

Descriptions of new species of Astacus from Georgia.

By JOHN LE CONTE.

A few years ago there were but three or four species of this genus known to inhabit the United States; lately Mr. Girard, in the proceedings of this Society vol. vi. page 86. has increased the number to eighteen or nineteen; but one however is from the South, *A. Blandingii*. I now add to this number eight more: two of them from the upper part of the State of Georgia, the rest from the low country. There are two more species which I have seen, but have not been able to obtain. What number of species are found in the rivers of the South is not yet ascertained. All those which I have seen were inhabitants of ditches, ponds and rivulets of clear water, or formed burrows in the mud of wet ground. Their extreme similarity renders it difficult to distinguish the species from each other, and this difficulty will undoubtedly increase as the number of species is multiplied. To what extent this number may reach cannot be guessed at; it appears however that when these animals come to be more closely studied, this number will be very great, and the passage of one species into another become almost imperceptible; so that among Crustaceans we shall have an analogous difficulty to that which exists among Uniones. Their color is generally lost with their life, so that it is of little value in the description. All that I have ever seen were much of the same color, a reddish-brown, inclining to a dark olive. The shape of the rostrum and of the chelæ and the size of the *Areola vertebralis*, afford the best characteristic marks. I have never known this last character to vary in any degree. In the two others there may occur slight differences of development, not however so great as to be of any moment. I do not find that any marks can be definitely pointed out, by which we can distinguish those which are subterranean from those which are aquatic.

A. TROGLODYTES. Rostrum paulo concavum, obtusiusculum cum acumine parvo, utrinque unidenticulatum, qui denticulus obtusus est, sæpius obsoletus, in junioribus magis conspicuus. Lamina antennalis subdolabriformis, pedunculum antennalem æquans. Cephalothorax grosse et sparse punctatus, lateribus antice et postice paucigranulosis; linea ordinaria sulcata. Thorax supra grosse et sparse punctatus, lateribus granulosis, granulis interdum vix conspicuis. *Areola suturalis* medio angusta. Dorsum grosse et parce punctatum. Chela magna, lata, evasa, tuberculata margine interiore dentata; digiti costati æquales, punctati basi tuberculati, interior concavus, exterior convexus. Carpus latere interno spinis dentiformibus, numerosis, spina media majore. Brachium margine superiore serratum, superficie inferiore lineis duabus spinularum, antice utrinque spina longiore. Caudæ lamellæ intermediæ pars anterior utrinque trispinosa.

Long. 3.7. Cephalo-thorax 1.16. Thorax .6. Abdomen 1.4. Cauda .54. Antennæ 3. Chela 1.5 lat. .55, forceps .9.

Habitat in Georgiæ oryzaceis, ubi spiracula 4 unc. alta format.

A. BLANDINGII. Rostrum concavum acuminatum, versus apicem vix utrinque unidenticulatum, sed lateribus subcontinuis ad acuminis extremitatem. Lamina antennalis subdolabriformis, pedunculum antennalem æquans. Cephalothorax et thorax supra punctati latioribus granulosis, hic spina parva e medio marginis lateralis; linea ordinaria non sulcata. *Areola suturalis* angusta. Dorsum glabrum seriebus parvis punctorum transversalium. Chela longiuscula, angusta, subcylindræa, punctata cum granulis: digiti æquales. Carpus extus punctatus; intus granulatus, granuli quidam anteriores quinque aut sex spiniformes. Brachium extus glabrum, intus parte anteriore granulatum, superficie inferiore lineis duabus granulorum acutiorum, vel spinarum parvarum. Caudæ lamellæ intermediæ pars anterior utrinque bispinosa.

Harlan, Trans. Am. Phil. Soc. 3, 464; Med. and Phys. Res. 229, pl. fig. 1.

Cambarus Blandingii Er. Wieg. Archiv, 1846, 1, 98. Girard, Proc. Acad. 6, 91.

Long. 3.5. Cephalothorax 1.16. Thorax .6. Abdomen 1.2. Cauda .54.

Habitat in Georgiæ et Carolinæ regionibus intermediis.

