

TRANSACTIONS

OF

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THE ZOOLOGICAL SOCIETY  
OF LONDON.

VOLUME I.



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LONDON:

PRINTED FOR THE SOCIETY,

BY RICHARD TAYLOR, RED LION COURT, FLEET STREET;

AND SOLD AT THE SOCIETY'S HOUSE, BRUTON STREET;

SOLD ALSO BY LONGMAN, REES, ORME, BROWN, GREEN, AND LONGMAN,  
PATERNOSTER-ROW.

1835

XXXVIII. *Observations on the Genus Cancer of Dr. Leach (Platycarcinus, Latr.), with Descriptions of three new Species.* By THOMAS BELL, Esq., F.R.S., L.S., G.S., & Z.S.

Communicated June 9, 1835.

IN the course of the gradual distribution into various genera of a group of animals previously arranged under a single generic term, it is not always a matter devoid of difficulty to decide by which of the newly distinguished groups that original appellation should be retained; and different rules have been laid down, and different principles resorted to, by various naturalists on this point, whilst others have been wholly careless on the subject. The consequence of this discrepancy has been the absence of all unity of design in the present heterogeneous nomenclature of the different divisions of the animal kingdom, according to the varying views adopted by the individuals by whom each portion has been separately studied and developed.

It is undoubtedly desirable where a particular species can, with tolerable certainty, be recognised as having received a distinct appellation from any of the early masters of natural science, to retain that name for the genus to which the species belongs, and still to consider it as designating the smaller group in which it is included, whatever may be the changes and subdivisions made in the larger group to which it was originally attached. This is still more imperative when the name has been so applied by any modern naturalist, whose character for learning and accuracy is such as to give weight to his opinion in matters of nomenclature. It appears to me that the name which I propose to retain for the genus which is the subject of this paper is thus strongly recommended for our adoption, as being very probably the one by which the type of that genus was known to the older writers, and which has recently been applied by one of our most distinguished carcinologists, to the genus restricted by himself to the only species of it then known to him. The generic name *Cancer* was applied by Dr. Leach to the species *Canc. Pagurus*, with the full understanding that it constituted the type of a form distinct from all others of the family. I have therefore chosen this opportunity to claim for it the same distinction, upon the ground that the group was so designated by my distinguished friend, before the term *Platycarcinus* was applied to it by Latreille in the French Museum, and consecrated by Dr. Milne Edwards in his recent admirable work on the natural history of *Crustacea*; and also because, by applying any other term to this genus, we are obliged to restrict the word *Cancer* to a small and comparatively unimportant group, not a single species of which was probably distinctly known to any naturalist of early times.

When the characters of the present genus were first defined, the only known species

was the common *large eatable Crab* of our coasts, the *Cancer Pagurus*, Linn. To this the name *Platycarcinus* was given by Latreille; an infelicitous appellation certainly, as none of the species are characterized by any particular degree of flatness of the body, and some of them even possess a rather remarkable degree of elevation. Dr. Edwards, with great correctness and tact, united to the genus, thus restricted in its characters, a second species, the *Cancer irroratus* of Say; and to these I have the satisfaction of adding three entirely new and highly interesting species, collected by Mr. Cuming; an acquisition which, whilst it increases our opportunities of fixing and appreciating the characters of the genus, renders a complete revision of it necessary. It is, indeed, worthy of remark, that the specific character of *Canc. Pagurus* as given by Dr. Leach in his 'Malacostraca Podophthalma Britanniaë,' is applicable, with very little latitude, to all the species now known, as they agree, without exception, in the margin, on each side, having nine, or more properly ten divisions (the last being obsolete), in the front being trifid, and the carapax granulated.

The application of the name *Cancer* to the present genus renders it necessary to attach a new generic term to the group to which Dr. Edwards had appropriated it, and which he has characterized with his accustomed discrimination. It is very nearly allied to *Carpilius*, from which some of the species scarcely differ except in the form of the legs, which in *Carpilius* are round, and in the other group much flattened and fringed with hair. I propose for this genus the name *Platypodia*; and I conceive that in making these alterations in the nomenclature of this family, I am not intrenching on any of the acknowledged rules by which these matters are generally regulated, but rather, by so early an interference, contributing to their establishment.

