EXPLANATION OF THE PLATES.

All the figures were drawn from nature by Mr. J. H. Emerton, except when otherwise stated.*

PLATE XXVI.

Figure 1.—*Architeuthis Harveyi* V. (No. 24). Young. Pharynx and beak, with odontophore; *o*, œsophagus, natural size.

Figure 2.—The same. Distal part of tentacular arm, with club, natural size.

Figure 3.—The same. Segment from distal portion of left arm of the third pair of sessile arms, front view; 3*a*, the same, side view, natural size.

Figure 4.—The same. Basal portion of right arm, of second pair. Front view, natural size.

Figure 5.—*Architeuthis Harveyi* V. (No. 2). One of the marginal suckers of the club, side view; 5*a*, the same, front view, enlarged 2 diameters.

PLATE XXVII.

Figure 1.—*Desmoteuthis hyperborea* V. Ventral view of a female, ½ natural size.

Figure 2.—The same specimen. Dorsal view of head and arms. Part of the arms are imperfect.

Figure 3.—*Histioteuthis Collinsii* V. Original type. One of the tentacular arms. Front view, ½ natural size.

Figure 4.—Beak of the same specimen; *a*, upper, *b*, lower mandible, natural size.

Figure 5.—Suckers of the same specimen: *a*, side, and *a′*, front view of one of the larger suckers of lateral arm; *b*, side, and *b′* front view of a distal sucker, enlarged 2¼ diameters.

Figure 6.—*Sthenoteuthis megaptera* V. Side view of jaws and odontophore, natural size.

Figure 7 and 7*a*.—*Sthenoteuthis pteropus* V. Upper and lower mandibles, natural size.

Figure 8.—*Rossia Hyatti* V. Side view of young male, natural size.

Figure 9.—The same. Egg containing an embryo; enlarged 6 diameters. The shaded portion represents the yolk still remaining unabsorbed.

Figure 10.—*Onychoteuthis Banksii*. One of the large hooks from the middle of the club; *a*, side view; *a′*, front view; enlarged 4 diameters.

Figure 11.—The same. Corresponding views of one of the smaller hooks of the club.

Figure 12.—The same. Horny ring from one of the small suckers on the proximal cluster of connective suckers and tubercles of the club; *a*, side view; *a′*, front view, enlarged 4 diameters.

---

* Most of these figures were drawn in India ink, by Mr. Emerton, for the U. S. Fish Commission, to be engraved in relief, to illustrate a report on the Cephalopods by the writer, which has been printing nearly simultaneously with this article in one of the volumes of the report of Professor S. F. Baird, the Commissioner. To Professor Baird I am greatly indebted for the privilege of first using a large part of the drawings here, which has enabled me to illustrate this article more fully than would, otherwise, have been possible.

PLATE XXVIII.

Figure 1.—*Ommastrephes illecebrosus* V. Young male from Provincetown, Mass. General figure of ventral side, $\frac{6}{7}$ natural size; 1*a*, club of the right tentacular arm, front view, enlarged $1\frac{5}{7}$.

Figure 2.—The same. Club and part of tentacular arm, of a larger ♀ specimen, enlarged $1\frac{5}{7}$ diameters.

Figure 3, 3*a*.—The same. Hectocotylized right ventral arm of a large male specimen, from Eastport, Me., showing the sexual modification of the suckers and their peduncles toward the end of the arm; 3*a* transverse section of the modified portion of the same.

Figure 4.—The same. Pen of a young specimen; $\frac{6}{7}$ natural size.

Figures 5 and 5*a*.—The same. Side and front views of a large sucker of the lateral arms, enlarged $3\frac{3}{4}$ diameters.

Figure 6 and 6*a*.—Side and front views of a smaller, distal sucker of the lateral arms.

Figure 7.—The same. ♀ Side view of the horny ring of one of the largest suckers of the club, enlarged $3\frac{3}{4}$ diameters.

PLATE XXIX.

Figure 1.—*Loligo Pealei* Lesueur. Female from Vineyard Sound. Ventral view, $\frac{3}{8}$ natural size; 1, dorsal arms; 2, 3, 2d and 3d, lateral arms; 4, ventral arms; *t*, tentacular arms; *a*, nuchal olfactory crests, about the ear; *e*, eye; *p*, aquiferous pore; *s*, siphon.

