to pass, while the other parts remain uninjured. It is not quite so transparent as glass, but it is not so much less so as to be objectionable; but this circumstance is not important at Butterly, as, in consequence of the quantity of fluoric acid gas evolved from the fluuate of lime used as a flux in the blast furnaces, the glass in the windows is speedily acted upon, and assumes the appearance of being ground. Mica is a little more expensive than common glass; but, as its duration promises to be much longer, it must be more economical; and if an extensive use of it could be induced, a more ready supply would be obtained—probably from Pennsylvania or from Russia, where it is commonly used for windows in farm-houses, and also on board ships of war, as it is less liable to be fractured by the concussion of the air during the discharge of heavy artillery. It can be procured of almost any dimensions necessary for ordinary purposes, as it has been found in Russia in masses of nearly 3 feet diameter. It is susceptible of very minute subdivision, as, according to Häüy, it may be divided into plates no thicker than one three-hundred-thousandth part of an inch.

“On a Specimen of White Cedar from Bathurst, New Brunswick,” sent by Mr. Churchill.

White
Cedar
Railway
Sleepers.

The specimen exhibited to the meeting was of the dimensions calculated for a railway sleeper, for which use it was proposed to introduce this timber, as it is stated to possess, in a very superior degree, the quality of durability in situations calculated to try its properties. It can be imported at about 3*s.* 9*d.* to 4*s.* per sleeper.

Mr. Hawkins observed, that he knew that species of timber well, having seen it extensively employed in the United States. It is an evergreen tree, and grows only in wet or boggy grounds, and is found most plentifully in New Jersey, Maryland, and Virginia. It attains the height of 70 to 80 feet, but is rarely more than 3 feet in diameter. The concentric circles in it are always perfectly distinct, and prove that the tree only arrives at its full growth after a long term of years—as many as 277 annular rings have been counted in a trunk 21 inches diameter, at 5 feet from the ground. The wood is light, soft, fine grained, and easily wrought. It has an aromatic odour, which it preserves as long as it is guarded from humidity. It resists alternations of dryness and moisture better than any other wood; and on this account is extensively used for shingles for roofing. They sell at Baltimore for 4 to 5 dollars per 1000. These

shingles will last from 30 to 40 years. It is in great demand for household utensils, so much so that a distinct class of coopers are called cedar coopers. It is used for boat building on account of its great buoyancy. Cedar boards are sold at Philadelphia at 20 dollars per 1000 feet. White cedar rails, with red cedar posts, form the most durable kind of fence, being known to have lasted from 50 to 60 years. The rails are sold at 6 to 8 dollars per 100, and the posts at 12 or 15 cents each.

Mr. Brunel did not think it was a cheap or a strong wood. He had used it chiefly for covering locomotive boilers, as it resisted heat better than any other wood. When he purchased some there was but little in the market, and it was consequently dear.

Mr. Joseph Horne objected to its use for sleepers on account of its tendency to split so easily; but he had found it resist wet perfectly.

April 7, 1840.

The PRESIDENT in the Chair.

The following were balloted for and elected:—Thomas Hawksley, as a Member; William Pole and John Dickenson, as Associates.

“Account of a series of Experiments on Locomotive Engines, more particularly on the ‘England,’ the ‘Columbia,’ and the ‘Atlantic,’ manufactured by Mr. Norris, of Philadelphia.” By Captain Moorsom, R. E., Assoc. Inst. C. E.

The engines of which the author more especially treats were constructed by Mr. Norris, of Philadelphia, and sent by him to England, under an agreement to supply “locomotive engines of a higher power, greater durability, and less weight,” than could be obtained in this country. They were to be subjected to fifteen trials within thirty days, and prove their capability of drawing “up a gradient of 1 in 330, a load of 100 tons gross weight at the speed of 20 miles per hour; and up a gradient of 1 in 180, a load of 100 tons gross weight at the speed of 14 miles per hour.” The pressure of the steam in the boiler was stipulated by the Grand Junction Company (on whose railway the trials were made) not to exceed 60 lbs. per square inch.

The construction of these engines is very simple, and the work plain. The boiler is horizontal, and contains 78 copper tubes, 2 inches diameter and 8 feet long each, with an iron fire-box. The