The genus *Platypodia* on the one hand approximates to *Carpilius* by *Plat. rosea* and *Plat. interrupta*, and on the other to *Zozymus* by *Plat. lobata*.

Genus CANCER, *Leach.* (PLATYCARCINUS, *Latr., Edw.*)

*Antennæ externæ* articulo basilari maximo, anticè in dentem fortem producto, hiatum inter frontem et canthum internum oculi implente: portione mobili setaceâ, brevi, propiùs foveolæ antennæ internæ quam cantho interno oculi insertâ.

*Antennæ internæ* foveolis longitudinalibus, antrorsum porrectæ.

*Pedipalpi externi* caulis interni articulo secundo ad marginem antico-internum excavato.

*Pedum* par anticum subinæquale, paria reliqua ambulatoria.

*Abdomen* maris 5- fœminæ 7-articulatum.

*Oculi* pedunculo brevi.

*Testa* transversa, lata, ellipticè arcuata, marginibus antico-lateralibus decem-lobatis, lobo posteriore obsolete; fronte trifido.

The shell in this genus is broad, elliptical, somewhat elevated, and with the regions rather distinctly marked. The surface in all the species hitherto known is more or less granulated. The front is trifid, the middle tooth being sometimes lost in very old

specimens. The orbits have a rather strong tooth over the inner *canthus*; there are two parallel fissures above, and one beneath. The latero-anterior margin on each side extends as far backwards as the centre of the cardiac region, where it is lost in a sinuous granulated ridge which rises over the latero-posterior margin. It is divided into ten lobes, which are either quadrate, and therefore contiguous at the sides, as in most of the species; or lanceolate, as in *Canc. dentatus*: the last lobe is always very small, and often obsolete.

The external *antennæ* have the basilar joint broad, very long and thick, filling the hiatus between the inner *canthus* of the orbit and the front, and terminating forwards in a strong, angular, tooth-like projection, directed forwards and a little inwards, reaching beyond the frontal line. The terminal or moveable portion is slender, very short, and arises from the internal part of the basilar joint, nearer to the cell of the internal *antennæ* than to the orbit. The internal *antennæ*, instead of lying obliquely outwards or transversely, as in most other genera of this section, are directed forwards; a character by which *Cancer* may at once be distinguished from *Platypodia*, *Carpilius*, *Xantho*, &c. The second joint of the inner footstalk of the external pedipalps is excavated at the anterior part of the inner margin; in some species the notch is confined to the angle, in others it extends half way down the side of the joint. The first pair of feet is nearly equal; in some specimens of each species the difference in size being scarcely appreciable. They are generally very robust. The remaining feet have no spines, but are in most species more or less hairy. The *abdomen* of the male has five, that of the female seven, joints.

With the exception of our indigenous species, *Canc. Pagurus*, they are all, as far as their localities are yet known, exclusively natives of the coasts of the hotter parts of America.

#### 1. *CANCER LONGIPES*.

##### Tab. XLIII.

*Canc. testá leviter granulată, sparsim punctată; margine antico-laterali plicato, decemlobato, lobis contiguis, ad marginem minutè denticulatis; manibus lævibus, extùs lineis quinque impresso-punctatis; pedibus longioribus; abdominis articulo ultimo æquilateraliter triangulari.*

*Hab.* apud Valparaiso. (Cuming.)

♂ *Muss. Soc. Zool.*, Bell.

The general colour and thin texture of the carapax, with the long slender form of the legs, remove this species at first sight far from those which a nearer inspection prove to be very nearly allied to it; particularly *Canc. Edwardsii*, to which many of its most important characters so closely approximate it, as to require some care in expressing its specific diagnostic phrase.



