

warmer countries; and one is found in the extreme south of America. But some further particulars of their distribution may be interesting. The forms in Europe are numerous, and the number of species to which they may be referred varies from twenty to nearly forty, according to the views of different botanists. They are most numerous in the Alps, where they constitute one of the most charming features of the vegetation. In Asia, too, the genus is generally diffused, though by far the greatest concentration of species is in the mountains of Northern India, where upwards of fifty species occur, some of them ascending almost to the altitudinal limits of flowering plants. Quite recently Mr. Franchet has described a dozen new species from Eastern Tibet and the Chinese province of Yunnan; and Eastern China and Japan possess their peculiar species; one at least of the latter (*P. japonica*) being now common in English gardens. An isolated species, the gigantic *Primula imperialis*, inhabits the mountains of Java, and the genus is represented in South-Western Asia, in Arabia, even to the neighbourhood of Aden, by *P. verticillata*, the same species recurring in Abyssinia; yet none apparently is found in the mountains of Morocco. In America the distribution of the genus is peculiar, no species having been found in Eastern North America south of Canada, while in the western and central regions three or four endemic species inhabit New Mexico, Arizona, and California, though in the last-named country the genus does not extend south of the Yosemite Valley, where the charming *Primula suffrutescens* is at home. The latest discovery is a new species in the Santa Rita Mountains, near the Mexican boundary. Altogether, nine species are now known from North America, five of which, those in the Arctic regions, are also natives either of Europe or Asia, or both. But the most remarkable fact in the distribution of the genus *Primula* is the presence of a species in the extreme south of South America—a species so closely allied to the northern *P. farinosa*, which is common to Europe, Asia, and North America, that it has been alternately held as a variety of it and an independent species. When writing his "Flora Antarctica," Sir Joseph Hooker could find no character whereby to distinguish the South American primrose as an independent species; but in his recent "Flora of British India" he states that it differs in having large granulate seeds. On the other hand, Dr. Asa Gray ("Synoptical Flora of North America") treats it as the same as *P. farinosa*; yet it is probable that he did not examine the South American plant, although he includes South America in the range of *P. farinosa*, therefore it can hardly be cited as an expression of opinion on the subject. The plant is common in Fuegia and the Falkland Islands. Even admitting that it is sufficiently distinct to be admitted as a species, the genetic connection with *P. farinosa* is so close that as a phenomenon in distribution the question is immaterial. The southern limit of *P. farinosa* in North America, so far as known, is Colorado; therefore there is a break of nearly 90° of latitude.

The greatest diversity is exhibited by the Asiatic species, alike in stature, foliage, and floral structure. In a comparatively restricted region of the Himalayas grow the moss-like species, scarcely an inch high, including the flower, such as *P. minutissima*, and the tall *P. sikkimensis*, with an umbel of twenty to thirty delicate yellow flowers on a scape 2 to 3 feet high. Between these extremes there are all sizes and several distinct types of foliage. The Javan species alluded to above is perhaps the largest of the genus, having whorl above whorl of golden flowers, though it is closely approached by the beautiful and many-coloured *P. japonica*.

The recent novelties from Tibet and Western China include some of the most distinct and peculiar forms of the genus, but none of them is in cultivation

There are many other interesting things connected with primroses, but I have perhaps already covered too much space. I may add, however, that by far the richest collection of living species was contributed to the show by the Royal Gardens, Kew—a collection largely brought together by Mr. G. C. Churchill, part author of the well-known book on the Dolomite Mountains, and cultivated by Mr. Dewar. It contained about fifty species, besides many hybrids and seminal varieties.

The report from which some of the foregoing particulars were extracted forms a part of the seventh volume of the Journal of the Royal Horticultural Society.

W. BOTTING HEMSLEY

ON THE ESTABLISHMENT OF THE ROMAN DOMINION IN SOUTH-EAST BRITAIN

BEFORE entering upon the matter which I have stated as the subject of this paper, I think it will be well to premise three notes: (1) on the general authority for the accuracy of the history; (2) on the geography of the approaching coasts of Gaul and Britain; (3) on the pronunciation of names delivered to us in the spelling of the Greek language.

