

ing from 500 to 570 fathoms, where the soundings indicated a depth of 622 fathoms. A red, deep-sea Peneid, belonging to the genus *Gennadas* was found in the lower, closed part of the net.*

There can be no doubt that the deep-sea natatory Crustacea occasionally come to, or very near to, the surface. The first known specimen of *Hymenodora glacialis*, a species whose rudimentary eyes and whose structure point to the depths as its normal dwelling-place, was taken at the surface, off the east coast of Greenland. An immature specimen of *Acanthephyra agassizii* was caught at the surface, in a dip-net, during the cruise of the "Albatross" off the east coast of the United States in 1884. This specimen was kept alive for half an hour before it was put into alcohol.† A female of the nearly related, if not identical, species, *A. purpurea*, was captured during the "National" Expedition, swimming at a depth of less than 200 fathoms. Spence Bate records a specimen of *Gennadas* secured at the surface on the voyage of the "Challenger." *Amalopeneus*, a genus identical with, or at any rate most closely allied to, *Gennadas*, was found during the "National" Expedition at a depth of less than 200 fathoms. Yet the same thing was captured in the closing-net between 500 and 570 fathoms (bottom 622 fathoms) during the "Albatross" Expedition of 1891, and between 650 and 750 fathoms during the "National" Expedition. The genus *Eucopia* was first made known to science through a specimen recovered from the stomach of a penguin killed in the Antarctic Sea. This specimen was presumably captured by the bird in comparatively shallow water. According to Mr. Agassiz's notes made on board the "Albatross," the same Schizopod was captured in the open part of the Tanner tow-net between the surface and 300 fathoms at Station 3414 (2432 fathoms). Another individual, as we have seen above, was taken in the closed portion of the net at a depth of 1000 fathoms.

Spence Bate suggested that some of the free-swimming Crustacea of the deep sea may approach the surface to spawn, — a plausible theory if one bears in mind the sensitiveness of young animals to cold. As the bottom Crustacea of the deep sea may be supposed, from their structure and affinities, to have originated directly from littoral ancestors, so the deep-sea swimming forms have probably come from pelagic or surface species. It

* At Challenger Exped. Station 267 (2700 fathoms), in the mid North Pacific, a specimen of *Gennadas* was captured in the open tow-net which had only been lowered to within 700 fathoms of the bottom.

† See S. I. Smith, in Ann. Rep. U. S. Fish Comm. for 1885, p. 667, 1886.

may well be that after these types had become acclimated to the depths, their young still found in the ancestral surface life the conditions most favorable for their development. The toad still goes to the water to spawn, the land-crab goes to the sea. The journey of a swimming prawn from a depth of 1000 fathoms or more to the surface to spawn does not impress one as more remarkable than the periodic passage of anadromous fishes from the sea to fresh waters in their solicitude for the welfare of their young. The advantage gained for the race, too, through the wide dispersal of pelagic larvæ by the ocean currents is obvious.

Most of the Stalk-eyed Crustacea, as is well known, protect their eggs for a longer or shorter period after they are laid, either carrying them under the tail, or, as in the Schizopoda, brooding them in a special pouch beneath the breast. In many of the deep-sea species the eggs attain an enormous size before they hatch. From analogy with certain land and fresh-water species, we infer that in these cases the young quits the egg, or, which is the same thing, leaves the mother in an advanced stage of development, ready to lead a life similar to that of its parents. But it is a remarkable fact that none of the deep-sea swimming forms belonging to the family Peneidæ are ever found carrying their eggs. The natural inference from this is that the young must be quickly hatched, in a very immature state, best fitted for surface life, like the larvæ of the littoral species belonging to the same family. This certainly adds weight to Spence Bate's suggestion concerning the occasional occurrence of such forms at the surface. It is also worthy of note in this connection, that *Acanthephyra agassizii*, one of the Hoplophoridæ that has been taken at the surface, has eggs of normal size.

LIST OF SPECIES ARRANGED ACCORDING TO GEOGRAPHICAL REGIONS.*

Gulf of Panama (Stations 3381-3397 ; 56-1832 fathoms).

Cancer longipes.	Polycheles sculptus pacificus.
Xanthodes sulcatus.	Eryonicus cæcus?
Panopeus latus.	Pontophilus occidentalis.
Achelous affinis.	Glyphocrangon alata.
Platymera gaudichaudii.	Glyphocrangon nobilis?
Æthusa ciliatifrons.	Glyphocrangon sicaria.
Paralomis diomedææ.	Heterocarpus vicarius.
Lithodes panamensis.	Heterocarpus hostilis.
Pylopagurus affinis.	Nematocarcinus ensifer.
Parapagurus pilosimanus abyssorum.	Nematocarcinus agassizii.
Pleuroncodes monodon?	Acanthephyra agassizii?
Munida obesa.	Acanthephyra approxima?
Munida propinqua.	Acanthephyra cristata.
Munida gracilipes.	Acanthephyra curtirostris (incl. var. γ).
Galacantha diomedææ.	Acanthephyra cucullata.
Munidopsis bairdii.	Hymenodora glacialis.
Munidopsis ciliata.	Pasiphaeia americana.
Munidopsis vicina.	Pasiphaeia magna.
Munidopsis subsquamosa aculeata.	Sicyonia picta.
Munidopsis agassizii.	Solenocera agassizii.
Munidopsis villosa.	Peneopsis diomedææ.
Munidopsis sericea.	Haliporus nereus.
Munidopsis crinita.	Hemipeneus triton.
Munidopsis tanneri.	Benthesicymus altus.
Munidopsis hamata.	Benthesicymus tanneri.
Munidopsis latirostris.	Sergestes bisulcatus.
Munidopsis hendersoniana.	Gnathophausia willemoesii.
Uroptychus nitidus occidentalis.	Eucopia sculpticauda.
Willemoesia inornata.	Squilla bifornis.
Polycheles nanus.	

Off Mariato Point (Stations 3353-3359 ; 182-782 fathoms).

Maiopsis panamensis.	Galacantha diomedææ.
Xanthodes sulcatus.	Munidopsis ciliata.
Trachycarcinus corallinus.	Munidopsis aspera.
Ebalia sp.	Munidopsis carinipes.
Cymopolia tuberculata.	Munidopsis inermis.
Glyptolithodes cristatipes.	Uroptychus pubescens.
Leptolithodes asper.	Uroptychus bellus.
Catapagurus diomedææ.	Axius acutifrons.
Munida obesa.	Axius crista-galli.

* Littoral and surface species are not included in this list.

Polycheles tanneri.
Polycheles sculptus pacificus.
Panulirus sp.
Glyphocrangon spinulosa.
Heterocarpus hostilis.
Nematocarcinus agassizii.

AcanthePHYra curtirostris.
Sicyonia picta.
Peneopsis diomedea.
Haliporus nereus.
Benthesicymus tanneri.
Ceratomyxis spinosa.

Off Galera Point (Stations 3398, 3399; 1573 and 1740 fathoms).

Æthusina gracilipes?
Willemoesia inornata.
Pontophilus occidentalis.
Nematocarcinus ensifer.
AcanthePHYra agassizii?
AcanthePHYra brevisrostris.
Hymenodora glacialis.

Notostomus westergreni.
Haliporus nereus.
Hemipeneus spinidorsalis.
Benthesicymus altus.
Gennadas sp.
Eucopia australis.

Off Malpelo Island (Stations 3377-3380; 52-899 fathoms).

Achelous affinis.
Æthusina gracilipes?
Æthusina smithiana.
Cymopolia fragilis.
Spiropagurus occidentalis.
Paguristes fecundus.
Parapagurus pilosimanus abyssorum.
Munida refulgens.
Polycheles nanus.

Polycheles granulatus.
Eryonicus cæcus?
Sclerocrangon procax.
Heterocarpus hostilis.
Nematocarcinus agassizii.
Sicyonia affinis.
Benthesicymus tanneri.
Sergestes inous.
Eucopia australis.

Between Mariato Point and Cocos Island (Stations 3360-3362; 1175-1672 fathoms).

Æthusina gracilipes?
Parapagurus pilosimanus abyssorum.
Galacantha rostrata.
Munidopsis vicina.
Munidopsis subquamosa.
Polycheles nanus.
Pontophilus occidentalis.

AcanthePHYra cristata.
AcanthePHYra curtirostris.
Hemipeneus triton.
Benthesicymus altus.
Benthesicymus tanneri.
Gnathophausia brevispinis.

Off Cocos Island (Stations 3363-3372; 52-1067 fathoms).

Euprognatha granulata.
Sphenocarcinus agassizi.
Lambrus hassleri.
Panopeus tanneri.
Achelous spinimanus.
Æthusia lata.
Æthusina smithiana.
Cymopolia fragilis.
Raninops fornicata.
Leptolithodes longipes.
Lithodes diomedea?
Cancellus tanneri.
Eupagurus californiensis.
Pylopagurus longimanus.
Pylopagurus hirtimanus.
Spiropagurus occidentalis.

Parapagurus pilosimanus abyssorum.
Munida refulgens.
Munida microphthalmia?
Galacantha diomedea.
Munidopsis ciliata.
Munidopsis aspera.
Pontophilus occidentalis.
Glyphocrangon nobilis?
Heterocarpus hostilis.
Nematocarcinus ensifer.
Nematocarcinus agassizii.
Notostomus fragilis.
Sicyonia affinis.
Peneus balboa.
Haliporus nereus.
Benthesicymus tanneri.

*On course from Cocos Island to Malpelo Island (Stations 3373-3376 ;
1132-1877 fathoms).*

<i>Æthusina gracilipes?</i>	<i>AcanthePHYRA curtiROSTRIS.</i>
<i>Parapagurus pilosimanus abyssorum.</i>	<i>Pasiphaeia princeps.</i>
<i>Galacantha diomedææ.</i>	<i>Hemipeneus spinidorsalis.</i>
<i>Willemoesia inornata.</i>	<i>Hemipeneus triton.</i>
<i>Eryonicus cæcus?</i>	<i>Benthesicymus altus.</i>
<i>Glyphocrangon nobilis?</i>	<i>Benthesicymus tanneri.</i>
<i>Nematocarcinus ensifer.</i>	<i>Gnathophausia brevispinis.</i>

Between Galera Point and Galapagos Islands (Station 3400 ; 1322 fathoms).

<i>Æthusina gracilipes?</i>	<i>Nematocarcinus ensifer.</i>
<i>Parapagurus pilosimanus abyssorum.</i>	<i>Haliporus nereus.</i>
<i>Galacantha rostrata.</i>	<i>Hemipeneus spinidorsalis.</i>
<i>Willemoesia inornata.</i>	<i>Benthesicymus tanneri.</i>
<i>Polycheles nanus.</i>	<i>Gnathophausia brevispinis.</i>
<i>Glyphocrangon nobilis?</i>	<i>Scolophthalmus lucifugus.</i>

Galapagos Islands (Stations 3401-3411 ; 53-885 and 1189 fathoms).

<i>Anamathia occidentalis.</i>	<i>Nematocarcinus ensifer.</i>
<i>Panopeus tanneri.</i>	<i>Nematocarcinus agassizii.</i>
<i>Æthusina gracilipes?</i>	<i>AcanthePHYRA approxima?</i>
<i>Lithodes diomedææ?</i>	<i>Pasiphaeia americana.</i>
<i>Parapagurus pilosimanus abyssorum.</i>	<i>Pasiphaeia acutifrons?</i>
<i>Munida propinqua.</i>	<i>Haliporus nereus.</i>
<i>Galacantha diomedææ.</i>	<i>Aristæus occidentalis.</i>
<i>Munidopsis margarita.</i>	<i>Benthesicymus tanneri.</i>
<i>Munidopsis ornata.</i>	<i>Sergestes bisulcatus.</i>
<i>Munidopsis aspera.</i>	<i>Gnathophausia zoea.</i>
<i>Polycheles tanneri.</i>	<i>Gnathophausia brevispinis.</i>
<i>Eryonicus spinulosus.</i>	<i>Eucopia australis.</i>
<i>Glyphocrangon loricata.</i>	<i>Eucopia sculpticauda.</i>
<i>Glyphocrangon nobilis?</i>	

Between Galapagos Islands and Acapulco (Stations 3413-3415 ; 1360-2232 fathoms).

