

THE LESSER CHELONIAN OF THE NOTOTHERIAN DRIFTS.

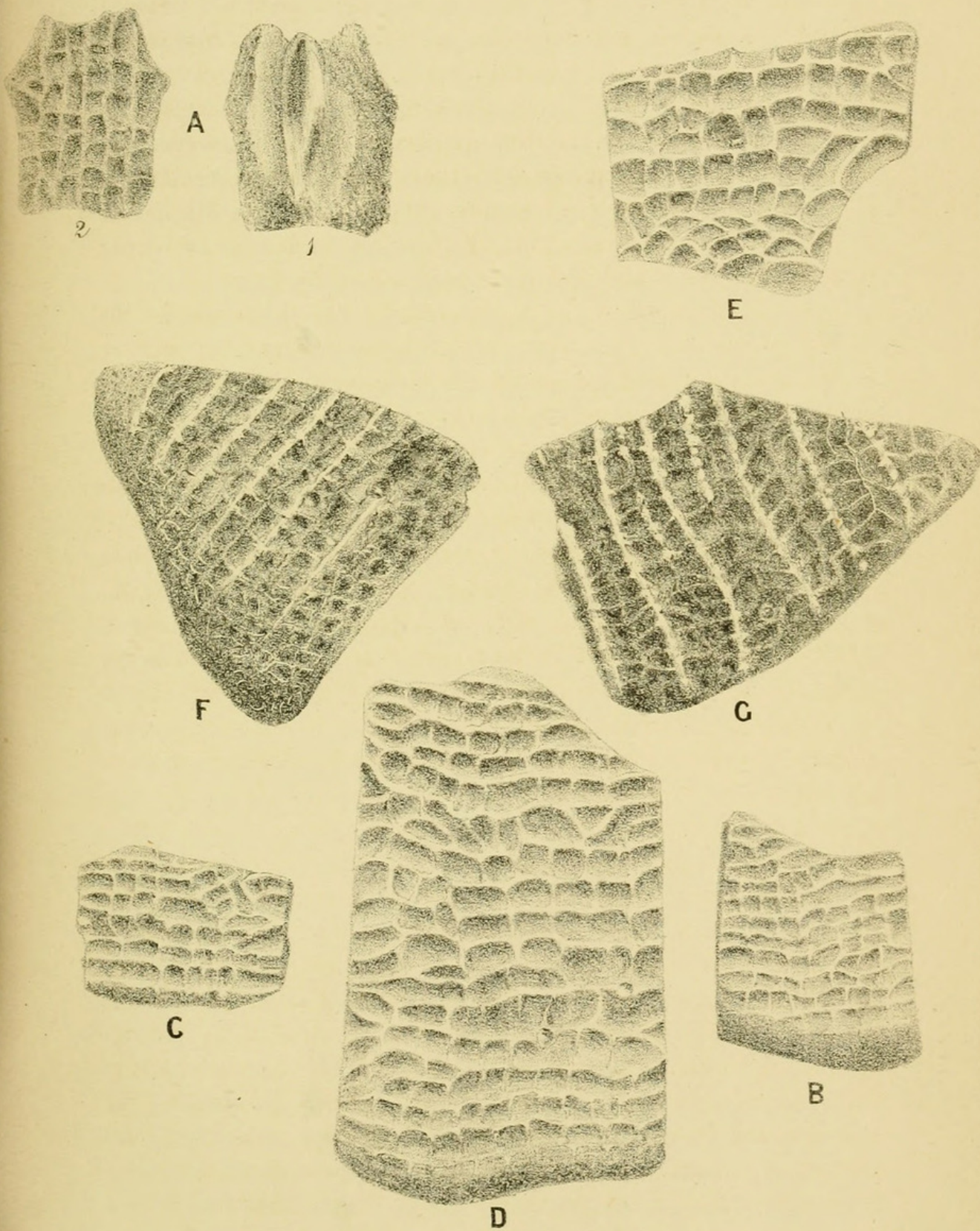
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[*Read before the Royal Society of Queensland, 22nd Sept., 1894.*]