(1) The account of the invasions which I adopt is that of Dion Cassius. His history, in general, is orderly and full. He appears to have been a man of rank, and doubtless had command of State documents. He seems to have been well acquainted with every movement in the Courts of several successive Emperors. He has carefully explained why he was unable to continue his Roman history beyond the time of Severus with due accuracy. The time of the invasion of Britain was about 170 years before the composition of his history—an interval almost equal to the length of our Hanoverian dynasty; and his account of the wars in Britain may claim to be considered as trustworthy as our histories of the campaigns of Marlborough.

(2) In regard to the geography, it is to be observed that the coast-tract in the north of France, apparently from the mouth of the Seine to the mouth of the Scheldt, is called *Γαλαρία* (Galatia). This name occurs at least twice, in separate books of Dion. By Ptolemy it is called *Κελογαλατία Βελγική*.

(3) The English writers who have given any attention to this history have had, I believe, no knowledge of the pronunciation of the Greek words. Mitford, however, in his "History of Greece," had pointed out some of its peculiarities. The difficulty is now greatly removed by the publication, at Boston, U.S., of the "Grammar of Modern Greek," by E. A. Sophocles. I extract the substance of his notes which apply best to the present purpose:—

β is the English *v*, or sometimes *bh*.

δ is the English *hard th*, as in *that, those*.

θ is the English *soft th*, as in *thin, thorn*.

$\mu\pi$ is the English *b*.

$\nu\delta$ or $\nu\tau$ is the English *d*.

ϵ is the English *ee*, as in *seen*.

ou is the English *oo*, as in *soon*.

There is no reason to think that the pronunciation has changed for many centuries. In the Byzantine Greek histories of the Crusades, there are many opportunities of making comparisons of the Greek and the Latin names of places and persons, which appear to follow the same rules as at the present time.

Thus, the name given by Dion to the lady who commanded the Britons in their grand movement against the Romans is spelt by him *Βουνδοῦκα*. Interpreted by the list of equivalents just given, it becomes in English letters and sounds, Voo-doo-ee-ka; and this I believe to be the true rendering of the name. Still, I dare not depart from the established custom; and I shall therefore (unwillingly) adhere to the long-used English spelling, "Boadicea."

I now enter upon the national history.

In the reign of the Emperor Claudius (there is no farther indication of time) Kunobellin reigned at Camalodunum (undoubtedly the modern or Saxon Colchester, "the fortress on the River Colne": the Latinised original name is literally "Camal-hill" or "Camal-fort" (a name somewhat similar to this occurs in Arthurian legends). Kunobellin is mentioned by others as King of the Trinobantes. Dion remarks, "they (the people) were not self-governors, but lived under kings."

Vericus (Βέρικος), a political exile from Camal-dun, persuaded the Emperor Claudius to give him military assistance (apparently for restoration); and the Roman general Aulus Plautius was sent from Galatia, and (after a ridiculous mutiny of the soldiers) landed in England. Remarking that he had no motive for entering Kent, and that his object was to reach Camal-dun as soon as possible, I think it likely that he rounded the North Foreland, and debarked at Southend on the west side of Shoeburyness; where there is an excellent beach two or three miles long, sheltered from the open sea, for landing; and a good plain, for temporary encampment.

Without detailing all the affairs of Plautius with Kunobellin and Kunobellin's two independent sons, Kataraktos and Togodumnos, I shall only say that, after a very unsuccessful struggle with the Britons, apparently among the woods and marshes of the Crouch (a complicated river), Plautius retreated, in veritable flight, towards the west. He had, however, made peaceable terms with the Vothuni (a tribe not otherwise known, I believe); and, leaving a guard there, proceeded till he came to a river, deep but fordable, which he passed with some difficulty. This river, I have no doubt, was the Lea, the largest of the Essex rivers, and running in a valley which is in some parts marshy. In crossing this river, he was greatly assisted by the Κέλτοι, who were accustomed to cross rivers in their armour. (It seems not improbable that these Κέλτοι had been levied in the eastern parts of Galatia and the regions of the Scheldt.) The Roman army, by this real flight, reached the tract opposite London. We have now to consider the state of land and water before them.