<i>Æthusina gracilipes?</i>	<i>AcanthePHYRA curtiROSTRIS, var. β.</i>
<i>Æthusina challengerii?</i>	<i>Haliporus nereus.</i>
<i>Parapagurus pilosimanus abyssorum.</i>	<i>Haliporus doris.</i>
<i>Galacantha rostrata.</i>	<i>Haliporus thetis.</i>
<i>Pontophilus occidentalis.</i>	<i>Hemipeneus spinidorsalis.</i>
<i>Glyphocrangon nobilis?</i>	<i>Benthesicymus altus.</i>
<i>Nematocarcinus ensifer.</i>	<i>Eucopia sculpticauda.</i>

Off Acapulco (Stations 3416-3423 ; 94-772 fathoms).

<i>Trachycarcinus corallinus.</i>	<i>Nephropsis occidentalis.</i>
<i>Lithodes diomedææ?</i>	<i>Polycheles sculptus pacificus.</i>
<i>Pleuroncodes monodon?</i>	<i>Sclerocrangon atrox.</i>
<i>Galacantha diomedææ parvispina.</i>	<i>Sclerocrangon procox.</i>
<i>Munidopsis hystrix.</i>	<i>Glyphocrangon alata.</i>
<i>Calastacus stilirostris.</i>	<i>Glyphocrangon spinulosa.</i>

Glyphocrangon nobilis?	Nematocarcinus agassizii.
Heterocarpus affinis.	Acanthephyra curtirostris, var. β .
Pandalopsis ampla.	Benthesicymus tanneri.
Nematocarcinus ensifer.	Gnathophausia willemoesii.

Near Las Tres Marias (Stations 3424-3428; 80-680 fathoms).

Lambrus hassleri.	Polycheles sculptus pacificus.
Osachila lata.	Sclerocrangon atrox.
Lithodes sp.	Paracrangon areolata.
Munida refulgens.	Glyphocrangon spinulosa.
Galacantha diomedea parvispina.	Heterocarpus affinis.
Munidopsis hystrix.	Pandalopsis ampla.
Munidopsis scabra.	Nematocarcinus ensifer.
Munidopsis quadrata.	Benthesicymus tanneri.
Munidopsis depressa.	Gnathophausia willemoesii.
Nephropsis occidentalis.	

Off Mazatlan (Stations 3429, 3430; 852 and 919 fathoms).

Parapagurus pilosimanus abyssorum.	Nematocarcinus ensifer.
Galacantha diomedea.	Acanthephyra curtirostris, var. γ .

Gulf of California (Stations 3431-3437; 628-1588 fathoms)

Parapagurus pilosimanus abyssorum.	Hymenodora glacialis.
Galacantha diomedea parvispina.	Benthesicymus tanneri.
Sclerocrangon procax.	Gennadas sp.
Glyphocrangon spinulosa.	Sergestes bisulcatus.
Glyphocrangon nobilis?	Eucopia australis.
Nematocarcinus ensifer.	Petalophthalmus pacificus.
Acanthephyra curtirostris, var ^{tes} α , β , γ .	

toward the end of the table, may have entered the trawl during its passage up to the surface. In such cases, the distribution lines

1050f.	1100f.	1150f.	1200f.	1250f.	1300f.	1350f.	1400f.	1450f.	1500f.	1550f.	1600f.	1650f.	1700f.	1750f.	1800f.	1850f.	1900f.	1950f.	2000f.	2050f.	2100f.	2150f.	2200f.	2250f.	
[Empty table body with faint horizontal lines and dots indicating data points]																									

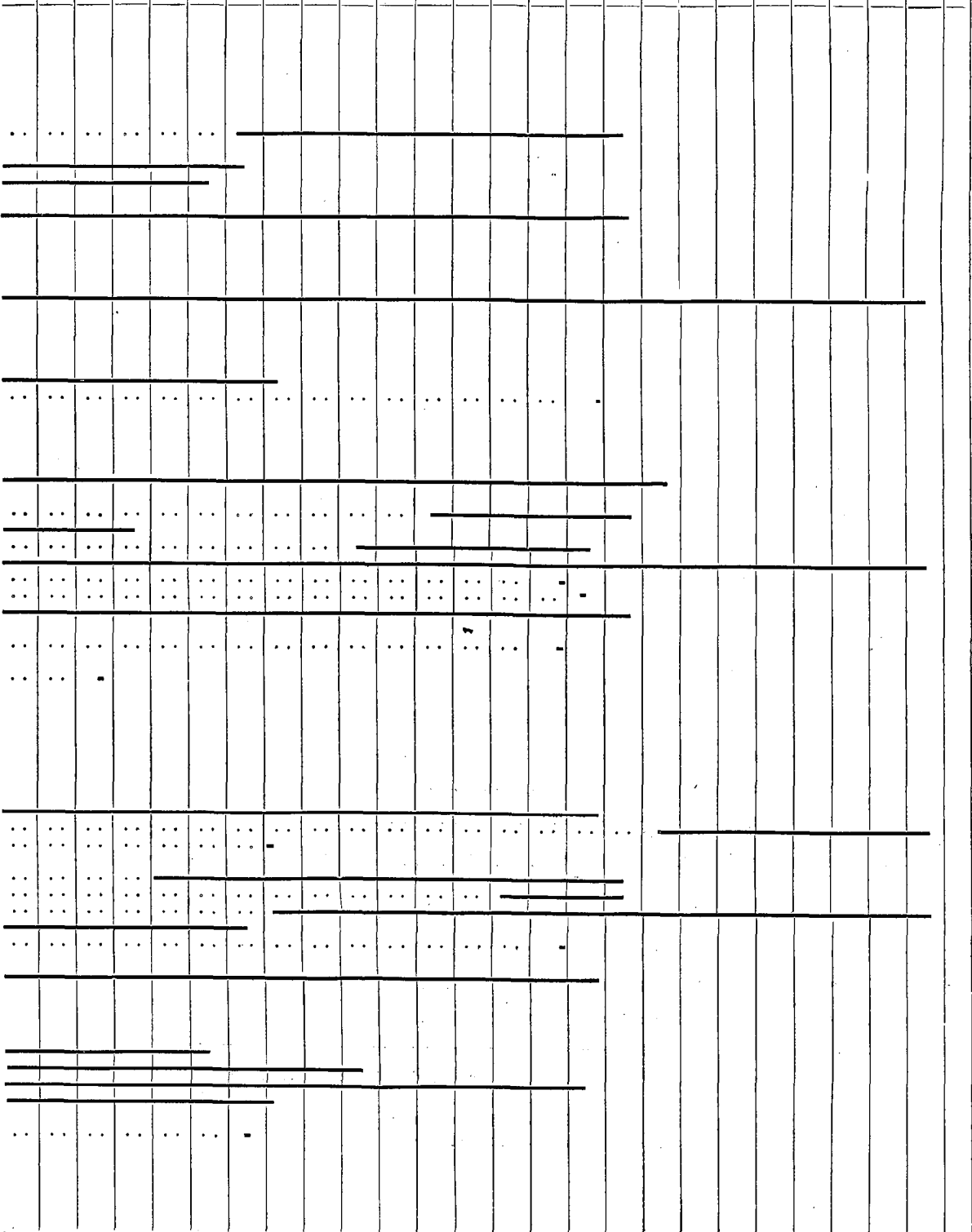
	50f.	100f.	150f.	200f.	250f.	300f.	350f.	400f.	450f.	500f.	550f.	600f.	650f.	700f.	750f.	800f.	850f.	900f.	950f.	1000f.	
<i>Uroptychus pubescens</i>				—	—																
“ <i>bellus</i>				—	—																
<i>Axius acutifrons</i>										—	—										
“ <i>crista-galli</i>																					
<i>Calastacus stillostris</i>														—							
<i>Nephropsis occidentalis</i>														—							
<i>Willemoesia inornata</i>																					
<i>Polycheles tanneri</i>								—	—												
“ <i>nanus</i>																					
“ <i>sculptus pacificus</i>										—	—	—	—	—	—	—	—	—	—	—	—
“ <i>granulatus</i>																					
<i>Eryoniscus cæcus</i> ?								*	—												
“ <i>spinulosus</i>																					
<i>Panulirus</i> sp.																					
<i>Sclerocrangon atrox</i>																					
“ <i>procax</i>															—	—	—	—	—	—	—
<i>Pontophilus occidentalis</i>																					
<i>Paracrangon areolata</i>																					—
<i>Glyphocrangon loricata</i>								—	—												
“ <i>alata</i>																					
“ <i>spinulosa</i>																					
“ <i>nobilis</i> ?																					
“ <i>sicaria</i>																					
<i>Heterocarpus vicarius</i>				—	—																
“ <i>hostilis</i>																					
“ <i>affinis</i>																					
<i>Pandalopsis ampla</i>																					
<i>Nematocarcinus ensifer</i>																					
“ <i>agassizii</i>				—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>AcanthePHYRA agassizii</i> ?																					
“ <i>approxima</i> ?																					
“ <i>cristata</i>																					
“ <i>curtirostris</i>																					
“ <i>brevirostris</i>																					
“ <i>cucullata</i>																					
<i>Hymenodora glacialis</i>																					
<i>Notostomus fragilis</i>																					
“ <i>westergreni</i>																					
<i>Pasiphaeia americana</i>																					
“ <i>princeps</i>																					
“ <i>acutifrons</i> ?																					
“ <i>magna</i>																					
<i>Sicyonia affinis</i>	—	—																			
“ <i>picta</i>																					
<i>Peneus balboæ</i>																					
<i>Solenocera agassizii</i>																					
<i>Penæopsis diomedææ</i>																					
<i>Haliporus nereus</i>																					
“ <i>doris</i>																					
“ <i>thetis</i>																					
<i>Aristæus occidentalis</i>																					
<i>Hemipeneus spinidorsalis</i>																					
“ <i>triton</i>																					
<i>Benthesicymus altus</i>																					
“ <i>tanneri</i>																					
<i>Gennadas</i> sp.																					
<i>Sergestes inous</i>																					
“ <i>bisulcatus</i>																					
SCHIZOPODA.																					
<i>Gnathophausia zoea</i>																					
“ <i>willemoesii</i>																					
“ <i>brevispinis</i>																					
<i>Eucopia australis</i>																					
“ <i>sculpticauda</i>																					
<i>Petalophthalmus pacificus</i>																					
<i>Scolophthalmus lucifugus</i>																					
<i>Ceratommysis spinosa</i>																					
STOMATOPODA.																					
<i>Squilla biformis</i>	—	—	—	—	—																

Tanner tow-net, 400 fathoms to surface.

† Submarine tow-net, 500-570 fathoms.

‡ Submarine tow-net, 700 fathoms to surface.

1050f. 1100f. 1150f. 1200f. 1250f. 1300f. 1350f. 1400f. 1450f. 1500f. 1550f. 1600f. 1650f. 1700f. 1750f. 1800f. 1850f. 1900f. 1950f. 2000f. 2050f. 2100f. 2150f. 2200f. 2250f.



RECORD OF SUBMARINE TOW-NET STATIONS OF THE UNITED STATES
FISH COMMISSION STEAMER "ALBATROSS." *

MARCH AND APRIL, 1891.

