

VIII. *Operation of the Teredo Navalis on Colonial Timber.*
 By SIR W. T. DENISON, F. R. S., &c. [Read 13th
 November, 1850.]

IN attempting to form an estimate of the cost of constructing and maintaining a range of wharves, whether along the sea-coast exposed to the action of salt water as at Hobart Town, or upon the banks of a river where fresh water can only operate upon them as at Launceston, one great element in the account will always be the relative duration of the materials which the engineer may have at his disposal; whether such materials be exposed to merely the common causes of decay, namely, the action of the air or the water, with the ordinary wear and tear of the structure of which they form a part, or to some local and peculiar action,—such as, in the case of timber, the destructive agency of the *Teredo navalis* and other worms.

One of the principal difficulties which is met with at the very threshold of an investigation into the duration of different kinds of material is the absence of a sufficient body of facts upon which any opinion can be formed; and, in order to remove this difficulty, it is most desirable that a permanent record should be made of any well-established facts which can bear upon the subject.

It is the peculiar province of Societies like this which I am now addressing to store up and record all useful information; and it is a wish to contribute in some small measure towards the performance of this part of the functions of the Royal Society, which has induced me to lay before the

members some few facts which have lately been observed with relation to the action of the worm upon some piles forming a portion of the Wharf. These Gum or Stringy Bark piles formed a part of the intended Franklin Wharf: they were driven in front of the proposed entrance into the new basin,* and have been necessarily removed in order to clear the entrance. From information, which I believe may be depended upon, it appears that they have been driven about eight years: they have been exposed during that time to probably a heavier wash of the sea than any of the piles on the New Wharf; but in other respects they are similarly situated to these.

The timber at the head and foot appears perfectly sound: that portion which was buried, by being driven into the sand composing the bottom of the harbour at the point from whence they have been removed, shows no evidence of the action of the worm, or of any other kind of decay; and the head above the line of high-watermark appears equally sound. Between these two points, that is, high-watermark and the surface of the ground, the piles appear to have been acted upon by the worm pretty equally;—the timber is not affected more between high and low watermark than at the bottom. Judging from the external appearance of the piles, it would seem that there have been at least two kinds of worm at work; the *Teredo navalis* has burrowed in places into the very heart of the timber: but the principal agent in the destruction would appear to be a smaller insect, whose action is altogether on the surface.

The piles which were examined averaged about one foot in diameter; they had been driven 10 or 12 feet into the ground, and the part acted upon by the worm was about 15 feet in length. In two instances the piles were girthed at

* Constitution Dock.

the soundest parts above and below the worm-eaten portions, and again at two points between these, and the results were as follows :—

	ft. in.	ft. in.		ft. in.	ft. in.
PILE A	{ Girth above 3 4½ }	mean 3 2½	Girth at worm-	{ 3 1 }	mean 3 0½
	{ — below 3 0½ }		eaten parts	{ 3 0 }	
PILE B	{ Girth above 3 2½ }	mean 3 0¾	Girth at worm-	{ 2 10½ }	mean 2 10
	{ — below 2 11 }		eaten parts	{ 2 9½ }	

By this it would appear that the first pile had been reduced in diameter about half an inch, and the second pile about one inch. As, however, the measurements were taken round the outside of the perforations made by the worm, this would not of course give an accurate estimate of the amount of injury done. The piles were therefore carefully scraped at the points where the measurements were made, until all trace of the action of the worm was nearly obliterated, or till the sound timber was seen; the measurements being then taken, the results were as below :—

	ft. in.	ft. in.		ft. in.
PILE A	{ Girth at worm-	{ 3 0 }	Girth of sound timber	3 2½
	{ eaten parts	{ 2 9 }	Mean of worm-eaten part	2 10½
		mean 2 10½	Difference	0 4
PILE B	{ Girth at worm-	{ 2 8½ }	Girth of sound timber	3 0¾
	{ eaten parts	{ 2 7 }	Mean of worm-eaten part	2 7¾
		mean 2 7¾	Difference	0 5

The mean of these differences would be 4½ inches in girth, or 1½ inches in diameter.

The absolute amount of the action of the worm in the harbour of Hobart Town from these observations would appear to be equivalent to a reduction of 1½ inches in the diameter of a round pile in eight years, or at the rate of about one-fifth of an inch per annum.

I do not give this as a fact sufficiently established to form the basis of an estimate, but as an approximation; and I should wish to suggest to others the advisability of commu-

nicating the results of their own observations upon the same subject.

I may remark, that the disturbance and muddiness of the water caused by the late operations at the entrance of the basin appears to have destroyed all the worms in the timber, which corroborates a fact which I observed at the harbour at Halifax, in Nova Scotia, when, though the worms were so destructive to the dockyard wharf as to make it necessary to cover them with copper,—yet the masts and spars lying on the mud, though not covered by it, were altogether untouched.

It would be desirable to ascertain to what extent the action of muddy water is injurious to these worms, as we might perhaps gather some hints as to the means of protecting the timber from their action.

IX. *A List of the Mammals indigenous to Tasmania.*
By RONALD C. GUNN, Esq., F.L.S.

THE following list of the indigenous Mammals of Tasmania is as complete as the very limited means of reference at my command admits. I believe, however, it will be found to be nearly correct. Where deemed necessary I have added a few remarks, but will enter more fully into their habits in a subsequent paper.

Ord. CHEIROPTERA.

The only two genera of Bats found in the island may be thus shortly distinguished :—

Nyctophilus, LEACH, TEMMINCK. Ears united ; nostrils in the front part of a short lunate groove.