

Fig. 14. Another Univalve, a different species to the last.

Fig. 15. Internal casts of a Bivalve (?) undetermined.

Fig. 16. *Orthis* sp., resembling *Orthis biforata*. Schlotheim.

N.B.—The originals of Figs. 13, 14, and 15 are from the Caroline Creek beds; the remainder are from the Table Cape conglomerate.

ECONOMIC VALUE OF THE AQUATIC PLANT *TYPHA LATIFOLIA*.

By JAMES BARNARD.

[Read 17th July, 1882.]

Actuated by a philanthropic spirit, Signor C. A. de Goyzueta, Italian Consul at Melbourne, recently addressed a communication to the Government of Tasmania in reference to this aquatic plant, and dwelling upon certain valuable properties which it possesses. The following is an extract from that communication:—

“The commander of the royal transport *Europa* when in this port (Melbourne) offered the Victorian Humane Society of Melbourne a sample of the buoyant mattresses used on board the Italian vessels for their efficiency as a life-saving apparatus in maritime disasters.

“The same society tested that mattress, and found that it can easily support two persons on the water; so that, deeply convinced of their utility, they came to the decision to promote the introduction into the colony of the plant those mattresses are stuffed with.

“By direction of His Excellency the Minister of Marine, I communicated to the said society, in answer to a relative question, that this plant, known in botany by the name of *Typha latifolia*, is an aquatic one, spontaneously growing in marshes and other stagnant waters in the southern as well as in the northern provinces of Italy; wherefore there is ground to believe that it might be introduced under every climate. It is very far lighter than water, hygienic, and lasts not less than any other vegetable used in stuffing mattresses.

“I thought it my duty, for humanitarian interests, to bring the above under notice, in the opinion that many lives would be spared were the *Typha latifolia* generally employed in preference to other vegetable or animal substances for the mattresses used at sea.”

Duly estimating the importance of bringing under public notice a plant of this useful character, the hon. Colonial

Secretary forwarded to the Royal Society Signor Goyzueta's letter, with an inquiry, "Whether the plant referred to existed in the Society's Gardens, and whether it was considered desirable to attempt its cultivation for economic purposes?" This being referred to the Superintendent of the Gardens, Mr. Abbott reports that *Typha latifolia* is not to be found in the Society's Gardens, nor, he believes, in any of the colonies; but "that *T. angustifolia* is abundant in most of the Tasmanian marshes, and it is probable that it might be utilised for the same purposes as the other species." On the second point, Mr. Abbott has great doubt whether the introduction and cultivation of this plant would be profitable; and suggests that "attention should be first directed to the species to be found naturally in the island, especially as even this is by some botanists held to be merely a variety."

While yielding assent to the sensible proposition that we should not overlook the species to be found indigenous in Tasmania, and testing its utility, still we should not forego the opportunity which seems to be presented to us of procuring for acclimatisation the distinctive plant to which is assigned the special qualities set forth. Whether the introduction and cultivation of the right plant should be profitable or not, there are much higher than pecuniary considerations involved in its favour.

The many lamentable disasters at sea and deplorable shipwrecks, which from time to time cause a thrill of horror like an electric shock to pervade the community, demand the adoption of every possible precaution against such dire calamities; and, simple as this remedy appears, it may yet be the means of snatching many a valuable human life from otherwise inevitable destruction.

Loudon, in his *Encyclopædia of Gardening*, describes three species of *Typha*, upon the authority of Willdenow, viz., *T. latifolia*, *T. minor*, and *T. angustifolia*, or Greater, Dwarf, or Lesser Cat's Tail; the generic name is taken from *τυφος*, a marsh, in which all the species naturally grow. *T. latifolia* he describes as one of the handsomest aquatics of the reed kind; its leaves are of a bluish colour, an inch in width, and 3ft. long. The pollen of the flower is very abundant, and a light being applied to it, a flash of fire is produced. Haller says that the roots are eaten in salad, that cattle eat the leaves, and that the downy seeds serve for stuffing pillows. The leaves are sometimes used by coopers, and introduced between the staves of their casks; and they are frequently used for making mats, baskets, chair-bottoms, and sometimes for thatch. Rubens, and other Italian painters after him, have put it into the hands of our Saviour as a sceptre when He was saluted as a king in mockery by Herod's soldiers. The plant,

Mr. Loudon adds, appears to be a native of every part of the world, in ponds, ditches, and by the sides of rivers and brooks. In the *Penny Cyclopædia* the three species of "Typha" are fully described, and "T. angustifolia" is figured. In reference to "T. latifolia" (and to this species only), the writer states that on the Continent the down of the flowers is used for stuffing pillows, etc.

In *Chambers' Encyclopædia*, it is stated that there are two species of "Typha" found in Britain. "T. latifolia" and "T. angustifolia," and are popularly known as Cat's Tail or Reed Mace. The former species is the most common, and is sometimes called Bulrush. It grows to the height of 5 or 6ft. The root stocks are astringent and diuretic, and abound in starch. The young shoots of both species are much eaten by the Cossacks of the Don, and are sometimes used in England under the name of Cossack asparagus. "T. angustifolia" and "T. elephantina" are used in India for making mats and baskets.