Serial Number.	DATE.	TIME.	POSITION.		TEMPERATURES.		Depth in Fathoms.	Character of Bottom.	Depth at which towed, in Fathoms.	Time in Minutes.	REMARKS.
			Latitude North.	Longitude West.	Sur-face.	Bot-tom.					
3382 Dr.	1891. March 7	h. m. 8 50 A.M.	6 21 0	80 41 0	75	35.8	1793	gn. M.	200	15	{ Hauled up straight from 200 fathoms in 10 minutes; from 100 fathoms in about 5 minutes. About 60 miles from the 100 fathom line.
"	" 7	9 53 A.M.	6 21 0	80 41 0	75	35.8	1793	gn. M.	200	}	
"	" 7	10 23 A.M.	6 21 0	80 41 0	75	35.8	1793	gn. M.	100		
3388 Dr.	" 9	10 31 A.M.	7 6 0	79 48 0	73	36.2	1168	gn. glob. Oz.	400	17	{ 15 miles from 100 fathom line, and 25 miles from nearest land.
2619 Hyd.	" 11	8 25 A.M.	7 31 0	78 42 30	68	36.5	1100	gn. glob. Oz.	300	19	
"	" 11	9 44 A.M.	7 31 0	78 42 30	68	36.5	1100	gn. glob. Oz.	{ 1000 } { 1482 }	† 16	Drifted into 1482 fathoms.
2627 Hyd.	" 25	6 49 A.M.	0 36 0	82 45 0	81	36.0	1832	gy. glob. Oz.	{ 1770 } { 1739 }	† 20	{ Towed awhile from 200 fathoms to surface, to fill upper part of net. About 250 miles from the Galapagos. 350 miles from land.
2628 Hyd.	" 26	9 14 A.M.	South. 0 13 0	84 52 0	81	..	..	..	204	20
3414 Dr.	April 8	6 57 A.M.	North. 10 14 0	96 28 0	82	35.8	2232	gn. M.	100	20	
"	" 8	7 47 A.M.	10 14 0	96 28 0	82	35.8	2232	gn. M.	200	10	{ About 300 miles S. E. of Acapulco. Depth. † About 250 miles S. E. of Acapulco. Depth. † About 30 miles S. E. of Acapulco. Depth. § About 120 miles N. W. of Acapulco. Depth over 2,000 fathoms. Surface about 75 miles S. W. of Guaymas, half-way across Gulf of California. About 50 miles S. W. of Guaymas. Shoaled water and dragged on bottom.
"	" 8	8 49 A.M.	10 14 0	96 28 0	82	35.8	2232	gn. M.	300	20	
"	" 8	10 30 A.M.	10 14 0	96 28 0	82	35.8	2232	gn. M.	300	15	
—	" 9	10 4 A.M.	12 34 0	97 21 0	82	..	..	..	175	8
—	" 9	8 3 P.M.	13 33 30	97 57 30	83	..	..	..	175	10
—	" 11	8 45 A.M.	16 32 0	99 42 0	80	..	..	..	300	20
—	" 16	10 10 A.M.	17 39 30	102 11 30	76	..	..	..	175	15
3436 Dr.	" 22	1 22 P.M.	27 3 40	110 53 40	72	37.2	905	bn. M. bk. Sp.	800	15	
2637 Hyd.	" 22	7 21 P.M.	27 20 0	110 54 0	71	38.0	773	bn. M. bk. Sp.	700	15	
3437 Dr.	" 23	5 31 A.M.	27 39 40	111 0 30	70	40.0	628	bn. M. bk. Sp.	600	15	
2638 Hyd.	" 23	7 26 A.M.	27 38 0	111 4 0	72	39.2	622	bn. M. bk. Sp.	{ 500 } { 570 }	† 15	

* Tanner tow-net at all Stations except Station 3382, March 7.

† Depth varying between these points.

‡ Between two Stations, over 2,000 fathoms.

§ Between two Stations, about 500 fathoms.

RECORD OF DREDGING AND TRAWLING STATIONS OF THE UNITED STATES
FISH COMMISSION STEAMER "ALBATROSS."

Serial Number.	DATE.	TIME.	POSITION.		TEMPERATURES.		Depth in Fathoms.	Character of Bottom.	REMARKS.
			Latitude North.	Longitude West.	Surface.	Bottom.			
	1891.	h. m.	° ' "	° ' "	°	°			
3353	Feb. 22	8 0 P.M.	7 6 15	80 34 0	73	39.0	695	gn. M.	} Surface tow-net.
3354	" 23	8 56 A.M.	7 9 45	80 50 0	78	46.0	322	gn. M.	
3355	" 23	3 1 P.M.	7 12 20	80 55 0	81	54.1	182	bk. G. Sh.	} Surface tow-net. 15 miles from Mariato Point.
3356	" 23	7 30 P.M.	7 9 30	81 8 30	83	40.1	546	sft. bl. M.	
3357	" 24	6 17 A.M.	6 35 0	81 44 0	83	38.5	782	gn. S.	} Surface tow-net.
3358	" 24	11 38 A.M.	6 30 0	81 44 0	83	40.2	555	gn. S.	
3359	" 24	2 4 P.M.	6 22 20	81 52 0	83	42.0	465	rky.	} Surface tow-net.
3360	" 24	5 20 P.M.	6 17 0	82 5 0	83	36.4	1672	fne. bk. dk. gn. S.	
3361	" 25	7 33 A.M.	6 10 0	83 6 0	82	36.6	1471	gn. Oz.	} Surface tow-net.
3362	" 26	7 20 A.M.	5 56 0	85 10 30	84	36.8	1175	gn. M. S. rky.	
3363	" 26	4 37 P.M.	5 43 0	85 50 0	83	37.5	978	wh. glob. Oz.	} Intermediate net of Chun and Petersen.
3364	" 27	6 58 A.M.	5 30 0	86 8 30	81	38.0	902	yl. glob. Oz.	
3365	" 27	1 30 P.M.	5 31 0	86 31 0	85	37.0	1010	yl. glob. Oz.	} Surface tow-net.
3366	" 27	8 4 P.M.	5 30 0	86 45 0	84	37.0	1067	yl. glob. Oz.	
3367	" 28	6 38 A.M.	5 31 30	86 52 30	82	57.1	100	rky.	} Surface tow-net.
3368	" 28	7 21 A.M.	5 32 45	86 54 30	82	58.4	66	rky.	
3369	" 28	8 7 A.M.	5 32 45	86 55 20	82	62.2	52	Nullipore or rky.	} At Cocos Island. Surface tow-net at night.
3370	" 28	10 3 A.M.	5 36 40	86 56 50	84	54.8	134	rks. & S.	
3371	March 1	7 49 A.M.	5 26 20	86 55 0	82	39.0	770	glob. Oz.	} 8 P. M. Surface tow-net.
3372	" 1	5 51 P.M.	4 49 0	86 11 20	84	38.8	761	gy. glob. Oz.	
3373	" 2	10 33 A.M.	4 2 0	84 58 0	82	36.6	1877	br. M. bk. Sp.	} Surface tow-net.
3374	" 3	10 35 A.M.	2 35 0	83 53 0	80	36.4	1823	gn. Oz.	
3375	" 4	6 36 A.M.	2 34 0	82 29 0	77	36.6	1201	gy. glob. Oz.	} Surface tow-net.
3376	" 4	4 27 P.M.	3 9 0	82 8 0	78	36.3	1132	gy. glob. Oz.	
3377	" 5	8 38 A.M.	3 56 0	81 40 15	77	38.0	764	M.	} Surface tow-net.
3378	" 5	11 45 A.M.	3 58 20	81 36 0	78	55.9	112	brk. sh.	
3379	" 5	2 15 P.M.	3 59 40	81 35 0	78	.	52	rks.	} Submarine tow-net. 8:30 P.M., surface tow-net.
3380	" 5	4 51 P.M.	4 3 0	81 31 0	79	37.2	899	rks.	
3381	" 6	8 38 A.M.	4 56 0	80 52 30	77	35.8	1772	gn. M.	} Submarine tow-net. 8:30 P.M., surface tow-net.
3382	" 7	10 46 A.M.	6 21 0	80 41 0	75	35.8	1793	gn. M.	
3383	" 8	6 51 A.M.	7 21 0	79 2 0	74	36.0	1832	gn. glob. Oz.	} Surface tow-net.
3384	" 8	1 20 P.M.	7 31 30	79 14 0	74	42.0	458	gn. S.	
3385	" 8	3 7 P.M.	7 32 36	79 16 0	72	45.9	286	gn. M.	} Surface tow-net.
3386	" 8	4 54 P.M.	7 33 12	79 17 15	73	48.0	242	fne. gy. S.	
3387	" 8	7 21 P.M.	7 40 0	79 17 50	74	56.2	127	fne. gy. S.	} Surface tow-net.
3388	" 9	6 41 A.M.	7 6 0	79 48 0	73	36.2	1168	gn. glob. Oz.	
3389	" 9	2 10 P.M.	7 16 45	79 56 30	74	48.8	210	gn. M.	} Submarine tow-net.
3390	" 9	4 25 P.M.	7 26 10	79 53 50	74	62.6	56	fne. gy. S. G.	
3391	" 9	7 15 P.M.	7 33 40	79 43 20	73	55.8	153	gn. M.	} Rhabdamina bottom.
3392	" 10	6 30 A.M.	7 5 30	79 40 0	73	36.4	1270	hard.	
3393	" 10	1 21 P.M.	7 15 0	79 36 0	74	36.8	1020	gn. M.	} Rhabdamina bottom.
3394	" 10	5 43 P.M.	7 21 0	79 35 0	73	41.8	511	dk. gn. M.	
3395	" 11	2 20 P.M.	7 30 36	78 39 0	70	38.5	730	rky.	} Rhabdamina bottom.
3396	" 11	5 15 P.M.	7 32 0	78 36 30	70	47.4	259	hrd. gy. M. S.	

RECORD OF DREDGING AND TRAWLING STATIONS OF THE UNITED STATES
 FISH COMMISSION STEAMER "ALBATROSS." — *Continued.*

Serial Number.	DATE.	TIME.	POSITION.		TEMPERATURES.		Depth in Fathoms.	Character of Bottom.	REMARKS.
			Latitude North.	Longitude West.	Surface.	Bottom.			
3397	1891. March 11	h. m. 6 32 P.M.	° ' " 7 33 0	° ' " 78 34 20	° 71	° 57.3	85	stf. gn. M. brk.	Surface tow-net.
3398	" 23	3 16 P.M.	1 7 0	80 21 0	84	36.0	1573	gn. Oz.	{ Surface tow-net, off Galera Point.
3399	" 24	6 37 A.M.	1 7 0	81 4 0	80	36.0	1740	gn. Oz.	Surface tow-net.
3400	" 27	6 10 A.M.	0 36 0	86 46 0	81	36.0	1322	lt. gy. glob. Oz.	Surface tow-net.
3401	" 28	4 45 A.M.	0 59 0	88 58 30	82	43.8	395	glob. Oz.	
3402	" 28	7 13 A.M.	0 57 30	89 3 30	82	42.3	421	R. glob. Oz.	
3403	" 28	10 19 A.M.	0 58 30	89 17 0	82	43.3	384	fne. gy. S. bk. Sp.	
3404	" 28	1 16 P.M.	1 3 0	89 28 0	83	43.2	385	R.	
3405	" 28	3 42 P.M.	0 57 0	89 38 0	83	60.0	53	P. Co. Sh.	{ Tangles.
3406	April 3	6 47 A.M.	0 16 0	90 21 30	81	41.3	551	R.	
3407	" 3	10 48 A.M.	0 4 0	90 24 30	81	37.2	885	glob. Oz.	{ Tangles.
3408	" 3	4 7 P.M.	0 12 30	90 32 30	83	39.5	684	glob. Oz.	Tangles.
3409	" 3	7 24 P.M.	0 18 40	90 34 0	82	42.3	327	bk. S.	{ Tangles. Surface tow-net. Off
3410	" 3	8 48 P.M.	0 19 0	90 34 0	82	44.2	331	bk. S.	{ Bindloe Island, 4 miles west.
3411	" 4	7 35 A.M.	0 54 0	91 9 0	82	36.2	1189	yl. glob. Oz.	
3412	" 4	6 11 P.M.	1 23 0	91 43 0	82	38.0	918	R.	{ 9 P. M., surface tow-net, 5 miles off Wenman Islands.
3413	" 5	8 34 A.M.	2 34 0	92 6 0	82	36.0	1360	glob. Oz. dk. Sp.	{ At noon, surface tow-net.
3414	" 8	11 14 A.M.	10 14 0	96 28 0	82	35.8	2232	gn. M.	{ Submarine tow-net and surface tow-net.
3415	" 10	9 39 A.M.	14 46 0	98 40 0	83	36.0	1879	br. M. glob. Oz.	
3416	" 11	9 46 A.M.	16 32 30	99 42 40	81	40.5	419	fne. br. M.	
3417	" 11	11 44 A.M.	16 32 0	99 48 0	82	40.6	493	gn. M.	
3418	" 11	2 57 A.M.	16 33 0	99 52 30	82	39.0	660	br. S. bk. Sp.	
3419	" 11	5 59 P.M.	16 34 30	100 3 0	81	39.0	772	gn. M. bk. Sp.	Surface tow-net.
3420	" 12	7 48 A.M.	16 46 0	100 8 20	82	39.6	664	dk. gn. M.	
3421	" 12	11 32 A.M.	16 47 20	100 0 10	82	42.9	338	dk. gn. M.	
3422	" 12	12 35 P.M.	16 47 30	99 59 30	83	53.5	141	gn. M.	
3423	" 12	1 31 P.M.	16 47 30	99 59 20	83	56.0	94	gn. M.	
3424	" 18	11 18 A.M.	21 15 0	106 23 0	76	38.0	676	gy. S. bk. Sp. glob.	
3425	" 18	2 14 P.M.	21 19 0	106 24 0	76	39.0	680	gn. M. & S.	
3426	" 18	3 45 P.M.	21 21 0	106 25 0	76	51.2	146	rky.	
3427	" 18	4 3 P.M.	21 22 15	106 25 0	75	51.2	80	rky.	
3428	" 18	6 40 P.M.	21 36 30	106 25 0	76	48.1	238	dk. gy. S. glob.	
3429	" 19	5 39 A.M.	22 30 30	107 1 0	73	37.0	919	gn. M. glob. Oz.	
3430	" 19	3 27 P.M.	23 16 0	107 31 0	73	37.9	852	bk. S.	
3431	" 20	6 33 A.M.	23 59 0	108 40 0	70	37.0	995	lt. bro. M. glob.	
3432	" 20	2 38 P.M.	24 22 30	109 3 20	70	37.8	1421	br. M. bk. Sp.	
3433	" 21	6 34 A.M.	25 26 15	109 48 0	69	36.5	1218	br. M. bk. Sp.	
3434	" 21	10 14 A.M.	25 29 30	109 48 0	70	36.4	1588	br. M. bk. Sp.	{ Surface tow-net.
3435	" 22	8 56 A.M.	26 48 0	110 45 20	70	37.3	859	br. M. bk. Sp.	
3436	" 22	3 10 P.M.	27 34 0	110 53 40	72	37.2	905	br. M. bk. Sp.	{ Submarine tow-net and surface tow-net.
3437	" 23	5 4 A.M.	.....	.....	70	40.0	628	br. M. bk. Sp.	{ Submarine tow-net dragged on the bottom. About 50 miles south of Guaymas.