The carapax is very broad ; the surface minutely granulated with scattered impressed points. The margin is divided into ten shallow contiguous lobes, the extreme edge of which has a number of small granular teeth, and which from the fourth to the ninth have one tooth more prominent than the rest. There is a peculiarity in this species which does not occur in any other of this genus, nor perhaps in the whole order ; the furrows which separate the branchial from the genital and cardiac regions, and which in most are distant, in some degree resembling the letter H, in this species coalesce on the median line, forming a single deep hollow ; and thus the outlines of the genital and cardiac regions are placed far apart, whilst the branchial regions closely approach each other. The front has three rounded lobes, of which the middle is the longest. The tooth over the inner *canthus* of the orbit is obtuse, and rather less prominent than the frontal lobes. The tooth-like process of the basilar joint of the external *antennæ* forms an obtuse angle. The legs are very long ; the third joint of the second pair extending considerably, and even that of the first in some degree, beyond the edge of the carapax. They are wholly without spines ; nor are they hairy in any of the specimens I have seen, with the exception of the last joint of the four posterior pairs. The first pair is thick and strong, and its surface smooth. A simple *carina* extends along the *carpus*, terminating in an angular projection ; and a similar *carina* occupies the upper edge of the hand, on the outer surface of which are five longitudinal lines of impressed dots, but without any elevation. The sides of the four posterior pairs of legs are also marked with lines of impressed dots ; and the last joint of each is furrowed at the sides, and has a longitudinal crest of hair on the upper, and two on the lower, edge. The last joint of the *abdomen* in the male forms an equilateral triangle.

Colour above light red, indistinctly dotted with yellow ; beneath yellowish. Tips of the claws blackish.

Length  $3\frac{1}{2}$  inches, breadth 6.

The only specimens which I have seen of this species were brought by Mr. Cuming from Valparaiso, where they are taken by nets in deep water : the claws are considered a great delicacy, and the fishermen are in the habit of breaking them off, and then throwing the animals, still alive, again into the water.

The indigenous name is *Boco*.

## 2. *CANCER EDWARDSII*.

### Tab. XLIV.

*Canc. testá granulatá ; margine antico-laterali decem-lobato, lobis latis, contiguís, profundè dentatis ; manibus suprà obsoletè tuberculoso-carinatis ; maris abdominis articulo ultimo anticè producto.*

*Hab.* apud Valparaiso. (Cuming.)

♂ Mus. Soc. Zool. ♂ ♀ Mus. Bell.

Carapax elevated, particularly at the gastric region; the surface almost uniformly granulated. The latero-anterior margin is divided into ten lobes, the sides of which are contiguous, and their margins deeply dentate, two of the teeth of each being larger than the others; the lobes become broader and shallower posteriorly, and the last is obsolete, passing into the granulated posterior ridge. The front has three teeth, the middle one being small, and in the old specimen from which this description is principally taken it is wholly lost. A strong tooth projects over the inner *canthus* of the orbit, and there is a smaller one beneath, immediately exterior to the basilar joint of the external *antennæ*, the strong process of which is rather obtuse and simple. The anterior pair of legs are very large and strong: they are not tuberculated as in *Canc. dentatus*, nor spiny as in *Canc. irroratus*; but there are slight indications of a double tuberculate *carina* on the upper edge of the hand, particularly in young individuals, and on its outer surface are five obsolete longitudinal lines. The four posterior pairs of feet are strong, nearly smooth, and terminated by strong, sharp, horny claws. There is no hair on any part of the body or legs in the specimens which I have seen. The last joint of the *abdomen* in the male is produced anteriorly; the fourth nearly quadrate, rather longer than broad.

Colour above reddish brown; beneath yellow mottled with reddish.

Length  $5\frac{3}{4}$  inches, breadth  $7\frac{1}{2}$ .

The adult specimen was taken by Mr. Cuming at the depth of twenty-five fathoms, on rocky ground; the younger specimens were caught by seines on sandy beaches.

I have dedicated this magnificent species of a genus the characters of which were first fully developed by him, to Dr. Milne Edwards, the author of incomparably the most complete work on Carcinology that has ever appeared.

### 3. *CANCER DENTATUS*.

#### Tab. XLV.

*Canc. testá granulato-scabrá, hispidá; margine antico-laterali decem-dentato, dentibus lanceolatis, denticulatis; manibus tuberculoso-bicristatis, extùs lineis quinque longitudinalibus granulatis; pedibus pilosissimis.*

*Hab.* apud Valparaiso. (Cuming, Miller.)

