plants, among which were *Pecopteris Australis*, a *Sphenopteris* and a *Zeugophyllites*.

There are other places in Tasmania where coal is worked, but they are chiefly detached and isolated spots separated by greenstone ridges one from the other. I was not able to visit any other of these localities, but I should fear that the beds of coal in Tasmania are comparatively insignificant in an economic point of view, that the true coal-measures of the country have no great thickness, and that the seams of coal contained in them are but partial, thickening and thinning out perhaps along the same horizontal lines, and thus forming limited cakes rather than regular and persistent beds.

C. East Coast of Tasmania.

Rocks of the palæozoic formation, chiefly sandstones, are found at various points of the eastern coast, but greatly broken and obscured by the usual greenstone ranges and local exhibitions of other trap rocks. In Maria Island are limestone quarries which I did not visit, but from which I procured fossils, among which were some of the large *Pachydomi*, of precisely the same species as those from Wollongong in New South Wales.

At Spring Vale, about ten miles above Great Swan Port, is a patch of palæozoic rocks, not more than a mile or two in extent, forming a low gently undulating ground surrounded by hills of igneous rock. No section is exhibited, but blocks of the rock protrude through the soil. It is a fine compact quartz rock, charged with the usual fossils of the formation in great abundance. The rock reminded me strongly of the quartz rock of the Lickey Hill. The fossils of this locality were—

Fossils from Spring Vale.

<i>Fenestella ampla.</i>	<i>Spirifer Stokesii.</i>
<i>Producta rugata?</i>	— <i>crassicostatus</i> , sp. nov.
<i>Spirifer radiatus.</i>	— three others.
— <i>Darwinii.</i>	Stem of a Crinoidal animal.
— <i>Tasmaniensis.</i>	

On a Section exposed by the excavation at the New Steam Basin, in PORTSMOUTH DOCK-YARD. By Capt. JAMES, Royal Engineers, M.R.I.A. F.G.S. &c.

THE principal fact which this section exhibits is one with which every geologist is familiar. Almost every writer who has examined any extent of our sea-coasts has alluded to submarine forests, and pointed to them as a proof of the subsidence of the land within a comparatively recent period, and I should hardly have thought it worth while to present this section to the Geological Society, if it did not exhibit the facts in a much clearer manner than usually occurs. I may however observe, that I have myself seen the remains of forests, not only along the coasts of England in localities which have been described, but also in many places along the coast of Ireland which I believe have not been previously noticed, as in the counties of

250

Wicklow, Wexford and Waterford, and at Ballycotton, Kinsale and Castletown-bearhaven, in the county of Cork. These observations indicate that the subsidence in these islands was general as regards the southern portion of their areas*.

The substratum of the section described is the upper portion of the London clay (1); which is here very fossiliferous and dips to the north, or towards the chalk ridge at Hilsea. This however is merely an undulation of the strata, as all the lower beds are brought up in succession before we arrive at the chalk, and the red plastic clay from Stamshaw, about a mile to the north, is used for making the dams water-tight, a purpose for which, from its weight and tenacity, it is admirably adapted.

Resting on the London clay is the forest (2) with the roots of trees *in situ*, at a depth of $16\frac{1}{2}$ (in another place 29) feet below high-water. It dips towards the north and the inner part of the harbour. Similar remains may also be seen at low-water on the sea-coast outside the harbour, between South-Sea Castle and Lump's Fort; but I had not the means of ascertaining in either case, to what depth below the level of the sea the forest extends.

Amongst the peaty matter which is 2 feet thick in the same stratum with the trees, we find the *Lacuna Montaguei* indicating the presence of very shallow salt water and the growth of the *Zostera marina* on which that mollusk feeds. Over this peat is (3) a blue clay 4 feet thick similar to the present estuary mud, and containing the common shells now found in the harbour. Above this clay there is a bed of shingle (4), which seems to indicate that the sea at some subsequent period had broken into the estuary. One can well imagine how the low land along this coast may have been subject to such accidents: indeed if a violent gale or any other cause should carry away the narrow neck of shingle connecting Black House

* The Preventive Service men along the coast near Hastings get their principal supply of fire-wood out of the submarine forests in that neighbourhood at low spring tides.

Fort with the main land, the mud of Haslar Creek would be covered with shingle in a very similar manner. Above the shingle bed is another layer of clay (5) forming the bed of the present estuary. I shall not trouble the Society with any observations which the study of such phenomena as I have now described might suggest, as this subject has been so frequently and so recently discussed.

MARCH 10, 1847.

The following communications were read :—

1. *On the Structure of TRINUCLEUS, with Remarks on the Species.*
By J. W. SALTER, F.G.S., A.L.S.

HAVING met with some unexpected results during a study of the Trilobites, more especially with regard to the genus *Trinucleus*, so eminently characteristic of the *Lower Silurian* and *Cambrian* deposits, I wish to offer a few observations on some changes now necessary in nomenclature, and also on the structural peculiarities arrived at.

It is to classical feeling we owe the name of this genus, for Llhwyd's *Trinucleus*, published in the 'Philosophical Transactions' so far back as 1698, meant no more than the general term *Trilobite*, and could not, except by courtesy, set aside the name *Cryptolithus*, first proposed, with characters, by Green. Sir R. I. Murchison has revived the old and far more expressive name, and all subsequent European naturalists have adopted it.

The genus can hardly be confounded with any other—the peculiar perforated border and the small number of segments in the body, together forming an animal dissimilar from all related genera. Thus the genus *Harpes*, which has a broad punctate border, has numerous body-segments and a minute tail; while *Ampyx*, another close ally, though similar in the body, wants entirely the ornamented margin. The absence of eyes in the most common species has been supposed generic, and it may be so, for we only have a prominent tubercle in their place in the *Tr. seticornis*, which probably has only minute scattered lenses upon it; at all events vision seems not to be essential to this curiously constructed animal. *Ampyx* is equally destitute.

The facial suture,—stated by Lovén to surround the whole head,—has been detected by Emmerich and myself in its normal position: it may be seen in good specimens, but only on the under surface of the head, and not continuously. Its course is obliquely upwards from the eye tubercle (in one species) to the upper end of the glabella, where it appears to terminate in a solitary deep perforation, similar to those which surround the head (fig. 1, *a a* to *b b*).

The glabella, in good specimens, has an obscure furrow at the base on each side, independent of the conspicuous one which separates