

those found at Ipswich, with the pottery for which Mr. Reid Moir claims a palæolithic age, were found in an unworn condition in a gravel bed underlying alluvium and peat and resting on a glacial bed. On top of the gravel occurred a large number of scrapers of a type not hitherto recognized and showing marked eolithic characters. These were striated, presumably by floating ice or the movements of semi-frozen material, indicating that the implements, and therefore, presumably, the pottery, dated from before the last glacial manifestation; in other words, that both pottery and implements belonged to Upper Palæolithic times.

Meteorite Craters

THE crater-lake of Kaalijärv, one of the group of craters on the Island of Oesel off the coast of Estonia, has been described on several occasions since 1827, and many suggestions have been made as to its mode of origin. In 1927 and 1929 Mr. I. Reinvald, Inspector of Mines in Estonia, made a detailed survey of the craters with borings and trenches, and he was himself convinced of their meteoritic origin, although he was then unable to find any traces of meteorites at the locality. With remarkable persistence he has again returned to the work of excavation, and in July last he was rewarded by finding in the smaller craters, Nos. 2 and 5, thirty small rusted fragments of nickel-iron, which on a polished and etched surface show a characteristic though rather unusual type of structure. These remnants of the Kaalijärv meteorite finally settle the question of the meteoritic origin of these craters.

ANOTHER meteorite crater has been discovered by Dr. C. T. Madigan, lecturer in geology at the University of Adelaide, during his recent expedition in Central Australia. This was found on the Box Hole station by Plenty River, which is about 200 miles northeast of the famous Henbury craters. It has the form of a shallow basin measuring 200 yards across the rim. During the brief visit no meteoric iron was found on the spot. Another noteworthy discovery made by Dr. Madigan during this expedition is a large meteorite of the rarer siderolite (stony-iron) type, which was seen on the Huckitta station near the Hart Range, about fifty miles from the crater and with no relation to it. It measures 4 ft. 5 in. long and 20 in. high, and is estimated to weigh 2-3 tons. This is considerably larger than any stony-iron meteorite previously recorded, including the original pallasite (Pallas iron) of about 700 kgm. found in 1749 in the Krasnoyarsk district in Siberia.

Distribution of Raw Materials

AN important aspect of the problem of access to raw materials is the consideration of their position with regard to export. This, among other bearings of the question, is discussed by Prof. I. Högbom, in the report of the League of Nations Committee for the Study of the Problem of Raw Materials (Geneva: League of Nations. London: G. Allen and Unwin, Ltd., 1937. 2s.). Prof. Högbom points

out that for certain minerals, the bulk of which is great in comparison to their value, anything more than a relatively short distance from the sea is an almost insuperable bar to exploitation. The same is true of the cheaper and bulkier vegetable products. Thus for many forms of raw material the potential production of the great colonial areas of the interior of Africa and of certain sovereign States is not commercially accessible. Transport cost and not occurrence is the decisive factor in availability. Thus coal and iron ore, if mining for local ore is left out of account, can be economically produced only in Europe, North America, certain parts of the Far East and elsewhere only in a coastal strip some sixty miles in width. The same applies to phosphates. Mineral oil is profitably exportable within about a hundred and fifty miles from the coast. More valuable ores such as tin, copper, manganese and chromium ores can be mined over a much wider area. Prof. Högbom has illustrated these conclusions in a map incorporated in the report.

The Empire's Mineral Wealth

THE leading article in the September issue of *Sands, Clays and Minerals* develops the theory that the Empire can be made in Dr. Johnson's words "rich beyond the dreams of avarice" by economic development of known mineral resources and by systematic exploration of every country within the Empire for hitherto undiscovered deposits. It is no longer practicable to await accidental discoveries of valuable mineral resources: they must be looked for scientifically. Admittedly an exhaustive Imperial mineral survey is a Herculean task, but certain suggestions are made which should go far towards this ultimate aim. It is too great a task for any private concern or individual, or indeed for any Government. It must be undertaken corporately by geologists, metallurgists, economists, Government officials, and others equipped for different phases of the investigation, all of whom must take a share of executive authority. Aerial survey is the means by which information can be obtained on the resources of every country, but this should be conducted on a more scientific basis than hitherto. Present-day mining and metallurgical technique should at the same time be scrutinized and improved wherever possible on the advice of experts. Moreover, ancillary investigations of transport systems, market conditions, currency, tariffs, banking and finance in general, should be undertaken in order to provide a central body with all the information necessary to co-ordinate survey results. Finally, the technical education of the coming generation of geologists, chemists, mineralogists and industrialists, and of the mature worker in these fields should be broadened to give an imperial view-point of mineral resources rather than a restricted outlook on one part only.