Figure 2.—The same. Tentacular arm of a large male, enlarged $1\frac{1}{8}$ diameters.

Figure 3, 3*a*.—Front and side views of the hectocotylized left ventral arm of a male, showing the sexual modifications of the suckers and their peduncles, toward the tip, enlarged $1\frac{1}{8}$ diameters.

Figure 4.—The same. Female. Front view of the beak and buccal membranes, natural size; *m*, mandibles; *f*, inner fold; *f*, second fold of the buccal membrane; *a*, dorsal; *b*, *c*, lateral; *d*, ventral angles of the outer buccal membrane, with their small suckers; *s*, peculiar horse-shoe shaped tubercle, or sucker, for the attachment of the spermatophores, during copulation.

Figure 5.—*Ommastrephes illecebrosus*. Side view of the head and siphon, after removal of part of the mantle, $\frac{3}{8}$ natural size; 1, 2, 3, 4, bases of 1st to 4th pairs of sessile arms; *t a*, base of tentacular arm; *m*, mantle; *b*, *b'*, olfactory crests around the ear; *d*, siphon; *f*, *f'*, the connective cartilages for attaching it to the mantle.

Figure 5*a*.—The same. Lateral connective cartilage, or 'button' on the inside of the mantle, which fits closely into the cartilage pit (*f*) on the base of the siphon.

PLATE XXX.

Figure 1.—*Rossia Hyatti* Verrill. Female. Ventral view of the head and arms, enlarged 3 diameters.

Figure 2.—*Rossia sublevis* Verrill. Female. Ventral view of the head and arms, enlarged 3 diameters.

PLATE XXXI.

Figure 1.—*Rossia Hyatti*. Dorsal view, enlarged $1\frac{1}{2}$ diameters.

Figure 2.—The same. A young specimen, enlarged $1\frac{1}{2}$ diameters.

Figure 3.—*Rossia sublevis.* Ventral view, enlarged $1\frac{1}{2}$ diameters.

Figure 4.—*Stoloteuthis leucoptera* Verrill. Female. Young, ventral view, enlarged 3 diameters.

Figure 5.—The same. Male. A larger specimen, taken in 1879, enlarged $1\frac{1}{2}$ diameters.

PLATE XXXII.

Figure 1.—*Stauroteuthis syrtensis* V. Dorsal view, $\frac{3}{10}$ natural size.

Figure 2.—The same. Lower side of head; *s*, siphon; *e*, eye; *a*, the auditory pore.

Figure 3.—The same. The siphon, turned back.

Figures 4 and 5.—The same. Superior and inferior mandibles, enlarged $2\frac{2}{3}$ diameters.

This plate was drawn by the author, from the alcoholic specimen, except figs. 4 and 5, which are by J. H. Emerton.

PLATE XXXIII.

Figure 1.—*Octopus Bairdii* Verrill. Male. Ventral view, natural size; *h*, terminal organ of the hectocotylized arm; *i*, the groove along the lower side of the arm.

Figure 1*a*.—The same specimen. Hectocotylized arm, enlarged two diameters.

Figure 2.—*Parasira catenulata* Steenst. Female. Front view, $\frac{1}{2}$ natural size.

Figure 2*a*.—The same specimen. Side view, $\frac{1}{2}$ natural size.

PLATE XXXIV.

Figure 1.—*Loligo Pealei*, var. *pallida* V. Male. Dorsal view, about $\frac{1}{4}$ natural size.

Figure 2.—The same. Pen, about $\frac{1}{2}$ natural size.

Figure 3.—The same. Portion of radula, much enlarged.

Figure 4.—The same. Upper mandible: *a*, rostrum or tip of the beak; *b*, the notch; *c*, the inner end of ala; *d*, the frontal lamina; *e*, the palatine lamina; *ab*, the cutting edge of beak; *bc*, anterior or cutting edge of ala.

Figure 4*a*.—Lower mandible: *a*, rostrum; *ab*, cutting edge; *bc*, anterior edge of ala; *d*, mentum or chin; *e*, gular lamina.

Figure 5.—*Octopus Bairdii* V. Young male. Side-view from a living specimen, nearly natural size.

Figure 6.—The same. Dorsal view, from life, nearly natural size.

Figs. 3, 4, 4*a*, were drawn by the author; the others by J. H. Emerton.