♂ Mus. Soc. Zool. ♂ ♀ Mus. Bell.

Carapax considerably elevated, and the regions rather strongly marked; the surface roughly granulated, hispid, with patches of small spiny tubercles, particularly towards the anterior part. The latero-anterior margin, instead of being but slightly divided into obsolete lobes, as in most of the other species, is deeply cut into sharp lanceolate teeth, the edges of which are furnished with numerous sharp denticulations. The posterior tooth, which reaches to the anterior part of the cardiac region, is smaller than the rest, and its posterior granulated margin passes off into the post-branchial ridge. The front

has three strong acute teeth, of which the middle one is the most prominent : there is also a strong triangular tooth over the inner *canthus* of the orbit, a smaller one over the outer, between the two superior orbital fissures, and a large one beneath the inner *canthus*, with a smaller one at its outer base. The tooth-like process of the basilar joint of the external *antennæ* is strong, prominent, acute, and denticulate at its margin, like those of the border of the carapax. The claws are very robust, and strongly marked. The *carpus* has several more or less complete lines of strong spiny tubercles, which terminate in two strong spines on the upper and anterior margin ; the hand is furnished on its upper edge with two crests of similar tubercles, which are extended to the moveable finger ; on the outer surface of the hand are five longitudinal equidistant raised lines, which are more or less tuberculate or granulate. The remaining feet are almost covered with long dark-coloured hair. The *abdomen* of the male has the last joint somewhat produced. That of the female is very large and protuberant.

Colour above rich reddish brown, somewhat mottled with yellowish, particularly in young specimens ; beneath red mottled with yellow.

Length of the largest specimen which Mr. Cuming brought home 4 inches, breadth  $5\frac{1}{2}$ .

This very handsome species was taken by Mr. Cuming at Valparaiso in deep water about rocks. I have also received a young specimen from Mr. Miller, who assigns to it a similar *habitat*.

#### 4. *CANCER IRRORATUS*, Say<sup>1</sup>.

##### Tab. XLVI.

*Canc. testá leviter granulatá ; margine antico-laterali decem-lobato, lobis contiguís, quadratis, ad marginem denticulatis ; manibus compressis, dentato-bicristatis.*

*Hab.* ad oras Floridarum (Say) et Americæ Australis (Cuming, Miller).

Carapax transversely oblong, regularly elevated ; the surface minutely granulated ; the regions but slightly distinct. Latero-anterior margin slightly divided into ten lobes, the anterior ones smaller and contiguous, the posterior broader and slightly diverging ; the edges minutely denticulated, each having one or two teeth larger than the rest. Front tridentate, the teeth triangular ; orbits oval, with a small tooth over the inner *canthus*, but none between the superior fissures, as in some other species. External *antennæ* with the basilar joint flat, its inner margin a little excavated, and its tooth obtuse. Pedipalps as in the other species. *Sternum* almost without hair, polished, numerous and minutely punctated. *Abdomen* very slightly fringed ; the terminal joint a little produced, terminated by a few longish hairs. Anterior feet compressed, angular, the wrist with a sharp spine above, projecting over the base of the hand ; the hands compressed, somewhat inflexed, crested, the crest denticulated, the external surface with five longitudinal elevated granular lines. The remaining legs slender, very long, compressed,

<sup>1</sup> Journ. Acad. Ent. Sci. Phil., vol. i. p. 59. t. 4. f. 2.



the antepenultimate and terminal joints longitudinally furrowed; the nail small and slender.

The colour of this pretty species is a light lively red above, with several curved lines of white spots over the branchial and hepatic regions, a white lengthened spot on each side of the genital region, and a white mark, like a V, over the intestinal. The anterior feet are of a darkish red above, the remaining legs dotted with purplish red. The under side is whitish.

The carapax of the female is less broad in proportion than that of the male, and as usual more elevated; but I do not observe, in the numerous specimens in my possession, that considerable difference which Say describes as being sufficient to occasion some hesitation whether they belong to the same species. The spots on the carapax are indeed much less distinct in the female, but they are sufficiently obvious in every specimen which I have seen of that sex.

Length  $2\frac{1}{4}$  inches, breadth 4.