EXPLANATION OF THE PLATES.

PLATE A.

- | | | | | |
|--------------------|---------------------------------------|---|---|--|
| Fig. 1. | <i>Trachycarcinus corallinus</i> FAX. | | | Male. Natural size. Station 3418. Colored from life. |
| " 1 ^a . | " | " | " | Male, denuded. Natural size. Station 3356. |
| " 1 ^b . | " | " | " | Oral and antennal region. Enlarged. |
| " 1 ^c . | " | " | " | Sternal region of male. Enlarged. |
| " 1 ^d . | " | " | " | Abdomen of male. Enlarged. |
| " 1 ^e . | " | " | " | Lesser cheliped of male. Enlarged. |
| " 1 ^f . | " | " | " | Abdomen of an ovigerous female. × 2. Station 3356. |

PLATE B.

- | | | | | |
|--------------------|---------------------------------------|---|---|--|
| Fig. 1. | <i>Galacantha rostrata</i> A. M. EDW. | | | Natural size. Colored from life. |
| " 1 ^a . | " | " | " | Lateral view of carapace. Natural size. |
| " 2. | <i>Eryonicus cæcus</i> BATE ? | | | Male. Enlarged. Station 3375. Colored from life. |

PLATE C.

- | | | | | |
|--------------------|---|---|---|---|
| Fig. 1. | <i>Polycheles sculptus pacificus</i> FAX. | | | Natural size. Colored from life. |
| " 1 ^a . | " | " | " | First, second, and third abdominal somites, viewed from the side. |
| " 2. | <i>Polycheles sculptus</i> SMITH. | | | First, second, and third abdominal somites, viewed from the side. "Blake" Station 326, off east coast of United States. |

PLATE D.

- | | | | | |
|--------------------|--------------------------------------|---|---|--|
| Fig. 1. | <i>Nephropsis occidentalis</i> FAX. | | | Male. Natural size. Station 3418. Colored from life. |
| " 1 ^a . | " | " | " | Carapace from above. |
| " 1 ^b . | " | " | " | Swimmeret. |
| " 2. | <i>Pontophilus occidentalis</i> FAX. | | | Nat. size. Station 3382. Colored from life. |
| " 2 ^a . | " | " | " | Carapace, lateral view. |
| " 2 ^b . | " | " | " | First abdominal appendage. |
| " 2 ^c . | " | " | " | Second abdominal appendage. |
| " 2 ^d . | " | " | " | Third abdominal appendage. |

PLATE E.

Fig. 1.	<i>Gnathophyllum panamense</i>	FAX.	Female. $\times 2\frac{1}{2}$. Colored from life.
" 1 ^a .	"	"	Lateral view. More highly magnified.
" 1 ^b .	"	"	Anterior part, from above. Still more enlarged.
" 1 ^c .	"	"	End of the abdomen and posterior pair of abdominal appendages. Enlarged.
" 1 ^d .	"	"	Rostrum in profile. Enlarged.
" 1 ^e .	"	"	External maxilliped. Enlarged.

PLATE F.

Fig. 1.	<i>Notostomus westergreni</i>	FAX.	Male. Natural size. Station 3399. Colored from life.
" 1 ^a .	"	"	Anterior part of the carapace seen in profile. Enlarged.
" 1 ^b .	"	"	Eye-stalk and eye. Enlarged.
" 1 ^c .	"	"	Right antennal scale. Enlarged.
" 1 ^d .	"	"	Telson and posterior pair of abdominal appendages. Slightly enlarged.

PLATE G.

Fig. 1.	<i>Peneopsis diomedea</i>	FAX.	Female. Natural size. Colored from life.
" 1 ^a .	"	"	Antennal scale.
" 1 ^b .	"	"	First abdominal appendage of female.
" 1 ^c .	"	"	Petasma of male.
" 1 ^d .	"	"	Swimmeret.

PLATE H.

Fig. 1.	<i>Benthesicymus tanneri</i>	FAX.	Male. Natural size. Station 3435. Colored from life.
" 1 ^a .	"	"	Carapace in profile. Natural size.
" 1 ^b .	"	"	Sternum of the female. Enlarged. Station 3435.
" 1 ^c .	"	"	First pair of abdominal limbs and petasma of male. Enlarged. Station 3435.
" 1 ^d .	"	"	Right first abdominal appendage of the female, outer side. Enlarged. Station 3435.
" 1 ^e .	"	"	Distal end of third maxilliped of male, first form. Enlarged. Station 3435.
" 1 ^f .	"	"	Distal end of third maxilliped of male, second form. Enlarged. Station 3410.

PLATE XV.

Fig. 1.	<i>Petrolisthes agassizii</i>	FAX.	Male.	Enlarged.
" 1 ^a .	"	"	"	Right external maxilliped.
" 2.	<i>Pachycheles panamensis</i>	FAX.	Female.	Enlarged.
" 2 ^a .	"	"	"	Left external maxilliped.
" 3.	<i>Pleuroncodes monodon</i>	M. EDW. ?	Male.	× 1½.
" 3 ^a .	"	"	"	Left chela, outer face.
" 3 ^b .	"	"	"	Antennule.
" 3 ^c .	"	"	"	External maxilliped.

PLATE XVI.

Fig. 1.	<i>Munida obesa</i>	FAX.	Male.	× 1½.
" 1 ^a .	"	"	"	External maxilliped.
" 2.	<i>Munida gracilipes</i>	FAX.	Much	enlarged.
" 2 ^a .	"	"	"	Chela.
" 2 ^b .	"	"	"	External maxilliped.

PLATE XVII.

Fig. 1.	<i>Munida refulgens</i>	FAX.	Male.	Nat. size.
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PLATE XVIII.

Fig. 1.	<i>Munida propinqua</i>	FAX.	Male.	Somewhat enlarged.
" 1 ^a .	"	"	"	External maxilliped.
" 2.	<i>Munidopsis vicina</i>	FAX.	Female.	Much enlarged.
" 2 ^a .	"	"	"	Cheliped.
" 3.	<i>Munidopsis ciliata</i>	W.-M.	Male.	Sixth abdominal somite, telson, and last pair of appendages, much enlarged. Station 3353.
" 4.	<i>Munidopsis agassizii</i>	FAX.	Female.	Much enlarged.
" 4 ^a .	"	"	"	Chela. More highly magnified.

PLATE XIX.

Fig. 1.	<i>Munidopsis hystrix</i>	FAX.	Enlarged.
" 1 ^a .	"	"	Chela.
" 2.	<i>Munidopsis villosa</i>	FAX.	Male. Enlarged.
" 3.	<i>Munidopsis sericea</i>	FAX.	Male. Enlarged.
" 3 ^a .	"	"	External maxilliped.

PLATE XX.

Fig. 1.	<i>Munidopsis ornata</i>	FAX.	Male.	Enlarged.
1 ^a .	"	"	"	External maxilliped, viewed from below.
" 2.	<i>Munidopsis margarita</i>	FAX.	Enlarged.	
" 3.	<i>Munidopsis crinita</i>	FAX.	Female.	Highly magnified.
" 3 ^a .	"	"	"	External maxilliped.

PLATE XXI.

Fig. 1.	<i>Munidopsis scabra</i>	FAX.	Enlarged.
" 1 ^a .	"	"	External maxilliped.
" 2.	<i>Munidopsis hamata</i>	FAX.	Enlarged.
" 2 ^a .	"	"	External maxilliped.
" 2 ^a .	"	"	Side view.

PLATE XXII.

Fig. 1.	<i>Munidopsis tanneri</i>	FAX.	Enlarged.
" 1 ^a .	"	"	External maxilliped.
" 2.	<i>Munidopsis depressa</i>	FAX.	Male. Enlarged.
" 2 ^a .	"	"	External maxilliped.
" 2 ^b .	"	"	Side view.

PLATE XXIII.

Fig. 1.	<i>Munidopsis quadrata</i>	FAX.	Male. Enlarged.
" 1 ^a .	"	"	Side view.
" 1 ^b .	"	"	External maxilliped.
" 1 ^c .	"	"	Female. Enlarged.
" 2.	<i>Munidopsis inermis</i>	FAX.	Male. Much enlarged.
" 2 ^a .	"	"	Carapace in profile.

PLATE XXIV.

Fig. 1.	<i>Munidopsis carinipes</i>	FAX.	Enlarged.
" 1 ^a .	"	"	External maxilliped.
" 1 ^b .	"	"	Side view.
" 2.	<i>Munidopsis hendersoniana</i>	FAX.	Female. Enlarged.
" 2 ^a .	"	"	External maxilliped.
" 2 ^b .	"	"	Anterior part, in profile.
" 2 ^c .	"	"	Cheliped.

PLATE XXV.

Fig. 1.	<i>Galacantha diomedæ</i>	FAX.	Male. Somewhat enlarged.
" 1 ^a .	"	"	Carapace in profile.
" 1 ^b .	"	"	Sixth abdominal somite, telson, and last pair of appendages of female.
" 1 ^c .	"	"	External maxilliped.
" 1 ^d .	"	"	Antennule.
" 1 ^e .	"	"	End of one of the posterior thoracic appendages. Much enlarged.
" 2.	<i>Galacantha diomedæ</i> , var. <i>parvispina</i>	FAX.	Profile of carapace.

PLATE XXVI.

Fig. 1.	<i>Uroptychus nitidus occidentalis</i>	FAX.	Female. Enlarged.
" 1 ^a .	"	"	End of abdomen.
" 2.	<i>Uroptychus bellus</i>	FAX.	Male. Enlarged.
" 2 ^a .	"	"	Antennule.
" 2 ^b .	"	"	External maxilliped.

Fig. 3.	<i>Uroptychus pubescens</i>	FAX.	Female. Enlarged.
" 3 ^a .	"	"	Antennule.
" 3 ^b .	"	"	External maxilliped.

PLATE XXVII.

Fig. 1.	<i>Calastacus stilirostris</i>	FAX.	Male. Enlarged.
" 1 ^a .	"	"	Front and rostrum from above.
" 1 ^b .	"	"	Swimmeret.
" 1 ^c .	"	"	Antenna of the second pair.
" 1 ^d .	"	"	First abdominal appendage of the male.
" 1 ^e .	"	"	Second abdominal appendage of the male.
" 1 ^f .	"	"	Third abdominal appendage of the male.
" 2.	<i>Calocaris macandrewæ</i>	BELL.	North Atlantic. Antenna of the second pair, viewed from above.
" 2 ^a .	"	"	Antenna of the second pair, viewed from the side.

PLATE XXVIII.

Fig. 1.	<i>Axius crista-galli</i>	FAX.	Female. Enlarged.
" 1 ^a .	"	"	Anterior part, viewed from above.
" 1 ^b .	"	"	Rostrum in profile.
" 1 ^c .	"	"	Swimmeret.
" 1 ^d .	"	"	Antenna of the second pair.
" 1 ^e .	"	"	Leg of fourth pair, male.
" 1 ^f .	"	"	Leg of fifth pair, male.
" 1 ^g .	"	"	First abdominal appendage, female.
" 1 ^h .	"	"	Second abdominal appendage.
" 2.	<i>Axius acutifrons</i>	(BATE).	Female. Cheliped.

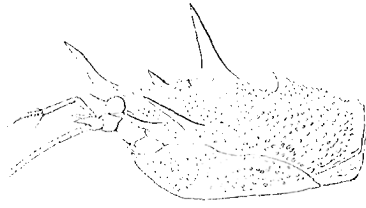
PLATE XXIX.

