

ON THE DISTRIBUTION AND HABITS OF THE
LARGE FRESH-WATER CRAYFISH (*ASTACUS*
SP.) OF THE NORTHERN RIVERS OF TASMANIA.

By C. GOULD, F.G.S.

I trust that the members of this Society may be interested in a few remarks, which I have to make upon the distribution and habits of the large fresh-water Crayfish which is so common upon the north side of the island.

I am not aware that this has been specifically described by naturalists, although its unusually large size, abundance in certain localities, estimation as a delicacy for the table, added to its facility of capture and observation should long since have acquired for it that attention at their hands.

Leaving its determination, however, to those within whose province it belongs, it is my purpose, as a field naturalist alone, to offer the result of a few observations, and collate them with other facts connected with the natural history of the island.

And in the first place must be noted the remarkable representative resemblance in most points, excepting size, of this to members of the Genus *Astacus* of the Northern Hemisphere.

Here we have yet one more of the many numerous examples of a certain similarity in point of type, if not of close specific resemblance, obtaining under equivalent conditions between the forms of life at one extremity of the globe, and those existing at the other, while strongly distinctive, but often gradational peculiarities attend the forms controlled by the opposing conditions of the intermediate tropical regions. Hence the difficulty of referring the existence of such representative or affinitive types to independent acts of creation—and the apparently more sustainable solution by the theory of biological metamorphosis.

To instance 1st. The Rats and Mice among mammals; 2nd. Plovers, Eagles, Snipes, Ducks, Owls, and Thrushes amongst birds; 3rd. The Locusts and Painted lady and Admiral Butterflies amongst insects; 4. The Ferns and Mosses among plants, will be sufficient for my present purpose.

I may next remark upon the limited nature of its distribution, as worthy of more than passing notice; occurring more or less abundantly in all the rivers upon the northern side of the island, and being entirely absent from those upon the south, it follows closely in its distribution that of the Blackfish, with which it is always associated in the rivers falling into Bass' Strait, with the one exception of the Esk, from

which, as far as my knowledge serves me, it is absent—while, on the other hand, the *Astacus* alone is met with in the tributaries of Macquarie Harbour. The range of these two then the *Astacus* and the Blackfish, is nearly the same, neither of them being found within the rivers flowing to the east or south coasts of the island. Yet there is nothing in the habits or the necessities of the *Astacus* which would explain its presence in, or absence from, respective rivers; although preferring deep still pools and reaches, in which it may shelter beneath submerged and partially decaying timber, it is also commonly found in the shallower and swift running portions, and there are few of the streams adverted to from which it is absent, which do not, as far as may be judged from appearance, offer in some portions of their course, the kind of harbour, and if one may use the expression, cruising ground to which the *Astacus* is familiar, while the myrtle shrouded waters of the higher portions of the Huon identically resemble the upper portion of the rivers to the northward, in which both the black fish and the *Astacus* abound.

As to its ordinary food much misapprehension has hitherto, in my opinion prevailed.

The eagerness with which it fastens on any animal bait, the threatening aspect of its general appearance, and the enormous crushing power of the claws with which it is armed, have induced the belief that it mainly exists upon fish which it has captured, or the large species of *Unio* found in some of the northern rivers, and the absence of the latter from the southern ones, were considered a sufficient explanation of its being wanting also. This, however, appears to me to be erroneous, and from my observation I have concluded that the capture of fish or other animal prey by the *Astacus* is a rarity, and that as in many instances the *Unio* is entirely absent from the rivers which it inhabits this as a source of its food must be entirely disregarded. Indeed, to my great surprise, I found upon dissecting numerous examples of the *Astacus*, that the contents of the stomach consisted almost entirely of crushed and torn fragments of semi-decayed wood, and I have arrived at the conclusion that the main source of its subsistence are the slowly decaying stems and snags with which the timber bordered rivers are always encumbered.

Now, as the adaptation of the *Astacus* to certain localities in consequence of the presence of especial means of subsistence is untenable, the decaying timber abounding equally in the southern with the northern rivers, it becomes imperative to seek another solution, and we are thus led in considering the reputed identity of the Blackfish of this colony with that abounding in Victoria, the close similarity of the species of

Astacus here with that found on the same continent, the existence here of certain marsupial forms (Thylacinus and Native Devil) and of fossil remains of the same in caves in New South Wales, and in deposits of a late tertiary period, coupled with many resemblances in the vegetation of the two countries, which I hope to develop and comment on fully at some future period—to recognise as a fact that at some late period, so late indeed as to be within the term of existence of an animal species, a direct connection has existed between this island and what may be termed the mainland of Australia, and the examples quoted above, and many others which might be added to them, are but the remains of a fauna and a flora once common to the whole, and that the species of *Astacus* and other forms have probably extended southwards to their present position, and been arrested in their further progress by some physical difficulty which a more extended acquaintance with the geological history of the recent formations may reveal to us.