#### 5. CANCER PAGURUS, *Auct.*

Leach, Mal. Pod. Brit., Tab. X.

*Canc. testá granulatá; margine antico-laterali decem-lobato, lobis quadratis, contiguís, integris; manibus lævibus.*

*Hab.* ad oras Magnæ Britannæ et Europæ Occidentalis.

Carapax transversely oblong, flattened, but little higher in the middle than at the sides, somewhat rounded before and behind; the surface minutely granulated, smooth, with the regions but slightly marked. Latero-anterior margin slightly recurved, divided into ten quadrate lobes, the sides of which are contiguous, and the margins entire; the last lobe inconspicuous, and passing into the posterior marginal line, which terminates immediately anterior to the posterior transverse ridge. Front trifold, the teeth of nearly equal length and size. Orbits round, with a strong triangular tooth over the inner *canthus*, which does not project so far as the front; and a smaller one filling the space between the two superior fissures. External *antennæ* with the basilar joint much elongated, and terminating forwards in an obtuse tooth; the first joint of the moveable portion club-shaped, the second cylindrical, the remaining portion setaceous. Internal *antennæ* directed forwards, the anterior half doubled directly backwards in a state of rest. The basilar joint broad, cup-shaped, its outer edge projecting forwards; the second joint (the first of the moveable portion) cylindrical, the penultimate with a small, hooked, and recurved process at the *apex*. Pedipalps as in the rest of the genus. *Sternum* minutely punctated, and furnished with small patches or lines of short scanty hair. *Abdomen* in the male with the margin fringed with short hair; the last joint forming an equilateral triangle. Anterior feet large, robust, smooth, without spines or tubercles, minutely granulated, the hand rounded, without crest, the