A. SPICULIFER. Rostrum concavum longissime acuminatum, denticulo parvo utrinque ad acuminis basin. Lamina antennalis dolabriformis, pedunculum antennalem æquans. Cephalothorax punctatus, granulis perpaucis parte inferiore lateris, linea ordinaria sulcata. Thorax punctatus spinis duabus e medio marginis lateris anterioris. Areola suturalis lata. Dorsum glabrum seriebus parvis punctorum transversalium, macula rubra in unamquamque articulationem ad latera. Chela magna lata, tuberculosa margine interiore dentata, digiti prope recti, æquales, tuberculati et punctati, non costati. Carpus tuberculatus, latere interiore tuberculis anterioribus majoribus, spiniformibus; latere inferiore seriebus duabus spinarum. Caudæ lamellæ intermediæ pars anterior utrinque bispinosa.

Long. 3.8 unc. Cephalothorax 1.3. Thorax 5. Abdomen 1.4. Cauda .6. Chela 1.43. Antenna 3. forceps .8.

Habitat in Georgiæ superiore.

A. FOSSARUM. Rostrum concavum, acuminatum, versus apicem utrinque subunidentulatum. Lamina antennalis pedunculum antennalem æquans. Cephalothorax supra punctatus, lateribus sparse tuberculosus, linea ordinaria sulcata. Thorax supra punctatus, lateribus granulosis. Areola suturalis modica. Dorsum glabrum seriebus parvis punctorum transversalium. Chela modice lata, tuberculata, margine interiore dentata, digitis gracilibus, carinatis, punctatis, interiore concavo, exteriori rectiusculo. Carpus tuberculatus, tuberculis lateris interioris dentiformibus. Brachium punctatum, latere superiore serrato, inferiore seriebus duabus denticulorum. Caudæ lamellæ intermediæ pars anterior utrinque trispinosa.

Long 2.6 in. Cephalothorax .8. Thorax .4. Abdomen 1. Cauda .4. Antenna 1.5. Chela 1. latitud. 3. forceps .45.

Habitat in fossis Georgiæ inferioris.

A. MANICULATUS. Rostrum subplanum, vix concavum, obtusum cum acumine, versus apicem utrinque unidentulatum. Lamina antennalis pedunculum æquans. Cephalo-thorax supra punctatus, lateribus sparsim granulosis. Areola suturalis angustissima, stria solum. Dorsum sicut in prioribus. Chela parva, angusta, tuberculato-punctata, margine interiore dentata, digiti recti, carinati, punctati. Carpus intus paucidentatus, dentibus tribus superioribus majoribus spiculæformibus. Brachium punctatum, latere superiore vix serrato, duabus tamen spinis brevibus anterioribus, inferiore seriebus duabus spinularum. Lamellæ caudalis intermediæ pars anterior trispinosa.

Long. 2.3. Cephalothorax .7. Thorax .35. Abdomen .82. Cauda .43. Antenna 1.3. Chela .5. Lat. .15 forceps .3.

Habitat cum priore.

A. PENICILLATUS. Rostrum vix concavum, obtusum cum acumine. Lamina antennalis pedunculum antennalem æquans. Cephalo-thorax supra punctatus, lateribus totis granulatis, linea ordinaria sulcata. Thorax punctatus, lateribus solum antice granulosis. Areola suturalis satis lata. Dorsum sicut in prioribus. Chela latiuscula punctato-granulosa, margine interiore serrata, digitis rectis costatis. Carpus punctatus latere interiore spinoso-tuberculatus, tuberculorum quorum infimus major. Brachium punctatum, latere superiore spinoso-tuberculatum, inferiore seriebus duabus dentium. Lamella caudalis intermedia pars anterior utrumque bispinosa.

Mas latere interiore chelarum pilositatem densam habet spongiam referente.

Long. 2.6. Cephalo-thorax .8. Thorax .4. Abdomen 1. Cauda .4. Antenna 1.5. Chela 1.1, lat. .3; forceps .45.