So far as we can judge, there had never been any power in the country which could have embanked any of the marshes as we see them now. The sea-water, scarcely salt (much fresh water having entered from the Thames and the smaller rivers) ran up with an insignificant tide, above Rotherhithe and to the borders of Southwark, in a great arm of the sea, never less than two miles wide. This gulf is called by Dion Ὠκείανος. It was shallow, in some places actually bearing trees. (See Mr. Spurrell's "Early Sites and Embankments on the Margin of the Thames Estuary," *Archæological Journal*, vol. xlii.) To the point opposite London applies the sentence of Dion, "ἐπὶ τὸν Τάμεσσαν ποταμὸν, καθ' ὃ εἰς τὸν Ὠκείανον ἐκβάλλει." And this was Dion's mouth of the Thames, and here was the head of the gulf. There was a bridge at a small distance, which I conceive to have been near the site of William the Conqueror's bridge or modern London Bridge. It is remarkable that there is no mention of a town; but probably Southend was the real port of Britain, and the march of the Romans was on the harbour-road.

The sea-water, after the long passage up the shallow gulf, had almost lost its tidal character, and become a mere lake. The Kelts of the army forded the water, and the Romans crossed at the bridge. And now the army, much shattered, was in Kent or Surrey. The Emperor Claudius, on hearing the state of affairs, sailed in person with troops to Marseilles, crossed France to the north coast, and landed in Britain to join Plautius. There can be no doubt that he landed at one of the southern ports of Kent, as Winchelsea or Rye (the whole of Kent being evidently held in perfect quiet); and the question arises, Where was Plautius waiting? and where did Claudius join him?

It is possible that Plautius may have waited in the neighbourhood of London Bridge; but I offer a conjecture which I think more probable. In the grounds of Holwood (near Farnborough) at the eastern corner of Hayes Common, at an easy day's march from London, and in the direct line from London to the south-eastern ports, are the extensive remains of the earthworks of a large fort, in the best style of Roman permanent encampments. In its straight lines of outline (where circumstances permit), its rounded angles, its lofty inner rampart and its lower second rampart, it admits of comparison with the most complete of those which Agricola established in his marches through the Scotch Highlands, and which are described in General Roy's "Military Antiquities." It is called, in the neighbourhood, Cæsar's Camp. The little river Ravensbourne (which ultimately joins the Thames at Deptford Creek) rises in a strong spring close to the entrance. I think it probable that Plautius wintered here, and was joined here by Claudius.

The united armies marched at once for Camal-dun, and captured it. And it would seem probable that they immediately gave it its present form, and a fairer or nobler provincial and military capital (as adapted to ancient warfare) within my knowledge nowhere exists. It is planted on a steep parallelogrammic hill. The slope of the ground at the east gate was eased, within my recollection, in the year 1816. On the south side, a little less steep than the other sides, the ground has been heavily scarped, and faced with a stone wall. The whole town is surrounded by a stone wall at the brow of the slope, rounded at the angles; the little river Colne is on the north side, and there the wall is lower in the valley. The dells on the south and west sides converge to an angle, near which is placed the principal gate of the town. The great streets are in the true Roman form of capital T, and all the small streets are at right angles. The citadel, I suppose, was in the space on the north side of High Street, in which the castle (a Norman building) now stands.

It would appear that the Romans, as residing in a country which was likely to be troublesome, took early steps for making a great road across it; and then was made the great western road by Marks Tey, Coggeshall, Braintree, Dunmow, to Stortford, on the River Stort (which is the largest affluent of the Lea); and then was formed the large entrenched camp of Wallbury, about two miles south of Stortford, on the Essex side of the river.