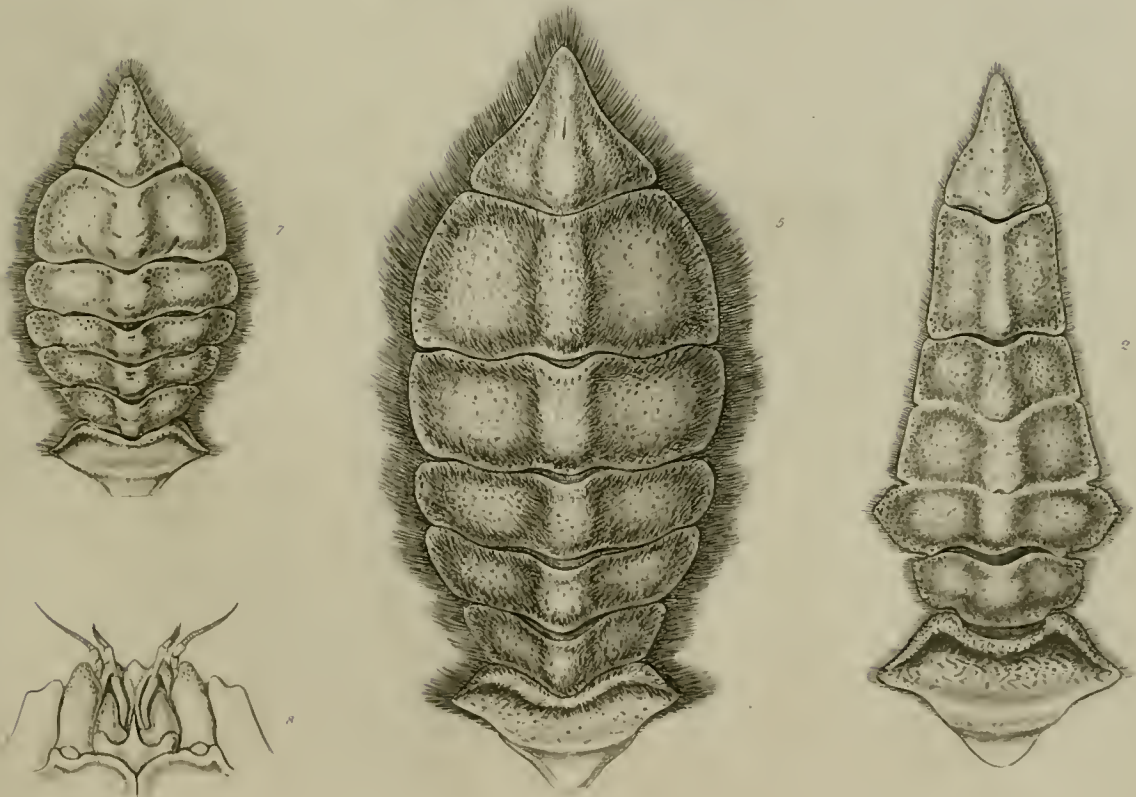
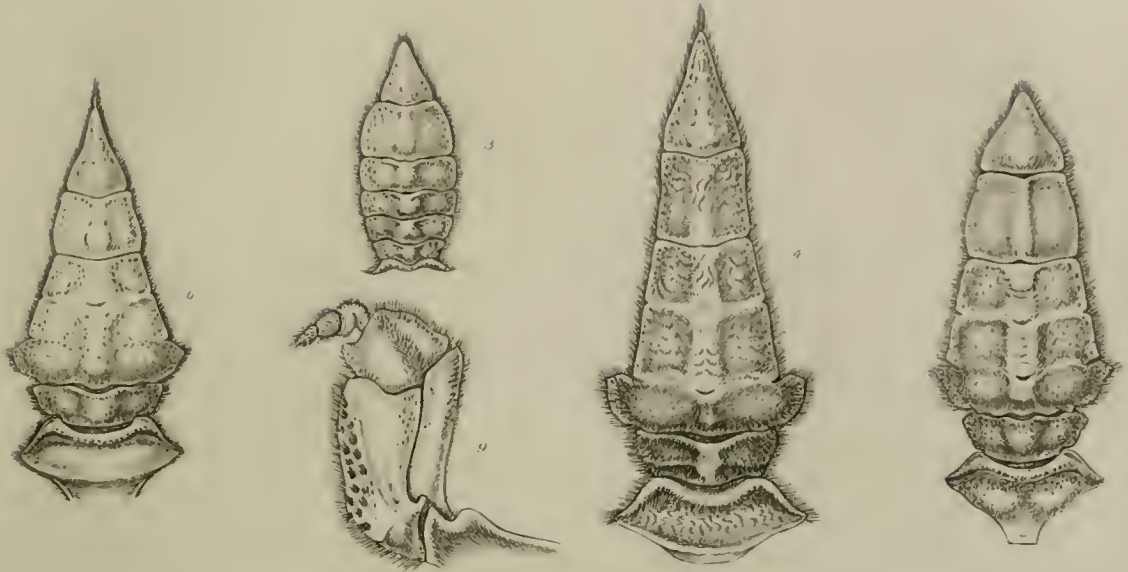


inner surface exhibiting only the rudiments of the five lines of *puncta*, so conspicuous in other species of the genus. The remaining feet furnished with numerous *fasciculi* of stiff hairs, the last joint in all furrowed, and terminated by a short strong nail.

Colour above reddish brown, the legs more red, the claws deep shining black ; beneath whitish.

## PLATE XLVII.

- Fig. 1. *Abdomen of Cancer longipes*, ♂.  
2. *Abdomen of Canc. Edwardsii*, ♂.  
3. *Abdomen of Canc. Edwardsii*, ♀, very young.  
4. *Abdomen of Canc. dentatus*, ♂.  
5. *Abdomen of Canc. dentatus*, ♀.  
6. *Abdomen of Canc. irroratus*, ♂.  
7. *Abdomen of Canc. irroratus*, ♀.  
8. Antennary region of *Canc. Pagurus*.  
9. Pedipalp of the same.