A. ANGUSTATUS. Rostrum concavum, valde acuminatum, utrinque versus apicem fortiter et acute unidentulatum. Lamina antennalis pedunculum antennalem æquans. Cephalo-thorax punctatus, parcius ad latera, adeo ut vix paucis punctis notatur, linea ordinaria apice spina armata. Thorax totus punctatus, parcius ad latera, tuberculis vel granulis nullis. Areola suturalis lata. Dorsum sicut in prioribus. Chela parva, angusta, subcylindrica, punctata, sine tuberculis

aut granulis, excepto margine interiore qui paucis denticulis inconspicuis instructus est, digiti recti punctati carinati. Carpus glaber, punctis tribus vel quatuor. Brachium glabrum, spinulis paucis latere superiore: inferiore seriebus duabus spinarum, quarum duæ anteriores majores et longiores. Caudæ lamella intermedia utrinque trispinosa.

Long. 1.95 Cephalo-thorax .6. Thorax .25. Abdomen .8. Cauda .3. Antenna .9. Chela .6. latitud. .2, forceps .3.

Habitat in Georgia inferiore, in aquæ puræ rivulos qui inter colliculos arenosos (*sand-hills*) currunt.

A. LATIMANUS. Rostrum breve, concaviusculum, obtusum cum acumine parvo. Lamina antennalis brevis subdolabriformis, pedunculi antennalis articulum inferiorem solum æquante. Cephalo-thorax supra punctatus, lateribus granulosus, linea ordinaria sulcata. Thorax supra punctatus, lateribus valde granulosus, areola suturalis modica. Dorsum sicut in aliis. Chela magna, latissima, extrorsum marginata, grosse punctata, ad latus internum tuberculata, digiti æquales, recti, late costati, punctati, interiore extrorsum et introrsum, exteriori introrsum tuberculato. Carpus punctatus, latere interiore tuberculatus, spina satis magna e medio prominente. Brachium punctatum, latere superiore bi-vel-trispinosum, spinis parvis, inferiore spinarum seriebus duabus. Lamella caudæ intermedia bispinosa.

Long 3.3. Cephalo-thorax 1. Thorax .6. Abdomen 12. Cauda .5. Antenna 2.6. Chela 1.2, latit. .65 forceps .6.

Habitat in Georgia superiore.

A. ADVENA. Rostrum subconcavum, breve, obtusum cum acumine parvo. Lamina antennalis parva, articulum pedunculi antennalis inferiorem solum æquans. Cephalo-thorax supra grosse punctatus, lateribus granulosus. Areola suturalis angusta. Dorsum sicut in aliis. Chela breviuscula, latiuscula, tuberculata, margine exteriori et interiore serrata, digitis carinatis, punctatis. Carpus grosse punctatus, latere interiore spinoso-tuberculatus. Brachium latere superiore, serie unica spinarum parvarum, quæ sensim deorsum diminuuntur, inferiore seriebus duabus spinarum parvarum. Caudæ lamella intermedia utrinque bispinosa.

Long. 2.9. Cephalo-thorax .9. Thorax .5. Abdomen 1.3. Cauda .4. Antenna 1.5. Chela .85. lat. 4. forceps .45.

Habitat in Georgia inferiore.

Hyeme vitam degit subterraneam. Æstate in fossis invenitur. Differt a præcedente magnitudine; chela non marginata et digitis non tuberculatis, excepto margine interiore digiti interioris.

In all the species of this genus which have come under my observation, I have observed that the following characters are found. The lamina antennalis is dolabriform, inwardly fringed, outwardly thickened, straight and ending in a small spine. The dorsum is smooth with transverse rows of punctures. The carpus has a deep longitudinal impression. The males also have on the second and third of the small legs a tooth directed inwards, in some species only on the second.

In drawing up these descriptions it will be observed that I have preserved the old name of *Astacus* in preference to the new appellation of *Cambarus*. The very slight and not very apparent differences which have been adopted to distinguish these two genera appear to me of little moment.

On a new species of Gelasimus.

By JOHN LE CONTE.

One species only of *Gelasimus* has long been known as an inhabitant of our salt marshes. I now offer to the Society, the description of a second species, found on the sea coast of New Jersey. It seems hitherto to have escaped the no-