain amount of overlapping has existed in connexion with the grants made by Government to various bodies who utilise the money for assisting research and other work in the British Empire. The system underlying these grants has developed by instalments and does not, therefore, represent a carefully thought-out scheme. For this reason the first report of the Estimates Committee, of which Sir Vivian Henderson is chairman, recently presented to the House of Commons, will be welcomed. It is understood that the Committee has examined the estimates of the following funds: Empire Marketing Board, Colonial Development Fund, Development Fund, Ministry of Agriculture, Colonial and Middle Eastern Services, and University Grants Committee. The Estimates Committee's object was to ascertain to what extent in recent years Parliament has been asked for funds to assist the same object or body through different channels, since the Parliamentary estimates do not themselves indicate clearly the sources of the demand. The Committee has noted, for example, that grants are being allotted to the Empire Marketing Board for many purposes which are also assisted by the Development Fund, the Forestry Commission, the Ministry of Agriculture, or the Department of Scientific and Industrial Research. Again, in the case of the Colonies, grants are being made from the Colonial Development Fund for the ordinary purposes of Government, whilst at the same time, the Colony concerned may be receiving a grant from the Colonial Office. It is not suggested that the departments or bodies receiving such grants are in ignorance of what is being done by others working on the same lines, but the fact remains, as the Committee

remarks, that many institutions in Great Britain are receiving assistance from the State through two or three, or even as many as four or five, or more, channels. This position of itself justifies the appointment of the Estimates Committee, the work of which should also prove of service to Government at the Ottawa Conference.

#### Race Prejudice and World Peace

SIR ARTHUR KEITH in his address, "Can Race Progress be Rationalised?", delivered on April 5 at Oxford, before the Universities Congress of the National Union of Students, turned once more to the problem of world peace as it presents itself to him as an anthropologist and a follower of Darwin. As he has expressed himself on more than one previous occasion, Sir Arthur is convinced that racial and national instinct is an all-powerful factor in the evolutionary progress of mankind, producing new and, perhaps, better races; but, as he points out, this spirit is incompatible with man's economic needs, and the result is the disharmony which is to be seen in the world to-day. Granting that this spirit is ineradicable, and accepting the inevitable consequence that the nations of the world can never be welded into a whole, is it then possible, Sir Arthur asks, to bring about conditions in which each nationality may work out its destiny by peaceful progress? Ethically the nations of to-day are in no respect superior to their predecessors; each pursues its own ends selfishly. Nothing daunted, Sir Arthur sees hope for the future in such manifestations as the suppression of separatist tendencies by reason in Scotland and Wales, and in the spread of English-speaking peoples, which he regards as the greatest attempt to rationalise the peoples of the world that has ever been made. Race progress, he concludes, can be rationalised only by a process of self-understanding, self-education, and, if need be, self-sacrifice on the part of all.

#### Roman Mining in Britain

IN a paper on Roman mining in Britain, read before the Newcomen Society on March 30, Mr. G. C. Whittick gave a review of the mining operations during the whole of the Roman occupation. Though the Roman invasion cannot be ascribed chiefly to the desire to gain possession of the country's mineral wealth, after the initial seizure of the south-east of the island, there followed the inevitable accompaniment of the exploitation of minerals, particularly lead. After referring to the mining methods, to the treatment of ores, and to the question of organisation, Mr. Whittick dealt with the mining of coal, gold, copper, lead, iron, and tin. During the first century and a half of the Roman occupation, lead was the most important product of Britain. Lead mining in the Mendips was apparently begun so early as A.D. 49, and production rose rapidly during the reigns of Nero (A.D. 54-68) and Vespasian (A.D. 69-79). The centre of Roman activity in the district was in the valley of the Blackmoor, just south of Blackdown. The ore was obtained from surface workings, and from the waste heaps of the workings many pigs of Roman lead have been recovered. Lead was also

mined in Flintshire, Derbyshire, Yorkshire, and Shropshire. Most of the pigs which have been found bear inscriptions, and some have been officially stamped showing that they had been desilverised. The iron-workings of the Roman period were concentrated in the Weald and in the Forest of Dean, and tin mining was carried out to a small extent in Cornwall.