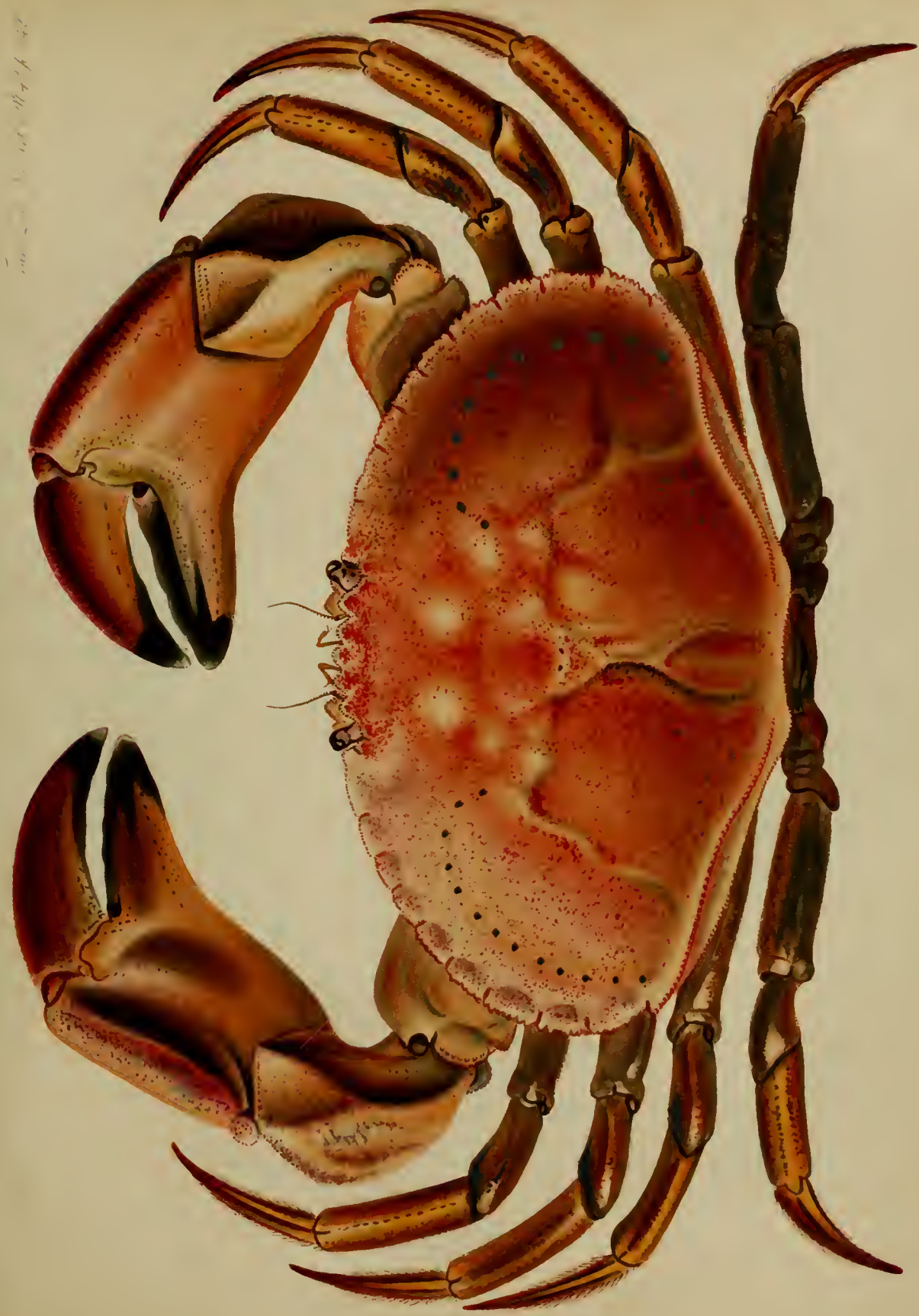


*A. ...*

*...*

*...*

*Callinectes sapidus*



*Callinectes sapidus*

*Callinectes sapidus*

*Callinectes sapidus*



Trans. Entom. Soc. Lond. Vol. 1, Pl. 44, p. 342



Illustration by G. Peckham

16. *Cancer*

*Cancer* Edmonstone

1. *Cancer* var.

*Tenthredinidae* *See Vol. 1, Pl. 419 p. 240*



*Proctos* *See* *Illustrationes*

*See* *Vol. 1*

*See* *Vol. 1*

*See* *Vol. 1*



Trans. Linn. Soc. Vol. 1, Pl. 46, p. 342



T. Horsfield del.

Edwards sculp.

London: P. Colnaghi del.

*Cancer erraticus*