British Museum (Bloomsbury): Recent Acquisitions

RECENT accessions to the collections of the British Museum (Bloomsbury) reported at the October meeting of the Trustees include a number of ethnographical

and archaeological objects of exceptional interest. Among these is a war-drum presented by H.M. the King, which was captured from the Khalifa at Khartum in 1898 and given to Queen Victoria by Lord Kitchener. It is of the split-gong type, is made of wood, and is some seven feet long. It is shaped like an animal with a horned head at one end, and is carved with geometrical ornament in relief on the sides. A ceremonial staff from Ashanti, formerly the property of Nana Kobina Amponsah II, Ohene of Busumtwi Stool, has a gold top surmounted by a bird pecking two skulls. Sir Aurel Stein has now decided that the objects allotted to him by the Persian Government from the finds of his journeys of archaeological exploration in Iran should be sent to the British Museum, and the pottery and sherds from his third journey in 1934, on which he traversed the modern province of Fars in south-west Persia, have now been received. They date from well before 3000 B.C. and are of importance as showing affinities with such early sites as Susa and El Obeid in Irak.

THE Department of Oriental Antiquities has received an accession of exceptional importance in the form of five sculptured stone heads from the Buddhist cave temples of T'ien Lung Shan, near Taiyuanfu in Shansi, dating from the sixth to the tenth centuries A.D. They represent a highly developed phase of Chinese religious sculpture, of which very few examples are to be found in British collections. They were given through the British Ambassador in Tokyo by Mr. Kachiro Nezu as a token of friendship to the British nation. Among the British antiquities is a large Roman pottery basin, about seventeen inches in diameter, with figures of horsemen and floral design, which appear upside down. It was found by Colonel and Mrs. A. Ogilvie, by whom it is presented, inside a larger vessel in a kiln at Linwood in the New Forest. It dates from the third century A.D.

Fruit-Cooling Plant at Cape Town

IN *Electrical Industries* of August 11 a description is given of the largest pre-cooling plant in the world, dealing with the fruit exported from Cape Town docks. This installation, which was completed twelve years ago, has made it easy to ensure the low-temperature preservation of fruit as soon as possible after picking. It ensures also that the temperature of the fruit when loaded is comparable with that maintained in the ship's storage chambers on the voyage. Thanks to the Government policy of insisting on high standards and of providing research and educational facilities for fruit growers, the plant is now working at its full capacity and more accommodation is urgently needed. To meet this need, large pre-cooling chambers were projected, and when the entire scheme is completed next year they will have a capacity of 6,000 (shipping) tons. When the fruit trains reach the store from the country, they are shunted into the 'air-lock', a large asphalt-floored shed 74 feet wide by 900 feet long. The fruit is examined and tested there by the Government in-

spectors, and that which does not reach export standard is rejected. The standard fruit is then transferred by battery vehicles to the ship's side and by crane to the hold. The ammonia method being economically impracticable, the underground storage chambers are cooled by brine circulated through coils. At a considerably lower level is the large engine room containing electric transformers and ammonia compressors. An automatic recorder keeps a visible record of the temperature in every cooling chamber taken every eight minutes. The engine room is provided with an emergency lighting battery plant.

New "North-West Passage"

A BULLETIN from the office of the High Commissioner for Canada announces the receipt of a radio-telegram from the S.S. *Nascopie*, a vessel now under charter to the Canadian Government for the 1937 Arctic Expedition, in which it is stated that the vessel has effected the first crossing of Bellot Strait, forming a second North-West Passage across the Canadian Arctic. The strait separates Somerset Island from the Boothia Peninsula, the northern tip of Canadian mainland. The original "North-West Passage", the discovery of which was for many years the dream of Arctic navigators, as a short route from Europe to Asia, runs farther north than the Bellot route. So early as 1585, John Davis set sail to locate this passage, but it was not until 1903-7 that Captain Roald Amundsen made the voyage along Lancaster Sound, Barrow Strait and Peel Sound which defined the route. The Bellot route, a shorter and possibly better passage, has engaged the attention of Arctic explorers since 1858, when Captain Thomas McClintock, searching for the lost Franklin expedition, endeavoured to make his way through. The attempt, unfortunately, was futile, and other later attempts were equally unsuccessful. The Strait was discovered by Captain W. Kennedy in 1852, when he crossed it by dog-team. The appearance of the waterway is that of a Greenland fjord. It is about twenty miles long and barely a mile wide at its narrowest part. The shores are of granite formation of bold and lofty elevation, with a fair sprinkling of Arctic vegetation. Some of the hill ranges attain heights of 1,500-1,600 feet.

Symbols for Thermodynamical Quantities

THE report of a joint committee of the Chemical Society, Faraday Society and Physical Society on symbols for thermodynamical and physico-chemical quantities and conventions relating to their use has been published. It contains symbols for use in thermodynamics and physical chemistry, with explanatory matter. The objects of the joint committee, it is stated, were to correlate the views of chemists and physicists with regard to the use of symbols for thermodynamic quantities and to deal similarly with symbols for other quantities which are of interest to both chemists and physicists. The committee was very representative, and the report, which is a document of sixteen pages, is of considerable interest. The symbols and conventions of the report have