#### Velocity of Light

MR. M. E. J. GHEURY DE BRAY, 40 Westmount Road, Eltham Park, London, S.E.9, has published, in the form of a pamphlet entitled "La vitesse de la lumière", a critical and documented discussion of the chief experiments made to determine this constant, from the pioneer work of Römer and of Bradley, down to the latest experiment devised by Michelson. The experiments are carefully analysed, and the accounts contain discussions of certain errors, obscurities, and irrelevancies which disfigure the presentation of the subject in many of the texts. The description of the observations of Römer and of Bradley is specially useful. The author presents a table which shows the results of some twenty-one experiments, beginning with that of Fizeau in 1849 and concluding with the recent work of Michelson. Of these experiments he decides, after critical consideration, that seven give trustworthy results. He divides these into two groups—experiments carried out on a short base line and those carried out on a long base line. The results are summarised as follows:

(1) Bases courtes ; inférieures a 4 Km.		
1879-5	Michelson	299-910
1882-7	Newcomb	299-860
1882-8	Michelson	299-853
(2) Bases longues ; 23 Km. et plus.		
1874-8	Cornu-Helmert	299-990
1902-4	Perrotin	299-901
1924-6	Michelson	299-802
1926-0	Michelson	299-796

The conclusion reached is that "un fait très remarquable est tout de suite révélé par cette classification : dans les deux groupes, la vitesse de la lumière diminue progressivement avec le temps, et le changement de vitesse est approximativement proportionnel à l'intervalle de temps correspondant". However this may be, there is no question that Mr. Gheury de Bray has provided a useful résumé of the literature dealing with a very difficult experimental problem.

#### Ocean Newspapers

SINCE the first issue of the *Transatlantic Times*, which appeared in the form of a leaflet on the s.s. *St. Paul* on Nov. 15, 1899, maritime journalism has made great progress. All newspapers issued on British ships are now published by an organisation known as the Wireless Press. In the first place, it supplies ships with copies of the journals prepared in such a way that the news can be printed on board ship as it is received by the ship's radio operator. Rugby Radio, the G.P.O. wireless station, daily transmits three news bulletins—in the early morning, at midday,

and during the evening. It also transmits a Saturday night message giving the League football results. This message is in keen demand among the crews on cargo boats all over the world. In the case of general elections, big races, and other events of world-wide interest, it often happens that a passenger in mid-Atlantic is reading the results before they have been distributed on land. The special bulletins, broadcast throughout the day, are exhibited prominently for the passengers to read. Foreign stations also bombard the ship with news. The ship's purser has the task of sub-editing the newspaper. In an interesting paper on maritime journalism, by E. C. Thomson, in the *Wireless World* for March 23, it is stated that there are indications that the 'wireless news' will give place, possibly at no distant date, to a replica of a journal printed on land. This could be achieved without much difficulty by means of facsimile telegraphy. A complete page printed on land could be reproduced on board ship in a shorter time than would be required to carry the actual newspaper from one end of Fleet Street to the other.

#### Archæological Exploration in Macedonia

THE recently issued *Annual of the British School at Athens*, No. 30, covers the sessions 1928-29 and 1929-1930 (London: Macmillan and Co., Ltd., £3, 3s.). In addition to the annual report and financial statement, it includes the usual complement of papers by members of the School. The excavations in Macedonia have been continued, and although the account of the work carried out by Mr. W. A. Heurtley and others at Saratse provides no sensational discovery, it demonstrates the relation of cultural development in an interesting strip of country to that of the Vardar valley and the area immediately around Salonika. A Troadic site at Thermi in Lesbos was excavated by Miss W. Lamb, who describes the five successive cities of an Anatolian colony which was finally abandoned some time before the sack of Troy II. The excavations are still incomplete after two seasons' work. Messrs. J. D. and H. W. Pendlebury describe two extensive and elaborate protopalatial houses at Knossos, found at the bottom of walled pits in the west court. It is unfortunate that owing to their position they cannot be excavated, but a somewhat hazardous feat of exploration has revealed their character to a considerable extent. The first instalment of a study of the morning hymns of the Emperor Leo by Prof. H. J. W. Tillyard provides evidence on medieval methods of musical notation of considerable interest to students of early music. Mr. J. D. Beazley's "A Dancing Maenad" is a study of the grouping and meaning of figures on a Nolan amphora from Woburn Abbey. Nearly half the volume is devoted to the continuation of the final report on the School's important excavations at Sparta in 1924-28 by the former director, Mr. A. M. Woodward.

#### Animals Playing at being Hunted

A HAND-REARED female of the prongbuck, or American antelope, owned by Mr. L. T. Murray at Mertzon in Texas, displayed a most remarkable