REMAINS of freshwater tortoises, accompanying bones of Nototherium or its associated vertebrates, have been found on the Warburton River (in flood-time a continuation of the Diamantina), on Crinum and other creeks which help to drain the Peak Downs, on the Darling Downs generally but most abundantly at Chinchilla, and, finally, on a site (the Eight Mile Plains) a few miles distant from the present channel of the Brisbane River. With one partial exception they are disconnected fragments, scattered abroad by the invasion of running water into their previous burial-places. It is obvious that on a few only of such fragments we cannot safely base any determinations, unless we happen to find among them characteristic portions of known species; and further, that the value of any enquiry into the whole subject will be proportionate to the number of such fossils submitted to examination. Chelonian remains have been collected on the Darling Downs for several years, but as the writer was not, at the outset, fortunate enough to meet with a fragment indubitably belonging to a recent tortoise, he thought it his duty to wait until material had been collected in sufficient quantity to confirm or correct the judgment. It would be unprofitable to ascertain the actual number of fossils of this kind now in hand; it is enough to say that by measurement they would be equal to about five cubic feet. They have, it is hoped, proved a sufficient guide to the dominant forms of the period; twice their number would not throw sufficient light on the rarer kinds. We have, indeed, very much to learn respecting even

those species which seem to be most fully represented. Perhaps the writer may have committed no great error in distributing to each the fragments derived from it, but his attempted restorations of carapaces and plastrons are as like as not inaccurate representations of their natural form. But this risk was inevitable, since the relative proportions of the several constituent pieces of a carapace or plastron are clearly not to be ascertained from any number of fragments of all ages and kinds commingled. If, however, these sketches enable anyone to assign his fossils to their natural position in the shell, or test as it may be better termed, one useful end will have been served by them.

As the divisions of the tegumentary layer of the test by no means correspond with those of the bony stratum beneath, it would be well if zoologists who are concerned with the former only and osteologists whose observations are extended to the latter would devise and adhere to a distinctive terminology for each superficies; much confusion and contradiction would be thereby avoided. The osteologist necessarily finds in the Chelydidae a "nuchal" plate, at least a plate constant in that position which cannot be called other than nuchal; the zoologist may or may not find in a species of the family a "nuchal" shield marked off on the surface of the integument; if not, he must contradict his colleague, who, moreover, has to include in his "nuchal" plate a part of each of the surrounding shields of the zoologist to the dire misunderstanding of each observer. So of every other part. The marginals of the one are not the marginals of the other. The zoologist sees vertebrals which do not exist in the bone beneath; the greater part of the last "vertebral" has no more to do with vertebræ than has the "nuchal," and so on. The present writer presumes to complain of all this, but not to remedy it for others. At the same time he does not think it unreasonable that, in the present unsettled use of terms, he should, for the purposes of the following descriptions, employ those which seem to him convenient, rather than continue the use of ambiguities. In speaking of the carapace he will therefore call the anterior plate "lophial" instead of nuchal, the rib-plates "pleural" instead of costal, the hindmost plate of the dorsum "pygal," the hindmost of the periphery "uropygial" rather than pygal or caudal, the other



edging plates "peripheral" to distinguish them from the superficial marginals. In the plastron of the tortoises with which we have mostly to deal, the "episternal" is covered by the jugal, part of the interjugal when present, more or less of the humeral, and part of the azygous shield; the "brachioisternal" plate underlies the rest of the humeral and all the pectoral; the "merosternal" plate most of the abdominal shield; the "sacro-sternal" plate the rest of the abdominal and all the ziphisternal shield. The term "neural" is retained for the plates over the line of vertebræ in *Trionyx*.

It is hardly necessary to say that although the osteological elements of the test are too important, both in theory and practice, to be confused even nominally with the dermal shields, the value of the latter in determinative work may not be underrated; the grooves cut by their edges into the bone beneath are indispensable guides to the zoological position of the source of any fragment under examination.

The zoologist, with the whole reptile before him, can afford to neglect to a great extent indications of specific identity or difference offered by the superficial sculpture of the test. Not so the enquirer who has but bone sherds to examine; he is compelled to have constant recourse to such evidence, frequently to rely upon it alone; and duly allowing for variability and abrasion, he can generally do so with comfort.

The writer's thanks are due to Mr. R. Etheridge, Palæontologist to the Mines Department of New South Wales,* for an opportunity of examining the chelonian amongst other fossils lately found on the Warburton River and sent to him by the head of the Geological Survey of South Australia, Mr. H. Y. L. Brown, and for permission to figure one of them.

FAM. TRIONYCIDÆ.

GEN. TRIONYX.