Fig. 1.	<i>Eryonicus spinulosus</i>	FAX.	Dorsal view. Enlarged.
" 1 ^a .	"	"	Lateral view. Enlarged.
" 2.	<i>Eryonicus cæcus</i>	BATE?	Mandible. Adult male. Station 3375.
" 2 ^a .	"	"	First maxilla, adult male.
" 2 ^b .	"	"	Second maxilla, adult male.
" 2 ^c .	"	"	First maxilliped, adult male.
" 2 ^d .	"	"	Second maxilliped, adult male.
" 2 ^e .	"	"	Third maxilliped, adult male. α , epipod.
" 2 ^f .	"	"	Swimmeret, adult male.

PLATE XXX.

Fig. 1.	<i>Eryonicus cæcus</i>	BATE?	Front and oral region, adult male. Station 3375. α , ophthalmic lobe. α' , papilla of ophthalmic lobe. β , first antenna. γ , proximal segment of second antenna. γ' , phymacerite. γ'' , scaphocerite, or scale of second antenna. γ''' , fourth, or distal segment of antennal peduncle. δ , mandible. δ' , distal segment of mandibular palp. ϵ , mouth. ζ , labrum. η , posterior wall of mouth. θ , metastoma.
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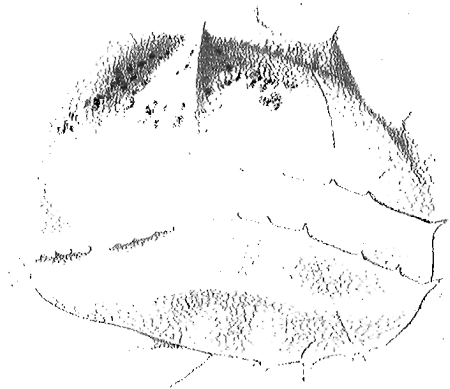
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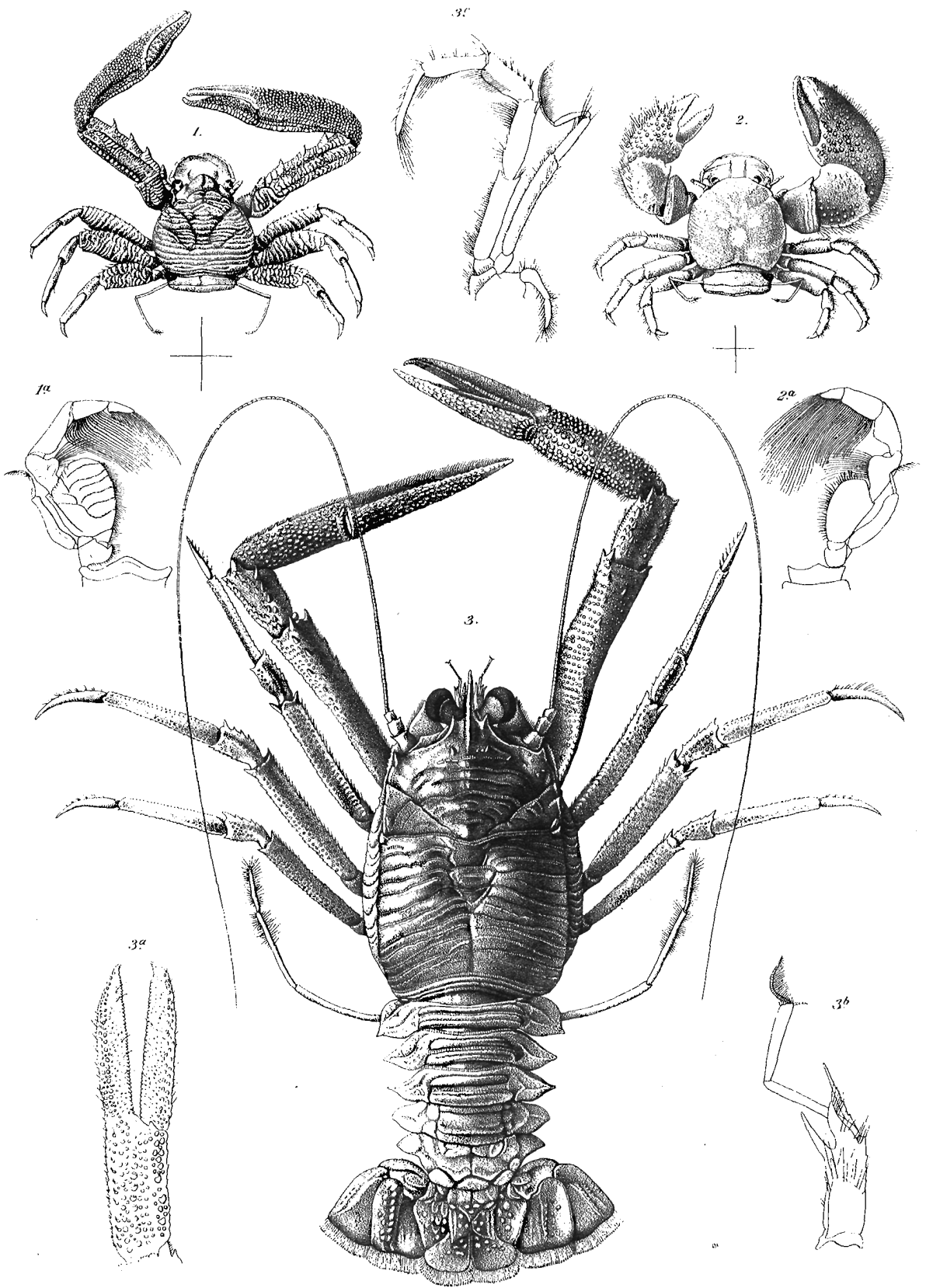


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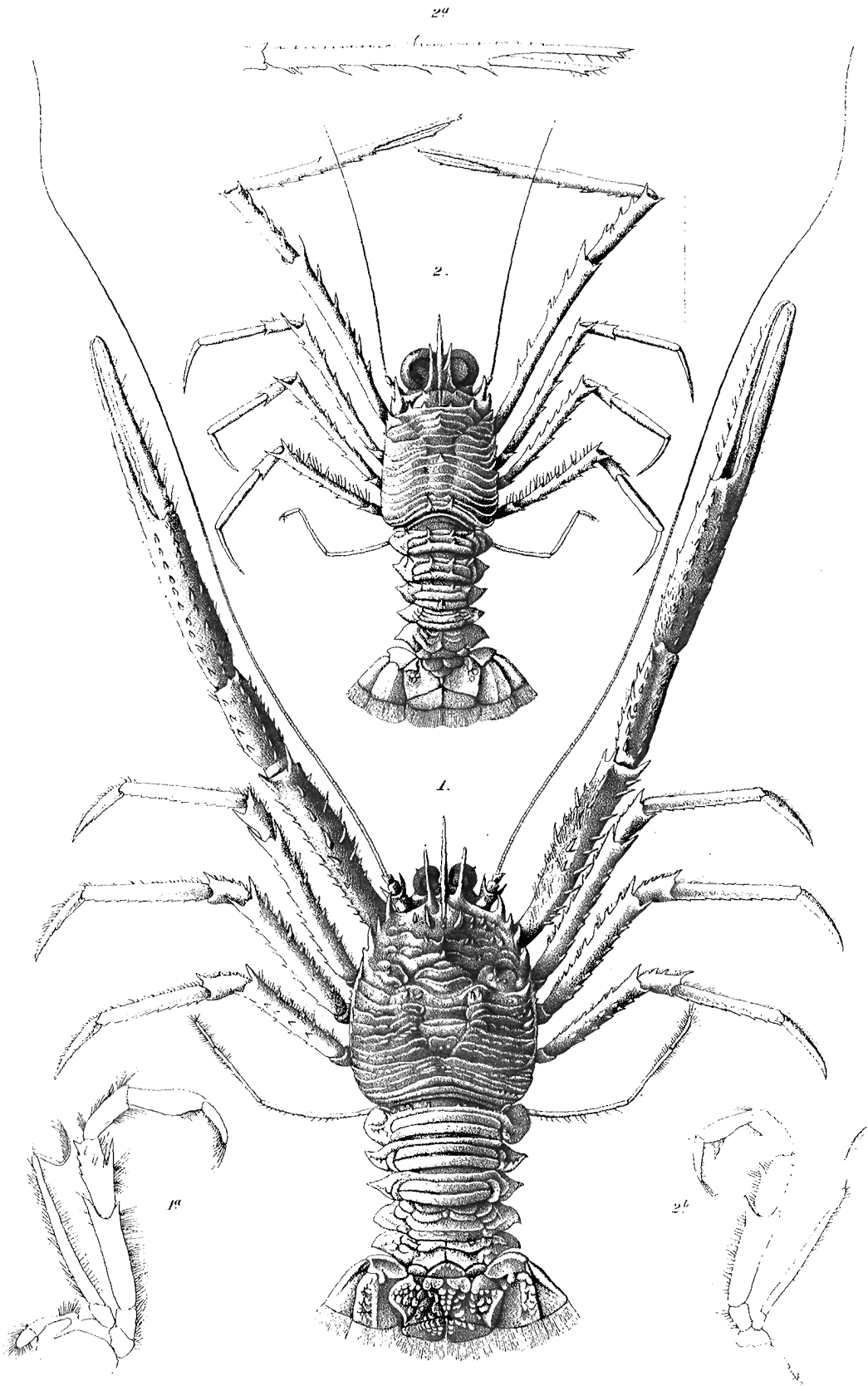


2.





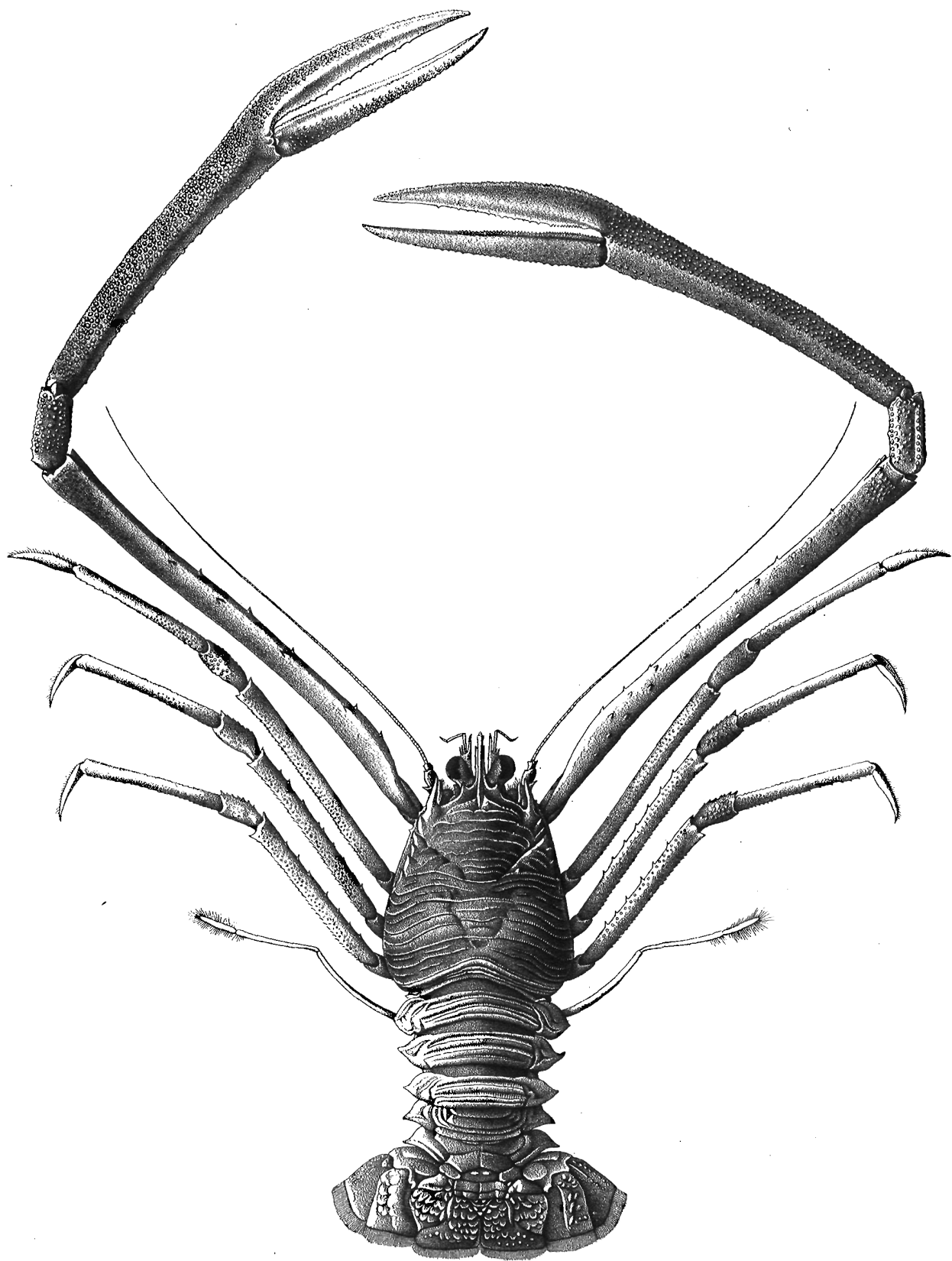
1 PETROLISTHES AGASSIZII. 2 PACHYCHELES PANAMENSIS.
3 PLEURONGODES MONODON?



