safe descent, but it would be doubtful to say what would happen in descending with this velocity if you were to strike against a projecting piece of lava embedded in it. Possibly, and very probably, you would lose your equilibrium, and be thrown forward, and arrive at the bottom of the descent in a very different manner and condition to what you expected at starting. On arriving at the base of the cone, I made my way across the lava beds to the Hermitage, after a toilsome trudge, and thence drove to Resina, and took train to Naples.

3. ON SOME NEW CRAG FOSSILS.

By ALFRED BELL, Esq.

EXCURSION TO PLUMSTEAD AND CROSSNESS.

JULY 5, 1873.

Directors—HENRY WALKER, Esq., F.G.S., W. WHITAKER, Esq.
B.A., F.G.S., AND FRANK E. HOUGHTON, Esq.,

(*Report by Mr. Walker*).

The party, which included a number of visitors from the Working Men's College Field Club, left the Cannon-street Railway Station for Abbey Wood by the 3.2 p.m. train. The principal object of the excursion was the inspection of the sunk forest-bed which underlies the marshes at Plumstead, and is visible at low tide in the river Thames.

On arriving at Abbey Wood, the company proceeded across the marshes, a distance of two miles, to the ground occupied by the Metropolitan Main Drainage Works at Crossness, admission having been kindly granted by J. C. Bazalgette, Esq., C.B. At this spot, where they were met by Mr. Houghton, the resident engineer, the intention was to take boat and inspect the submerged trees, which are exposed at low water, on the Essex side of the river, immediately opposite Crossness. The tide, had, however, already risen too high for this part of the programme to be carried out, but fortunately another exposure of the forest-bed had been provided for the occasion. By the direction of Mr. Houghton, the marsh had been opened for a depth of eight feet; at this section the buried land surface was well seen.

The section was as follows :—

Alluvial deposit	2 feet.
Yellow Clay	3 „
Blue Silty Clay	3 „
Peat bed, with stools of trees still rooted —	

The succeeding deposits are thus given by Mr. Whitaker, in the details of the Crossness Well-boring in the same marsh :—

Peat with remains of trees	6 $\frac{1}{4}$ feet.
Dark-grey Silty Clay	1 $\frac{1}{2}$ „
Thin layers of Peat and Clay, with decayed wood full of phosphate of iron	1 $\frac{1}{2}$ „
Dark-grey Silty Clay	2 $\frac{1}{2}$ „
Silty Sand	2 „
Valley Drift and Oldhaven Beds (?) .	49 „
Woolwich Beds	—

The Members then examined the peat-bed for themselves. Among the stumps and trunks of trees (some of which were of considerable size), the oak and alder were recognised, a catkin of the latter being remarkably well preserved. Mr. Houghton exhibited some articles of furniture made from oak taken out of these marshes during the excavations for the Main Drainage Works.

The forest-bed has a considerable range. “From the bed of the river (in which the peat is found by soundings) the forest passes under the marshes of Kent on the one side, and Essex on the other, where it is concealed by the overlying alluvium, and is only revealed by excavations. The same forest was found under the alluvium in excavating the docks about the Isle of Dogs, and in excavations in Lambeth and Wandsworth marshes.

“During the excavations in Plumstead Marshes for the Southern Outfall Sewer in 1862-3, the forest bed was well exposed.

“Mr. Searles V. Wood, Jun., F.G.S., writes :—

‘I followed the forest from Woolwich Arsenal to Crossness Point continuously. Hundreds of trees had been dug out, and were lying on the surface, and we saw some great stools rooted in the gravel. The depth of these stools below the high water mark of spring tides in the river was about 25 or 30 feet, the marsh surface itself being in places many feet below this spring tide level.’

* “Memoirs of The Geological Survey,” Part I, p. 460.

‘At Dagenham Docks, on the Essex shore, the trench was open some four or five years since, and the section of the forest on the gravel exposed. There was a heap of the peat hard by, and out of this you could pick sprays and leaves of oak as fresh as out of any ditch bottom where they had only laid a year or two.’