Trionyx australiensis, *n.s.*

"In some of the creeks running more to the south-eastward from the Peak Downs, and like Theresa Creek, belonging to the Mackenzie River system (*e.g.*, Crinum Creek) occur bones of *Trionyx* and *Crocodylus*. A year or two ago I forwarded some of these to my friend, Professor Huxley, whose determination I

* Now Acting Curator to the Australian Museum, Sydney.

have not yet received.”† So far as the writer is aware, this is the only intimation we have had of the former existence of a *Trionyx* in Australia. The remains which he has to adduce in confirmation of Mr. Clarke’s discovery consist of a neural plate, the left moiety of a similar plate, portions of four pleural plates from the mid-region of the test, and two posterior pleurals.

It will be convenient to commence with these last, since they offer the most salient features for recognition. The left plate (Pl. X., fig. F) is perfect, with the exception of a small piece lost from the upper angle. This plate is triangular in form; its line of suture with its fellow of the opposite side is nearly straight, and 38.5 mm. in length; that separating it from the pleural anterior to it is somewhat convex and 50 mm. in length; its free distal edge is undulatory and 47.7 mm. long. Its outer surface is traversed by six moderately strong nodular longitudinal ribs which extend nearly or quite to a marginal band without sculpture. In the distal half of their course the descending ribs are crossed by much narrower and more closely set undulating ridges which, towards the proximal angle of the plate, gradually become obsolete. The free margin is on the average 6.5 mm. broad; it is a little roughened by minute elevations of the surface which is convex and bevelled off to an obtuse edge. Attached to the inner surface of the plate and 5 mm. from the anterior edge is a portion of a rib 9 mm. broad and 21.5 mm. long, running parallel with the edge; the surface of attachment extended distad 6 mm. beyond the present broken end of the rib, as is shewn by the scar left on the surface of the plate, but for the remaining space of 9 mm. the rib was free from the plate above it.

An ultimate pleural from the opposite side of a different individual (Pl. X., fig. G) is of rather larger size, as its free border measures 53 mm. in length, but is more imperfect, its proximal angle being entirely lost. The ribs in this example are the same in number but much stronger in development; the transverse ridges, on the other hand, are but little larger; an additional rib descends for a short distance between the middle pair and a less distinct intercalated rib is recognizable between the second and third anterior ribs; the free border is considerably

† Rev. W. B. Clarke, “Geological Magazine,” Vol. VI. 1869, p. 384.

narrower than in the previous example. On the inner surface the skeletal rib is somewhat narrower; it is preserved in place to the end of its surface of attachment which is much further, 25 mm., from the free edge.

Each of the plates described is about 6 mm. in thickness. The nearest approach to the pattern of their sculpture is made by an American Eocene species figured by the U.S. Geological Survey; vol. IV, Palæontology. p. 51, pl. 25, p. 10a.

The distal moiety of a right pleural plate 38.5 mm. broad at its free border and 34.5 mm. at a distance of 45 mm. from the border is shewn on Pl. X., fig. D. Near the border and parallel with it three undulating ridges pass from side to side; on the rest of the upper surface similar but stronger ridges, preserving a generally transverse direction, become tortuous, interosculate, or, joined by fainter descending spurs, form with them an irregular network; the free border is narrow and slightly shelving. On the inner surface the rib occupies the posterior half of the plate; it is 22 mm. broad and is attached to the whole length of the surface above it; the inner face of the free edge of the plate is bevelled off narrowly anteriorly but more broadly as it passes over the extended rib; the bevelled surface is impressed by a shallow groove.

Part of the proximal end of a similar pleural plate, Pl. 20, fig. E, differs from the preceding chiefly in having its rib a little removed from its anterior edge. In the subject of fig. B we have the distal end of a pleural plate from a young carapace; this also has the characteristic pattern of pleural sculpture, with a broad margin and a rib occupying the middle two-thirds of the inner surface. Fig. C represents a fragment of a pleural from near the free border.

The neural plate shown in fig. A, 1-2, is in form an unsymmetrical hexagon with anterior lateral sides shorter than the posterior laterals and the posterior side concave. The outer surface is covered with a network of low ridges; the inner has the usual double ridge for the attachment of a vertebra. A left half of a second example of this plate is not figured.

Loc.: Darling Downs. One of the specimens was obtained by W. Hann's Northern Expedition in a locality unrecorded.

[*To be Continued.*]



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