

the unexpected news that coal measures, at least 1,500 feet thick, lie within 350 miles of the pole itself, and that of actual coal seams several were found from 1 to 7 feet thick, associated with fine clay containing abundant small impressions of roots.

The human skeleton found at Le Moustier (Dordogne) in April, 1908, is now believed to belong to the lower middle Post-Tertiary period, and is referred to a new species, *Homo mousteriensis*, inferior to the usual *Homo sapiens*. The lower jaw is of massive proportions, but chinless, and is that of a young male, more or less contemporary with the well-known Neanderthal skeleton.

At the Winnipeg meeting of the British Association the geological papers dealt principally with Canadian and American strata. The address of Dr. A. S. Woodward, president of the section, was devoted to the evolution of vertebrate life as shown by fossils, with a glance at certain tendencies to decadence, *e.g.*, the occasional disappearance of teeth from some portion of the vertebrate jaw, the formation of ponderous bones, and the degradation of fishes into eel-like forms.

It has been noticed that at Kimberley (South Africa) a daily variation of level takes place, owing to solar influence, but whether tidal or thermal is not definitely established. Recent observations show that when the moon is south of the equator the whole of the protuberance of which South Africa is composed oscillates east and west during the lunar day, this motion masking any effect due to tidal influence in the solid earth. Only when the moon is nearest the earth does the pendulum move in a manner to suggest such a tide. The deviation is towards the west of the mean position in winter and towards the east in summer.

The Board of Trade returns continue to call attention to the extravagant rate at which the coal supplies of Great Britain are being used up. Our consumption is about 6 tons per head of the population per annum, whereas in Belgium it is $3\frac{1}{2}$ tons, in Germany $2\frac{1}{2}$ tons, and in France less than 1 ton. We exported 14,000,000 tons to Germany alone in 1907, or twice as much as in 1902, and in all directions the demand is on the increase. There is no present or future likelihood that any new sources of power can be opened up, so that in a few centuries the British Isles will cease to be the world's chief centre of industrial activity, and thenceforth can take little part in human progress.

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GEOGRAPHY.

News of Lieutenant (now Sir) E. H. Shackleton's Antarctic Expedition was received on March 23 (Chronicle, p. 9). Sir E. H. Shackleton, in company with three others, travelled along the west of the Barrier ice sheet, and, after passing Scott's farthest south, crossed two mountain ranges and reached a point 100 miles from the geographical South Pole. Here an elevated plateau, 10,000 feet above sea-level, extended as far as the eye could see, and there appears little doubt that it is on this plateau that the pole is situated. The farthest point reached was latitude $88^{\circ} 23'$ S. in longitude 162° E. on January 9, 1909. The party returned to the ship *Nimrod* in McMurdo Sound after an absence of 126 days, having covered a distance of 1,708 miles. Another party, led by Professor David,

travelled along the coast of South Victoria Land and struck across the mountains over a plateau 7,000 feet high to a distance of 260 miles from their depôt on the coast. They succeeded in attaining the south *magnetic* pole, which is situated in latitude $72^{\circ} 25' S.$ and longitude $154^{\circ} E.$ This journey not only established the position of the magnetic pole, but confirmed the conjecture that Victoria Land and Wilkes Land are continuous.

Besides these longer journeys a short "but arduous excursion was made to the summit of Mount Erebus, 13,120 feet high, and its reputation as an active volcano was established. The results of this expedition are of no little importance, for it is now ascertained beyond doubt that the Antarctic is not an archipelago, but a great continental region, bounded on the eastern side by a lofty range of mountains which extends from Wilkes Land to the highest latitudes, and probably continues into Graham Land. The meteorological observations confirm the prevalence of south winds, which were not less strong near the pole than at lower latitudes, and therefore the centre of the Antarctic anticyclone cannot lie immediately over the pole. The geological results are of equal interest, for seams of coal were observed in some exposed rocks to the east of the Barrier ice sheet, but the absence of fossils in the rocks points to the conclusion that severe climatic conditions prevailed whilst the sedimentary rocks were laid down.