‘The existence of this Forest bed in the Thames is considered by Mr. Wood to confirm his own original views as to the history of the river. Mr. Wood believes that ‘The Thames had formerly no outlet to the area now known as the North Sea, and that the drainage from Middlesex, Essex, and their adjoining counties passed into the Weald, by channels of which three can be traced in trumpet-shaped openings. One of these is at Merstham, near Croydon, another is the valley of the Darent, and the third is the valley of the Medway, the present eastern outlet of the Thames having been effected at a very late period.’ Mr. Wood contends that ‘The Thames is quite a modern river, and has no connection with either the great gravel sheet or with the Cyrena brick-earths of Grays, Erith, Crayford, Tottenham, Homerton, Shacklewell, &c.; that, in fact, it came into existence as a line of drainage from London to the North Sea only after the elevation and desiccation of the Post-glacial sea-bed of the Weald had put an end to the drainage from Middlesex, Essex, Kent, &c., passing into that area; and further, that the origin of the Thames is coeval with that of the North Sea, which was principally a land area when the Thames gravel was deposited and the sea was over the Weald. The same depression which gave origin to the North Sea during the elevation of the Weald caused the old land valley through which the Thames now runs east of London to sink, giving rise during the process to swamps in which peat accumulated over the forest, until the drainage, finding its way to the sea by this new outlet, the present Thames river became established. Its waters in their natural unembanked state, by depositing the marsh mud, then sealed up and preserved the old land surface. Submerged land surfaces of this period occur at many points of the English Coast, the depth at Grimsby in Lincolnshire being as much as fifty-two feet below high water of Spring tides.’ (Quart. Journ. Geol. Soc., Vol. 241, p. 157.) The stretch of this forest-bed in a continuous line across the valley bottom between Kent and Essex, inclusive of the bed of the river, proves,’ Mr. Wood contends, ‘that whatever difference in elevation there may have been, no land drainage at all approaching in volume to that carried by the Thames, still

less the more copious snow and rainfall of the epoch of the forest, could at this epoch have flowed through the valley now occupied by the Thames east of London.'

"The earliest account of the submerged Forest at Plumstead seems to be that given nearly 150 years since, by Captain Perry, the famous engineer who repaired Dagenham Breach, who describes the fossil trees as 'moor-logs,' the name given by the Thames watermen. Captain Perry gives the species of the trees—hazel and willow—and the mode of their occurrence. A little later (in 1710) an account of the forest as revealed at Dagenham appeared in the 'Philosophical Transactions' from the pen of Mr. Derham, who mentions the names of the following places where he traced this same subterranean forest—Dagenham, Havering, Rainham, Wennington, Purfleet, West Thurrock. Both Captain Perry's and Mr. Derham's accounts are quoted in detail by Dr. Buckland, (Trans. Geol. Soc., 1817, Vol. iv.)

"Remains of reindeer, elk, and ox are found to-day in the forest bed associated with flint implements of the Neolithic period."*

Having been furnished with the above details, the company were invited by Mr. Houghton to inspect a collection of objects taken out of the peat, and some coloured diagrams made from personal observation of the Main Drainage excavations across Plumstead Marshes in 1862. The alternation of horizontal vegetable bands with silty clay was well shown. Some interesting and instructive facts bearing on the origin of sunk forests in river estuaries were given by Mr. Whitaker, who did not agree with Mr. Wood's account of the Plumstead forest-bed.

The Crossness Well-boring was then visited, it being understood that the work suspended in 1869 is about to be resumed immediately. Up to the present time the boring has descended through the following deposits :—

	Feet.
Alluvium of modern Thames, overlying a Forest-bed	
with Mammalian remains (Post-glacial)	22½
Valley Drift and Oldhaven Beds	49
Oldhaven Beds or Woolwich Beds	16
Carry forward	87½

* The paragraphs here quoted are from a circular specially prepared for the excursion by Mr. Walker, copies of which were distributed among the Members. The circular also contained an original section drawn by Mr. S. V. Wood, jun., extending from Bostol Heath across the Thames at Crossness, and as far as Ripple-side in Essex, showing the position of the sunk forest-bed, and the supposed fault at the Crossness Well-boring.

Brought forward.	87½
Woolwich Beds	14
Thanet Sands	32
Chalk	646½
Upper Greensand	12
Gault Clay	148
Total	<hr/> 940

"There is every reason to believe," says Mr. Prestwich, "that the base of the Gault will be reached by prolonging the boring another forty or fifty feet."

Cores of the various deposits obtained during the boring were exhibited by the Engineer, and inspected by the visitors. The bearing of the enterprise upon the question of the proximity of the Palæozoic rocks to the Gault was explained, and particulars of the results of similar borings were given, including those at Kentish Town, Harwich, Ostend, Calais, Hames (near Calais), Valenciennes, Flines Nord, and Mons. The company then returned to Abbey Wood Station for town.

EXCURSION TO MALVERN,

JULY 21ST, 1873, AND FIVE FOLLOWING DAYS.

Directors—R. B. GRINDROD, Esq., M.D., LL.D., F.L.S., F.G.S.; the Rev. W. S. SYMONDS, M.A., F.G.S.; and the Rev. ROBERT DIXON, M.A., LL.B., F.G.S.

(*Report by J. Logan Lobley, F.G.S.*)

The Members having assembled in the Museum of Townshend House, Dr. Grindrod described his well-known collection of the rocks, minerals, and fossils of the Malvern District. The palæontological collection, although a very large one, consists almost entirely of palæozoic fossils, and is arranged in stratigraphical order. The student is accordingly at once made acquainted with the characteristic species of each formation in the district. Above the cases containing *Cænterata*, *Echinodermata*, and *Mollusca*, each of which groups is abundantly represented, a glass-covered case extends along the whole length of the room, and is filled with, perhaps, an unrivalled collection of British Trilobites. Most of the specimens