And after this was made the road to London. The reason for my placing its date subsequent to that of the western road is singular, but certain. The road to London does not start independently from Colchester: the western road is used as far as Marks Tey, and there the London road branches off at an angle of about 40° (roughly estimated). I have personally surveyed this, taking views from the neighbouring grounds, and can assert that the road from Colchester to Coggeshall passes straight through Marks Tey, totally unaffected by the London road. The same thing is exhibited clearly on our Ordnance map.¹

All appeared to be peaceably established. And now came the terrible outbreak.

Dion suddenly states that two cities were destroyed (their names or positions are not mentioned), and 80,000 of the Romans and their allies killed, and that this was done by a woman, to the great shame of the Romans; that this was foretold by divine inspiration (τὸ θεῖον); that there came from the Senate-house (βουλευτήριον), at night, barbarous noises, with laughter; from the theatre came a sound of tumult with lamentation, when nobody was near; some houses were seen under water in the Thames; the ocean between Britain and Galatia was disturbed, and had a bloody colour. The cause of the war was the exaction, by Claudius, of money raised by confiscation (δημευσίς), which Claudius gave to the principal men of the Britons

¹ The modern name Marks Tey is an error for Marks Tye, Tye being the customary word in Essex and Suffolk for a bifurcation of roads.

(if I have correctly translated the passage) ; and Decianus Kalus (the Superintendent of the island) asserted that these sums were to be treated as contributions (*ἀναπόρισμα*) to be sent to Rome. To this was added that Seneca—who was not only philosopher, poet, and Minister of State, but also the greatest usurer in Rome—having lent (*δανείσας*) ten millions (*χιλιάδας μυριάδας* ; which if in sestertii would amount to about 80,000*l.*) *ἀκοῶσω* (I do not understand this word) on sound hopes of interest, suddenly, and with violence, exacted the return of the whole ; that it was Boadicea (Voo-doo-ee-ka) who principally caused the rising of the Britons. In the usual history of this lady there is much to be corrected. She was *not* Queen of the Icenii, though of the royal family (*γένους τοῦ βασιλείου*). She had *no* husband or children. There is not the slightest allusion to *any* personal insult. She did *not* die in battle, but died from disease (*νόσῳ*) after the battle.

Boadicea, as Dion remarks, was greater than woman. She collected the army of about 120,000 men. She mounted a *βῆμα*, made in the Roman fashion, to raise her from the mud. She was tall in person, very awful in countenance, with keen eyes and a rough voice ; her abundance of yellow hair fell far down her body ; she had chain-armour of gold, a variegated vest, and a thick cloak.

A very long speech is given, of which the following are the principal heads :—The superiority of liberty to slavery ; the criminal character of the taxes, some even levied from the dead ; the Britons themselves are the cause of these evils, not having resisted them soon enough ; the habits of our enemies expose them to far greater difficulties than those which we endure ; and other remarks, finishing with a kind of enchantment over a hare.

The Britons proceeded to terrible and savage excesses, the worse because Plautius was absent, having gone to *Μῶνα* ; which, if it be the same as the *Μόνα* of Ptolemy, is the Isle of Anglesey. But this appears to me to be, etymologically, very doubtful ; and, practically, I think it very improbable that, in such a state of affairs, Plautius would have gone, by a difficult march, to such a distance. Plautius however returned, and a battle soon took place.

There is no difficulty in fixing on the site of this, one of the great battles of history. In the neighbourhood of Linton, at the north boundary of Essex, in a space perhaps of two square miles, are places which still bear the names of Study Camps, Castle Camps, Camp's End, Camp's Green, Camp's Castle. Every one of these has undoubtedly been the scene of a desperate struggle. And, finally, there are the three mighty mounds, known as the Bartlow Tumps, which, as I understand, have been identified as containing Roman remains.

Dion has given a long account of the various phases of the battle. Boadicea died of illness (*νόσῳ*), and the Britons were driven off the field. The battle was sufficiently decisive to prevent the re-appearance of the Britons in force ; but still it appears, I think, not to have made a complete conquest.

The news was welcomed at Rome with very great interest by the Emperor, the Senate, and every rank of society.