Another expedition to the Antarctic regions under Captain R. F. Scott is to start in July, 1910, a promise from the Government of a grant of 20,000*l.* having placed the expedition on a sound financial footing. And at the same time a Scottish expedition to the south polar regions is being organised by Dr. Bruce, and will start in the summer if the requisite funds are forthcoming.

On September 1 great interest was aroused by the announcement that Dr. Cook, an American traveller, had succeeded in reaching the north geographical pole on April 21, 1908. A few days later a message was received from Commander Peary to say that he had returned from the far north and that he also had reached the north pole on April 23, 1909. Dr. Cook on his return lectured in Denmark and in the United States on his journey to the pole, but confidence in his narrative was shaken by the absence of trustworthy records of observations of latitude and longitude. His inability to fulfil his reiterated promises that detailed records should be produced has forced upon experts the conclusion that there is no evidence that he reached the pole (see *ante*, Chronicle, Dec. 21, 24) and the honour of priority in this achievement now rests with Commander Peary whose persistent efforts in this direction have at last been crowned with success. Peary's expedition left Etah in Greenland on August 18, 1908, in the *Roosevelt*, and put in at Cape Columbia, from which point the final struggle to reach the pole commenced at the end of February. By a system of advance and supporting parties the main body moved forward rapidly, the last stage being accomplished by the Commander himself accompanied by only one Eskimo. No land was met with in the course of the journey, nor could any be seen around the pole, and the probability that none exists in the vicinity is heightened by the fact that a sounding showed that the bottom of the

sea was more than 1,500 fathoms below the surface of the ice. It is remarkable that the minimum temperature was no lower than -33° F., a degree of cold not sufficient to freeze mercury.

In addition to these more exciting records useful work in the Arctic regions has been carried out by Captain Bénard in Novaya Zembla, and by Captain Mikkelson on the east coast of Greenland.

Full and complete accounts of Dr. Sven Hedin's travels in Asia are in course of publication. In April two papers appeared descriptive of his work in 1906-8 in which he narrates the finding of the true source of the Brahmaputra, of the Indus, and of the Sutlej, and lastly the discovery of the great range of mountains which he has named the Trans-Himalayan range. Further instalments will appear for some years, so great is the mass of material which has been accumulated. He has lately contributed 130 maps, on the scale of four inches to the mile, and his archæological work includes the discovery of a considerable extension of the great wall of China. A preliminary booklet of his work has been published by the Royal Geographical Society.

Captain Kozloff has been carrying out some explorations on behalf of the Imperial Russian Geographical Society, and has identified the dead city of Kharakoto with the capital of a Tangut Kingdom of the fourteenth century.

Dr. Longstaff has shown that there is a connection between the Tarim River and the Saichar glacier, and hence this river originates much further to the west than was formerly supposed.

In the summer the Duke of the Abruzzi ascended a peak close to Mount Godwin Austin, the height of which is 24,600 feet, probably the second highest of the Himalayan range.

In Africa the Central Sahara has been crossed by Captain Cortier, who carried out a series of surveys on his way south. Colonel Trenchard has been exploring in South Nigeria and Dr. Seligman has been engaged in ethnographical researches on the upper Nile. The work of measuring an arc of the 30th meridian has been continued under Captain Jack.

A volume has been published giving a complete account of the Duke of the Abruzzi's ascent of the peak of the Ruwenzori illustrated with a series of photographs unequalled in African literature. A second volume is being published complementary to the first.

A detailed survey of the Libyan Desert and its oases was undertaken by Mr. H. T. L. Beadnell in 1897-8, and he has now enlarged his previous knowledge by three years' residence in the oases of Kharza. The desert is a plateau, about 2,000 feet above the sea-level, and the oases are depressions in the plateau of 1,500 feet or more. In the hollow known as the Kharza oasis a number of shallow lakes at one time existed, and in the deposits at the bottom of these lakes worked flints and pottery have been found. Water is now supplied to these oases by means of borings which tap the "artesian" water and furnish a supply sufficient for the cultivation of vegetation. This water is apparently derived from the highlands of Abyssinia and the Sudan, and long tunnels have been traced in the sandstone, constructed by a former population to promote the flow of the water. In Mr. Beadnell's pub-