Sir Joseph Hooker, in his "Flora of Tasmania," speaking of the order "Typhaceæ," etc., refers the genus "Typha" to Australia, New Zealand, and Scinde in Western India. He remarks that, "the species are not well characterised; the Tasmanian one (meaning the 'T. angustifolia') seems to be the same as the English, though larger than the common European state of the same plant," and "is common in marshes, banks of rivers," etc.

With the knowledge of the properties of this plant, hope is entertained that it may lead to the creation of a new industry, in the manufacture of sea-going mattresses. A pattern mattress could, no doubt, be readily obtained from Melbourne, with all particulars of price and profit. An experiment could then be made to test the question whether a mattress stuffed with the down of an indigenous Typha, of whatever species it may be, would fulfil the conditions claimed for the life-preserving one. If successful, there can be little doubt that but few vessels would be unprovided with them; and thus a possible means of escape from a watery grave would be afforded in many cases of shipwreck on a coast and within a moderate distance of land.

In the previous part of the paper I had the honour to bring before the Royal Society the subject of the economic value of the aquatic plant, *Typha latifolia*; and I am now enabled, through the courtesy of the honourable Colonial Secretary, to add to these notes the result of the further correspondence which has taken place between the Italian Consul and the Government.

With his communication giving further particulars, Signor

De Goyzueta transmitted a packet of the seed of the plant, and also a sample of the buoyant mattress. The former was at once sent to the Superintendent of the Royal Society's Gardens, as recommended, with the view of trying "whether the climate and soil are favourable to the propagation of the plant;" and it is believed, however, that we possess in the seed of the Tasmanian Typha, whatever be its specific distinction, an equivalent material, and distributed in abundance throughout the marshes and river banks of the island, that will equally fulfil the same purpose. Samples of each sort have been submitted to the Government Analyst, Mr. W. F. Ward, with a view of testing their respective qualities and properties, and that gentleman has pronounced their physical characters to be almost identical, there being only a minute difference in their specific gravity, the Tasmanian seed being very slightly heavier, probably to be accounted for by the Italian species having been submitted to a cleansing process previous to manufacture into mattresses whereby all the denser particles have been eliminated.

In reference to its preparation for manufacture, the Signor states "that the elasticity and flexibility of the *T. latifolia* is obtained by cutting off its ears, and by submitting it to the action of ventilators, in order to clean it from every heterogeneous matter." He adds also that "the Italian Government pays for such mattresses, to be delivered in Spezia by the contractor of the Royal Marine, 12'95f., or 10s. 4½d. each."

In presenting the sample mattress to the Museum of the Royal Society, with a view to its becoming open to public inspection, the hon. Mr. Moore makes the following valuable suggestion:—

"It has occurred to me that the mattress might be made more practically available in saving life if it was constructed in two portions, but joined at the upper surface, and furnished with straps and buckles at each end. It could thus be instantly made into a life-buoy."

In the records of shipwrecks, how many cases of drowning have occurred within sight of land, and where a resource of the kind proposed would have averted sorrow from many a bereaved family. Instances of this sort must occur to every one without being specified. Sailors, as a rule, are proverbially reckless of danger, and disregard even ordinary precautions for their own safety; yet, when brought face to face with actual peril, and all hopes of escape seem vain, many are at once deprived of their presence of mind and yield to despair. In such cases this would be counteracted by the knowledge that at least one possible means of extrication from drowning was open to their grasp.

It is hoped that the attention of manufacturers will be attracted to the advantage of introducing this life-saving mattress into the marine service; and that the importance of its use on board ship will be generally recognised, and lead to the establishment of the industry. Our river craft and sailing boats more especially should be provided with it; and in these the mattresses could be utilised as cushions, and so be immediately available when necessity required in case of disaster.

DESCRIPTION OF SOME NEW MARINE SHELLS OF TASMANIA.

BY LIEUT. C. E. BEDDOME, I. N.

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No. 1.—DRILLIA WOODSI.

Shell elongately fusiform, turretted; spire longer than aperture, shining orange colour; sutures with a white line, below which is a band of white nodules; on the body whorl a row of white spots below the nodules; whorls 7; apex mamillated; aperture ovate; sinus deep; labrum thin. Long., 13 mill.; lat., 5 mill.; apert., 5 mill. Habt., Long Bay, D'Entrecasteaux Channel, 10 fms. I dedicate this species to the Rev. Tenison Woods, who has done so much for the conchology of this Island.

No. 2.—MANGELIA CANCELLATA.

Shell small, narrowly fusiform, turretted; fulvous brown; whorls 5, sloping angulate above plicate lengthwise; interstices broadly striate, giving the whole shell a cancellated appearance; aperture narrowly oval, lip simple. Long., 4.5 mill.; lat., 1.5 mill.; apert., 2 mill. Habt., Kelso Bay, Tamar River, 17 fms.

No. 3.—MARGINELLA PETTERDI.

Shell bulbiform, shining white; spire immersed; outer lip moderately thickened; columella with four plaits. Long., 9 mill.; lat., 4 mill. Habt., Kelso Bay, Tamar River, 17 fms. I dedicate this species to Mr. W. F. Petterd, who is a naturalist that has devoted most of his time to the fauna of the Australias, and has done more for the conchology of Tasmania than any one.

No. 4.—DRILLIA LEGRANDI.

Shell turretted, broad; ribs rounded, raised; interstices striate, with fine lines, which pass over the ribs; whorls 5,