G. B. AIRY

THE EUROPEAN PREHISTORIC RACES

IT would be difficult to overrate the scientific value of the discovery of human remains made last summer in Belgium, and briefly noticed in NATURE of February 24 (p. 405). Hitherto serious doubts have prevailed regarding the true character of the Canstadt, Neanderthal, Eguisheim, Olmo, and four or five other skulls, which are collectively referred to the oldest known race in Europe, but which, owing to their apparently exaggerated simian features, have been looked on with suspicion by Pruner, Virchow, and others, as possibly exceptional or

even mere pathological specimens. But these doubts have at last been set at rest by the lucky find made last June by MM. Max Lohest and Marcel de Puydt, who, during their explorations of a cave on the slope of a wooded hill on the banks of the Orneau, in the commune of Spy, province of Namur, came upon numerous remains of two individuals amid hitherto undisturbed Lower Quaternary deposits, and in association with the bones of *Rhinoceros tichorinus*, *Elephas primigenius*, *Ursus spelæus*, *Hyæna spelæa*, *Felis spelæa*, the horse, wolf, sheep, and other now extinct and surviving Pleistocene animals. These remains have been carefully examined by M. Julien Fraipont, Professor of Animal Palæontology in the University of Liège, who unhesitatingly refers them to the Palæolithic race, to which King's expression "*Homo neanderthalensis*" may now be confidently applied. Taken especially in combination with the peculiarities of other parts of the skeleton, such as the evidently angular position of femur and tibia, implying a non-erect or stooping attitude in standing or walking, the skulls of the two Spy men show clearly that those of the Canstadt and Neanderthal men are in no way aberrant, but perfectly normal specimens. They obviously represent a Palæolithic and pre-Glacial race, the earliest of which there is any distinct record, which was already spread over West Central Europe in early Quaternary times, and which De Quatrefages and Dr. Hany now believe may ultimately be traced back to the later Tertiary epoch.

A far better idea of the physical characteristics of the *Homo neanderthalensis* can be had from the remains of the Spy men, than from any others hitherto brought to light. Prof. Fraipont, who devotes a lengthy memoir to the subject in the *Bulletin* of the Royal Belgian Academy for December, gives detailed osteological descriptions of the two more or less perfect skeletons, from which it appears that of one there are extant : the skull, relatively very complete ; the right portion of the upper jaw, with five molars ; a fragment of the left portion, with the two premolars, incisor and canine ; the under jaw, nearly complete, with sixteen intact teeth *in situ* ; a left clavicle ; the right humerus, less the upper epiphysis ; the left humerus, less both epiphyses ; the left radius ; the right femur, nearly complete ; the left femur, complete ; the left tibia, complete ; the right heel. Several of the parts here missing are supplied by the second skeleton ; and there are also numerous vertebrae, fragments of ribs, &c., which cannot with certainty be referred to one rather than the other.

The first skull (No. 1) includes : the frontal bone from the superciliary arches and naso-frontal suture to the parieto-frontal suture ; the right parietal, nearly complete ; the upper half of the left parietal ; the occipital, less a considerable portion of the region of the cerebellum. Of the second skull (No. 2) there remain : the frontal, very nearly complete ; the right and left parietals, complete all but a few fragments of the former : the right temporal, nearly complete ; the left temporal, complete ; the occipital, less a portion of the region of the cerebellum.

The first is very long, very depressed from above, and narrow, being decidedly platidolichocephalic, with cephalic index 70, as compared with 72 of the Neanderthal skull, and 67.65 of the Clichy. The second is subplatidolichocephalic, with apparent index 74.80, and general characters less pronounced than those of No. 1, but not to such a degree as to prevent the two from being referred to the same race. Of both, the longest antero-posterior diameter is about the same, 200 and 198 to 200 mm. respectively, the former corresponding exactly with the Neanderthal. But the transverse differs considerably, being 140 and 150, between which comes the Neanderthal with 144 mm. On the other hand, the antero-posterior frontal curve of the first coincides exactly with that of the Neanderthal, the frontal itself being, like it, low and retreating. Another typical feature of this