AMW's & gen. del.

PLATE XVI

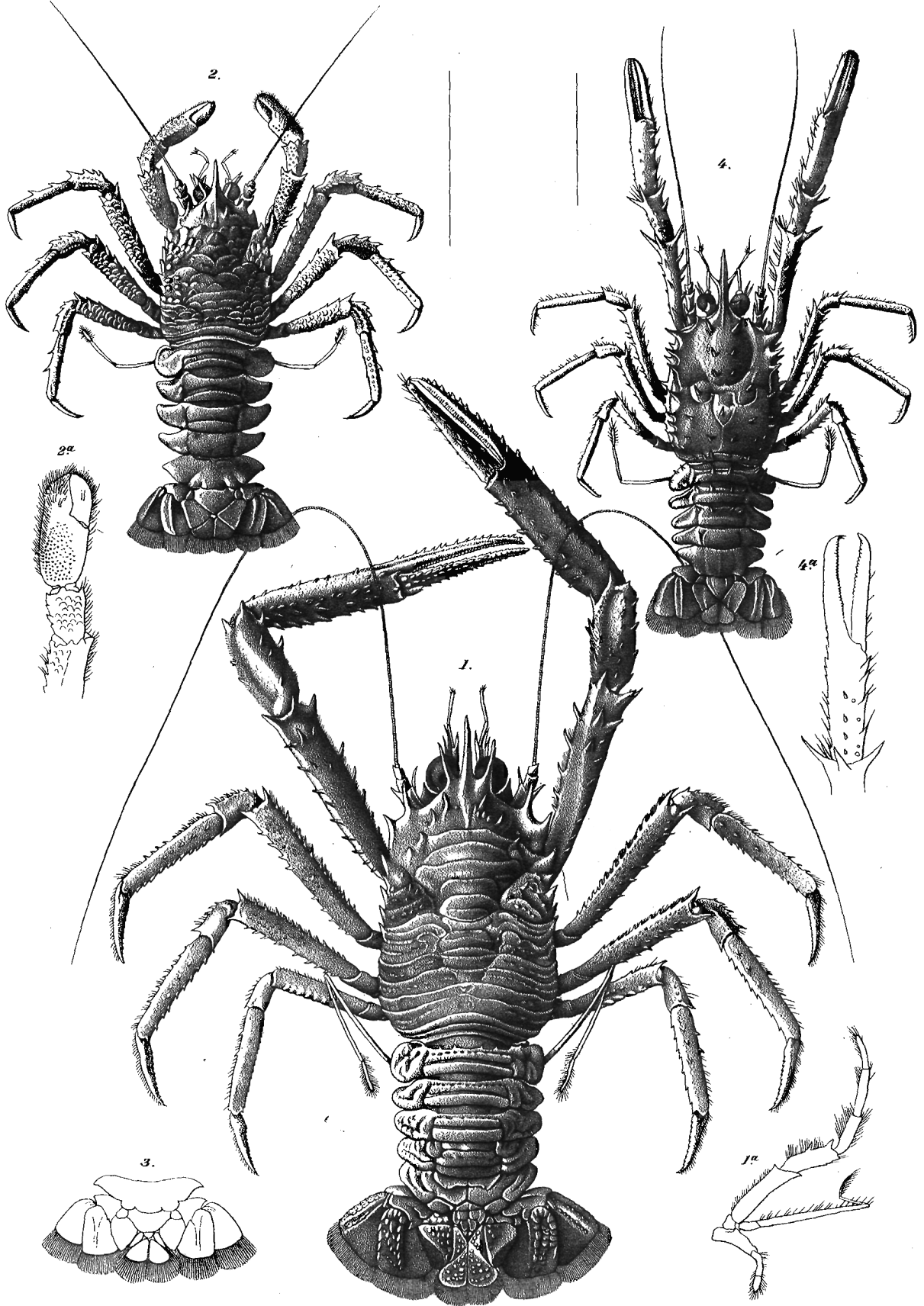
1 MUNIA QUESA 2 MUNIA SCALIPES



A.M. Waterman, del.

B. Meisel, lith.

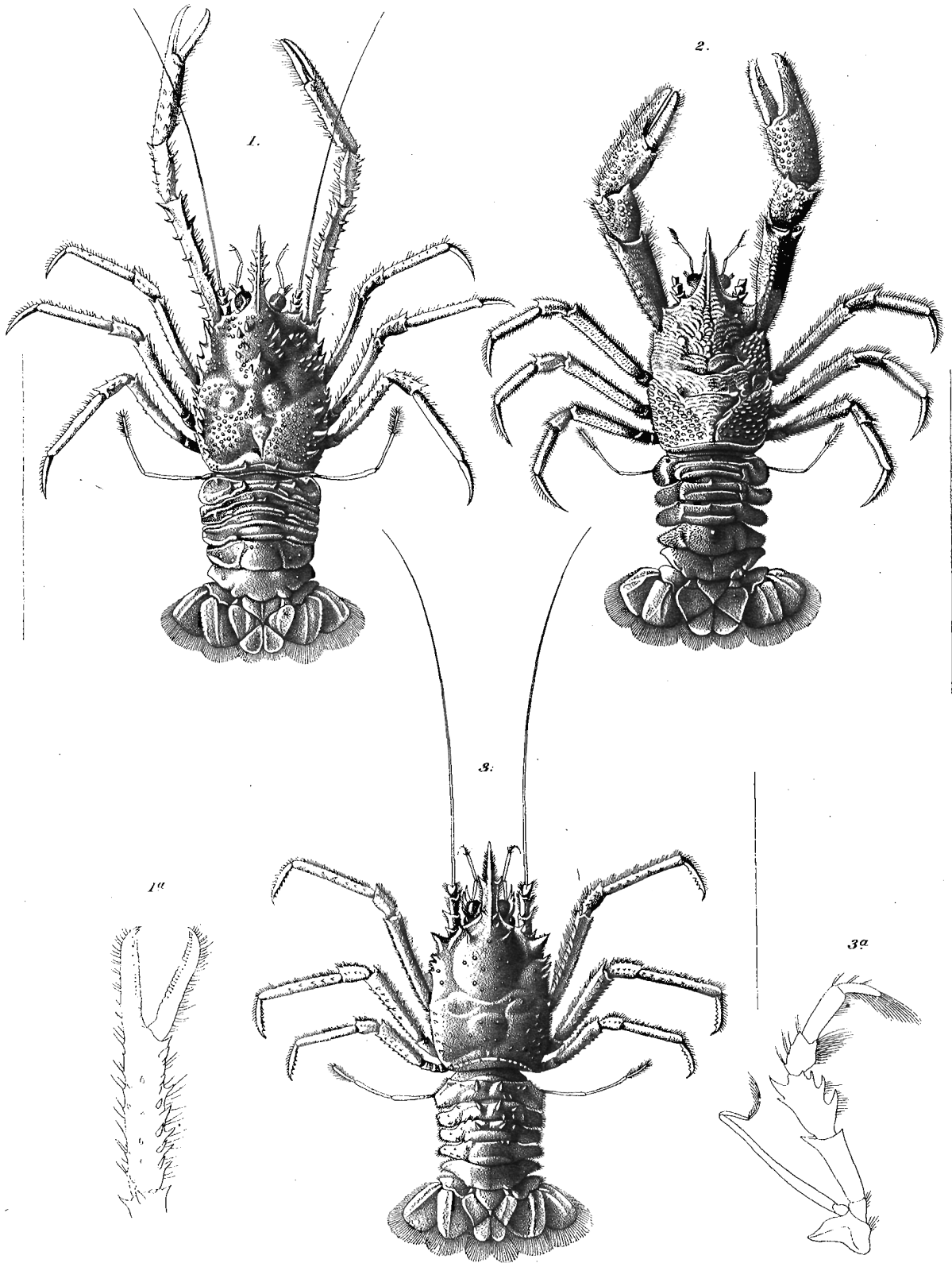
MUNIDA REFULGENS.



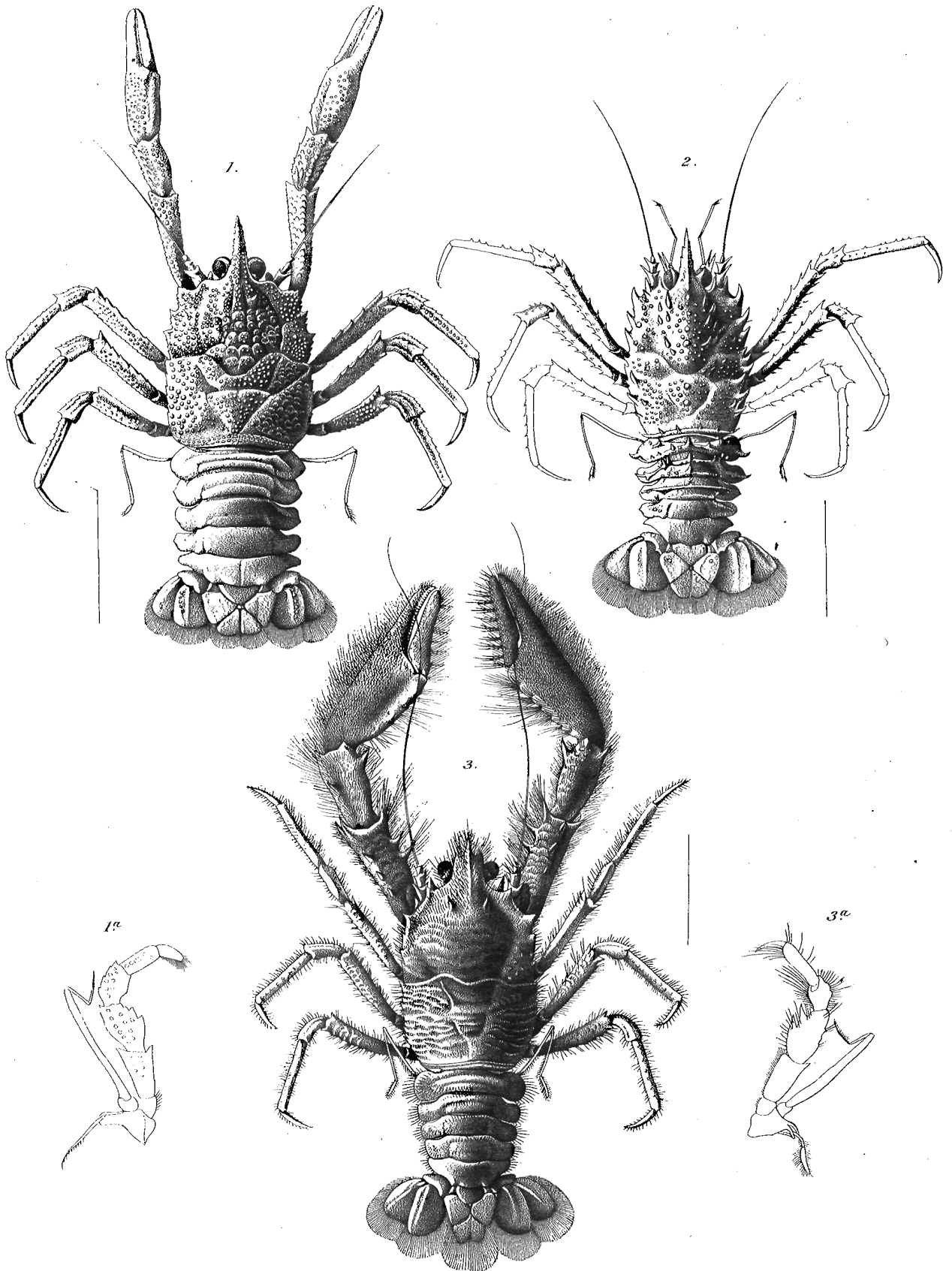
A. M. Westw. del.

B. M. M. scul.

1 MUNIDA PROPINQUA 2. MUNIDOPSIS VICINA.
3 MUNIDOPSIS CILIATA 4 MUNIDOPSIS AGASSIZII.



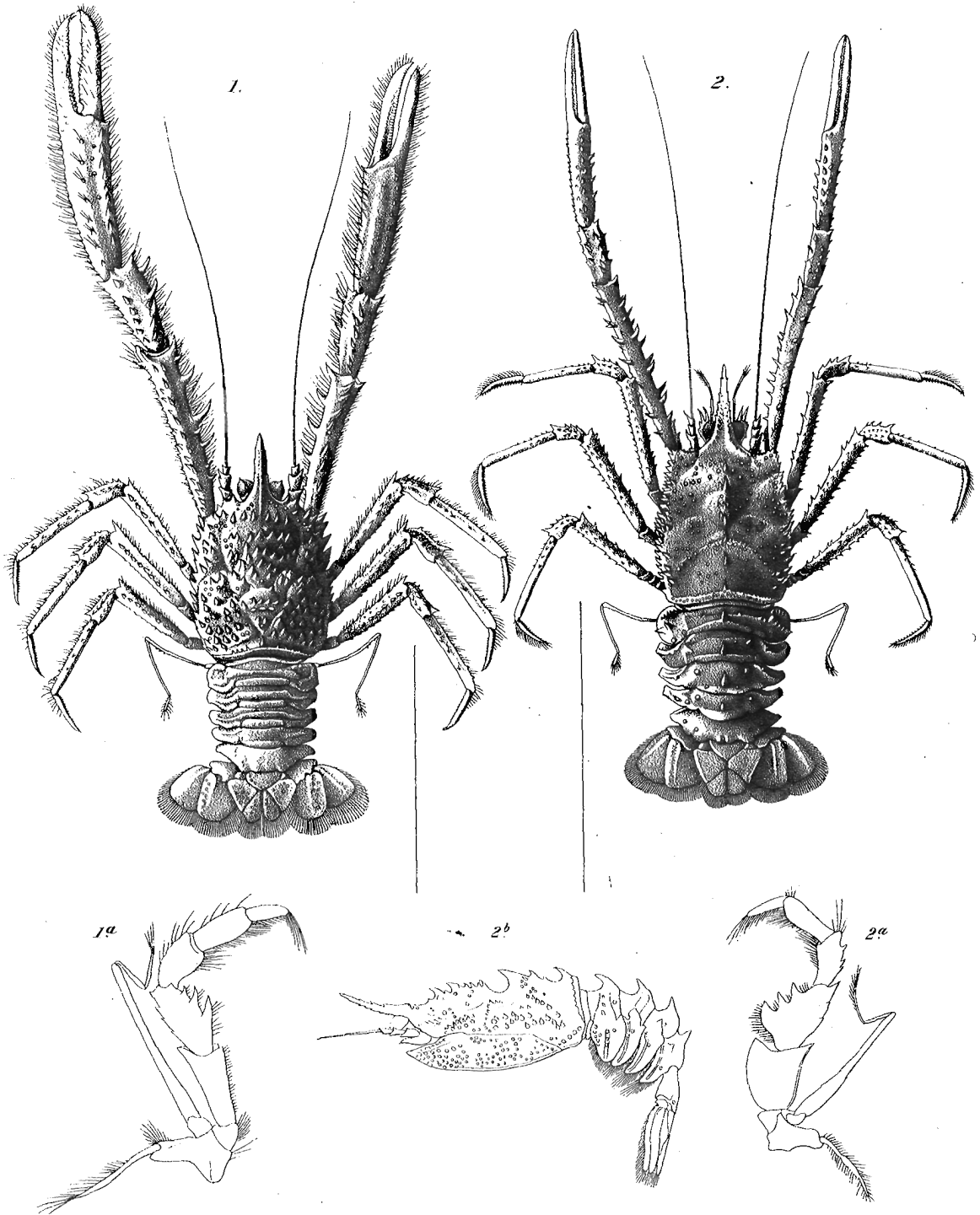
1. MUNIDOPSIS HYSTRIX 2. MUNIDOPSIS VILLOSA.
3. MUNIDOPSIS SERICEA.



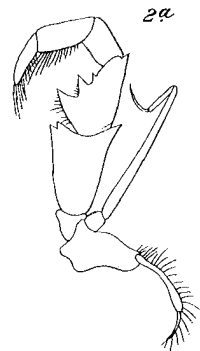
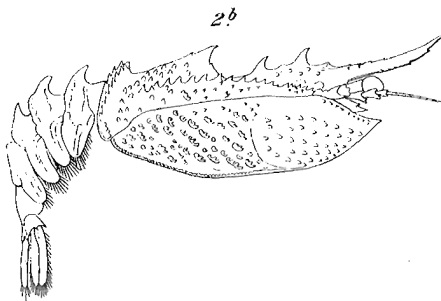
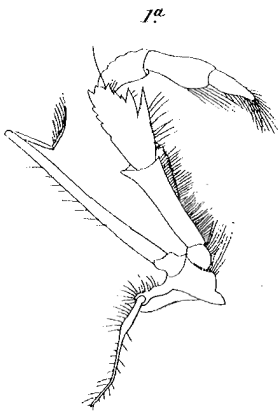
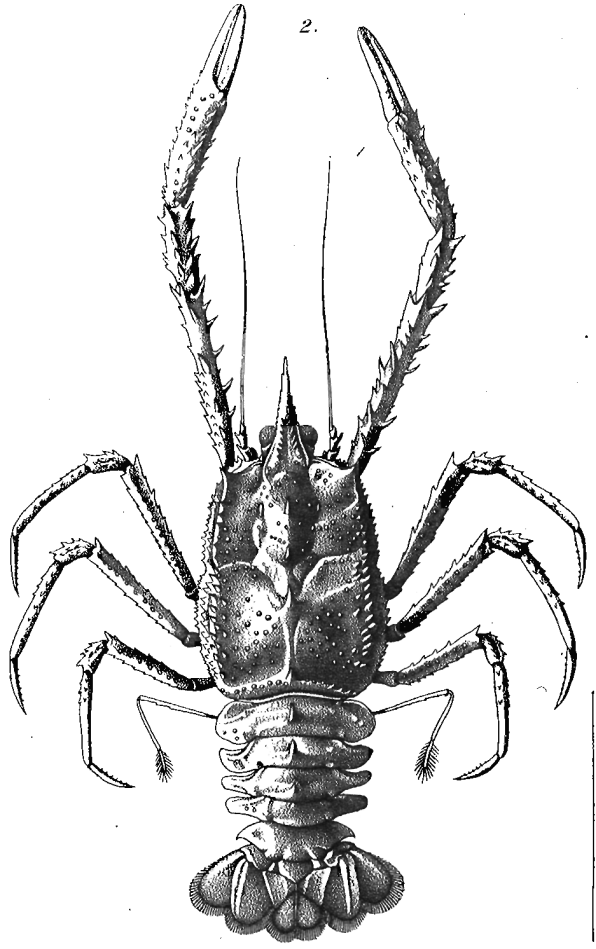
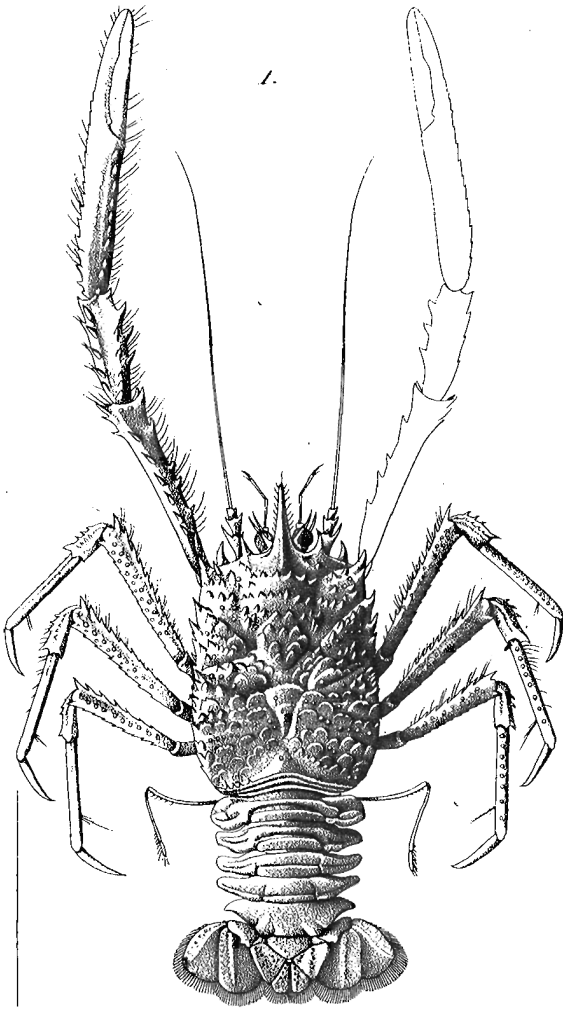
A.M. Westergren, del.

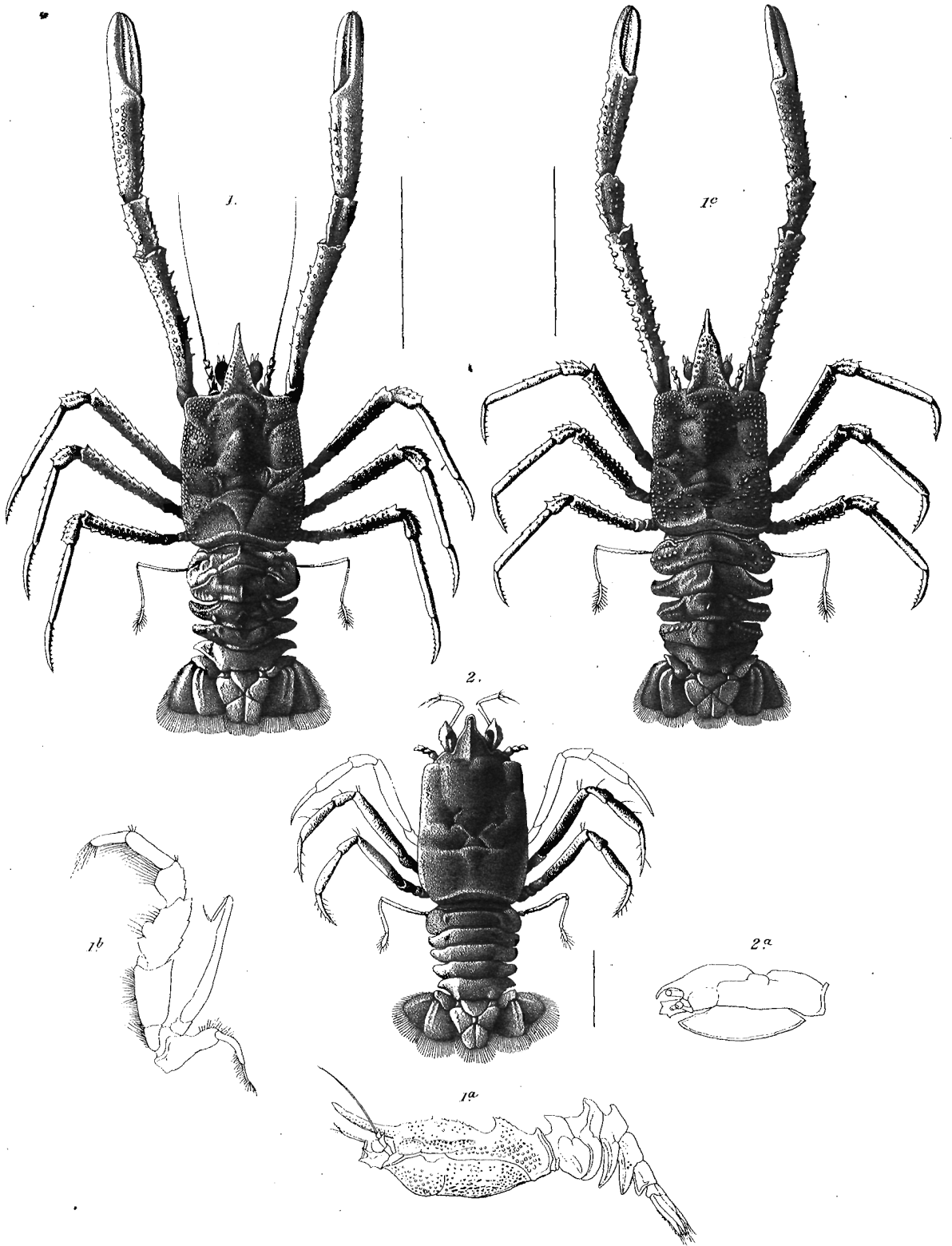
B. Meisel, lith.

1. MUNIDOPSIS ORNATA 2. MUNIDOPSIS MARGARITA.
3. MUNIDOPSIS CRINITA

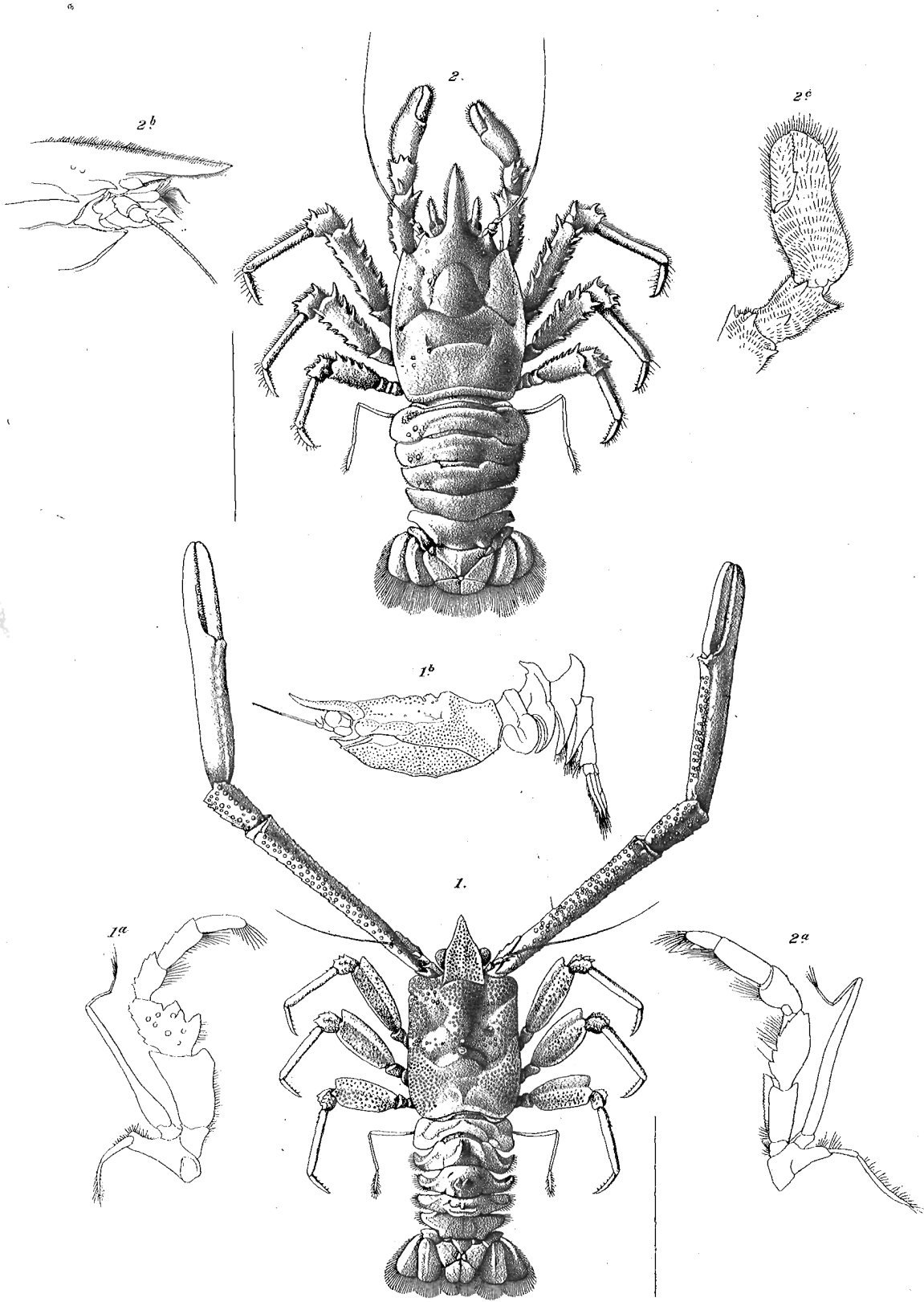


1. MUNIDOPSIS SCABRA. 2. MUNIDOPSIS HAMATA.





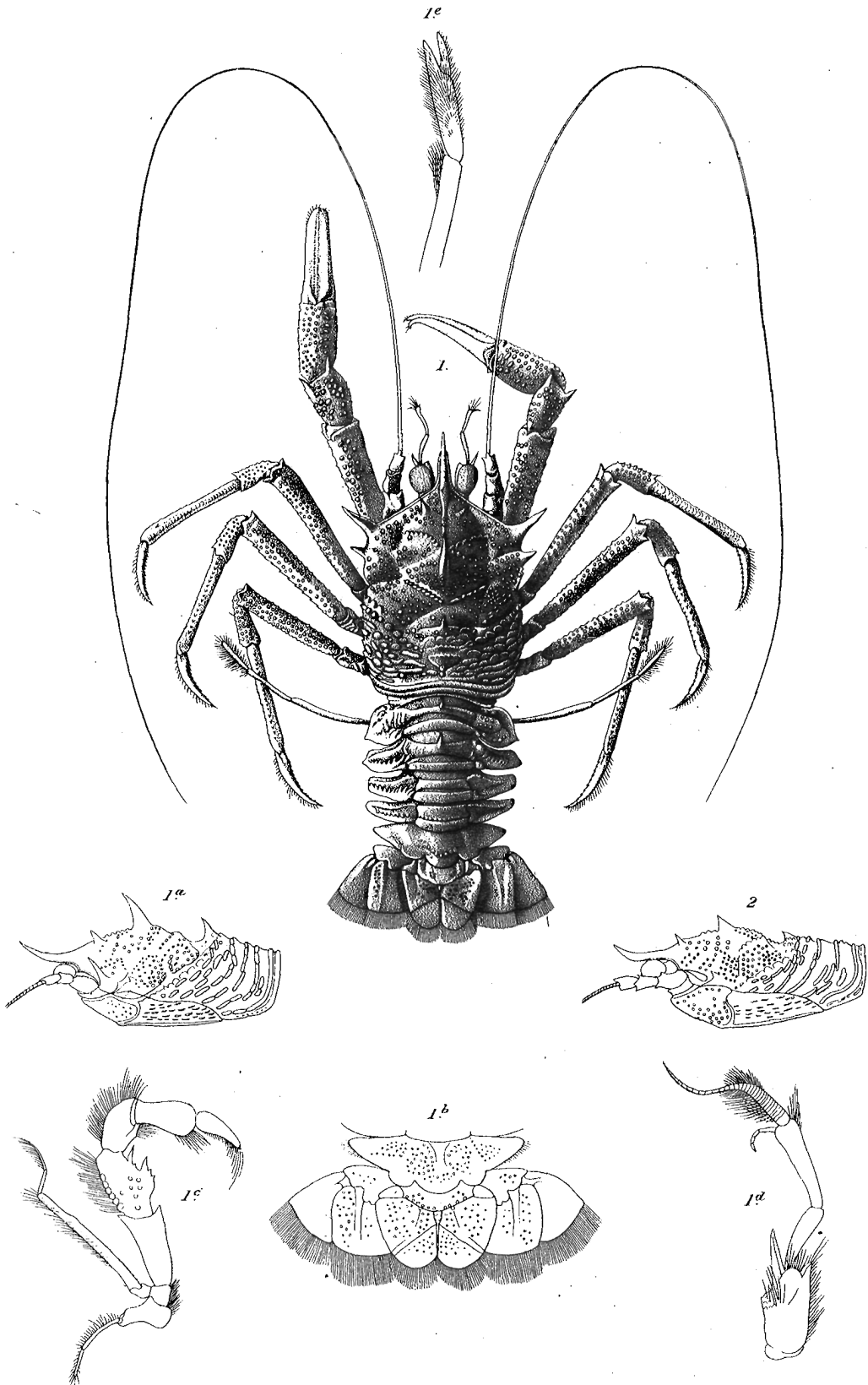
1. MUNIDOPSIS QUADRATA. 2. MUNIDOPSIS INERMIS.



A.M. Westergren, del.

B. Meisel, lith.

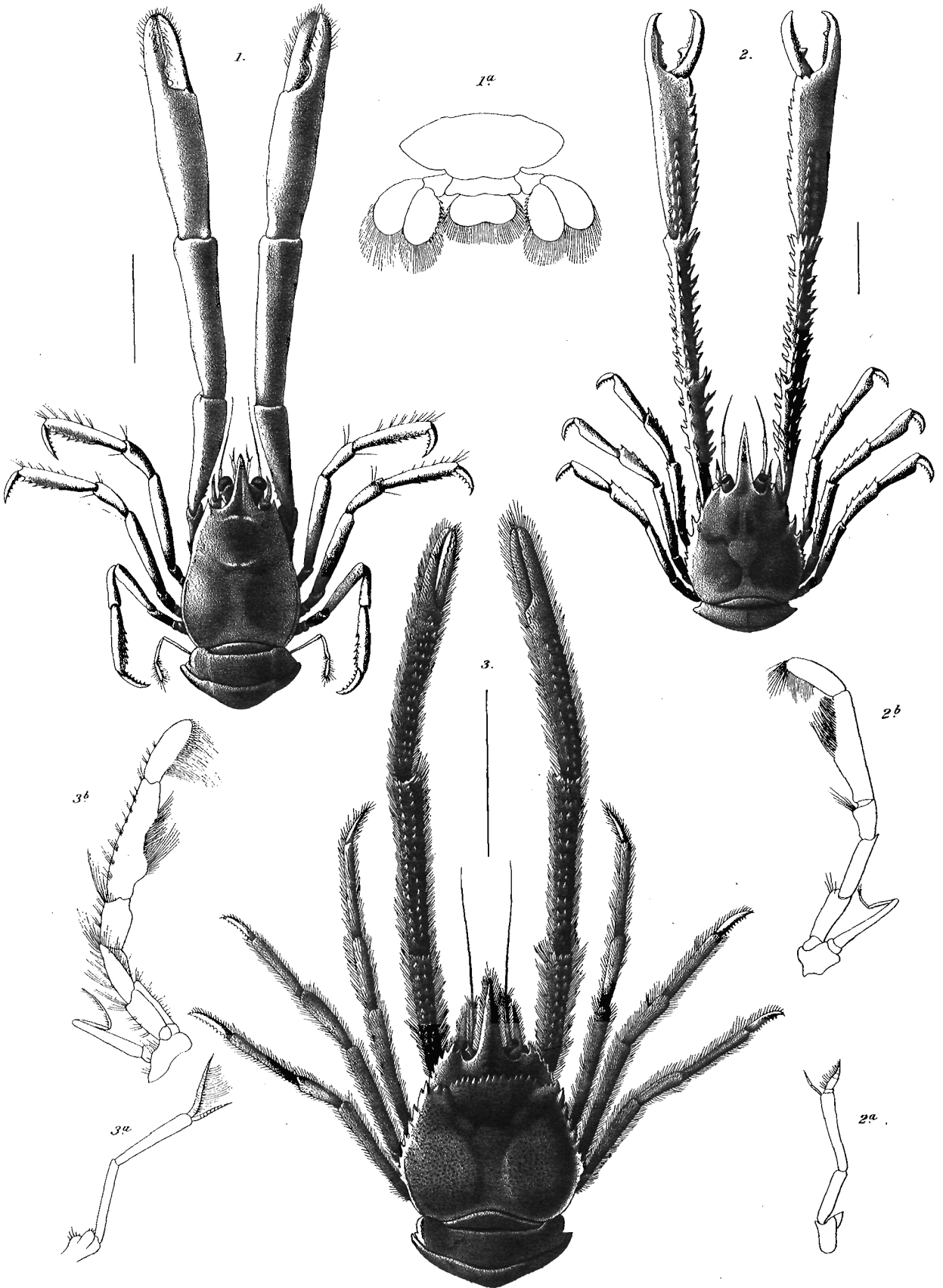
1 MUNIDOPSIS CARINIPES. 2. MUNIDOPSIS HENDERSONIANA.



A.M. Westergren, del.

B. Metael, lith.

1. GALACANTHA DIOMEDEÆ. 2. GALACANTHA DIOMEDEÆ VAR. PARVISPINA.



1 UROPTYCHUS NITIDUS OCCIDENTALIS. 2 UROPTYCHUS BELLUS.
3. UROPTYCHUS PUBESCENS.