PLATE XXXV.

Figure 1.—*Octopus leutus* V. Female. Original specimen. Ventral view, $\frac{2}{3}$ natural size.

Figure 2.—The same specimen. Dorsal view, $\frac{2}{3}$ natural size.

PLATE XXXVI.

Figure 1.—*Octopus piscatorum* V. Female. Original type. Ventral view, $\frac{2}{3}$ natural size.

Figure 2.—The same specimen. Dorsal view.

Figure 3.—*Octopus obesus* V. Male. Original type. Basal portion of one of the lateral arms, to show the arrangement of suckers, natural size.

Figure 4.—The same specimen. Terminal portion of the hectocotylized arm, enlarged $1\frac{1}{4}$ diameters.

Figure 5.—*Sthenoteuthis pteropus* V., from Bermuda. Female. Anterior end of pen, natural size.

Figure 5*a*.—Posterior end of the same pen.

Figure 6.—The same specimen. Connective cartilage from base of the siphon, natural size.

Figure 7.—The same specimen. Transverse sections of arms; *a*, of dorsal; *b*, of 2d pair; *c*, of third pair, natural size. The suckers are omitted.

Figure 8.—The same specimen. Rims of suckers of sessile arms, enlarged 1⅛ diameter; *a*, *a'*, side and front views of the 15th and 13th sucker of a ventral arm; *b*, *b'*, side and front view of one of the largest suckers of a lateral arm; *c*, *c'*, a dorsal sucker of a dorsal arm.

Figure 9.—Part of border of one of the larger suckers (12th) of the second pair of arms, more enlarged, showing part of the dentate edge of the horny rim, with a portion of the circle of small plates, attached to the membranous border.

Figure 10.—*Octopus Bairdii* V. Spermatophores. A, one with the inner sac (*S*) partly extruded; *i*, the point from which the extension commences, natural size; B, another spermatophore in its original condition; *a*, filament at large end; *b*, filament at small end.

PLATE XXXVII.

Figure 1.—*Loligo Pealei* Les. Female specimen from Vineyard Sound. Pen, natural size and represented as flattened to show the full width of the thin portion.

Figure 2.—*Loligo Pealei*, var. *borealis*. Female specimen, from Annisquam, Mass. Pen, natural size, represented in the same manner.

Figure 3.—*Loligo Pealei*. Pen of a young specimen from Vineyard Sound, natural size. Represented in the same way.

Figure 5.—*Histioteuthis Collinsii* V. Teeth of the odontophore, isolated and enlarged 25 diameters; *a*, median; *b*, inner lateral; *c*, and *d*, outer laterals; *e*, marginal plate; *h*, *g*, and *f*, other views of the lateral teeth. The teeth are not drawn in their natural positions.

Figure 6.—*Loligo pallida* V. Part of teeth of the odontophore, enlarged 50 diameters; *a*, median tooth, front view; *c*, next to outer lateral teeth: *d*, outer lateral teeth; *e*, marginal plates; all are in their natural positions, except *a*.

Figure 7.—*Sthenoteuthis pteropus* V., from Bermuda. Isolated teeth from odontophore, enlarged 25 diameters; *a*, median teeth, front view; *b*, inner lateral; *c*, middle lateral; *d*, outer lateral tooth.

Figure 8.—*Ommastrephes illecebrosus* Les., from Eastport, Me., part of the teeth of the odontophore in their natural positions, enlarged 25 diameters; *a*, median teeth; *b* and *b'*, inner lateral teeth; *c*, middle lateral teeth; *d*, outer lateral teeth.

Figure 9.—*Loligo Pealei*, var. *pallida* V. Female, from Ansonia, N. Y. Tenth sucker of the third pair of arms; *a*, lateral, and *b*, front view, enlarged 2 diameters.

Figure 10.—The same. Male, from Ansonia. Suckers enlarged 2 diameters; *a*, front view of tenth, from third arm; *b*, side view of same; *c*, side view of horny rim of fifth large sucker of tentacular club; *d*, front view of the same.

Figure 11.—*Loligo Pealei*, var. *pallida*. Female. (Same specimen as figure 9.) Fifth large sucker of tentacular arm; *e*, side, and *f*, front view. Enlarged 2 diameters.

Figures 5–8 are from camera-lucida drawings by the author; the others are by J. H. Emerton.

PLATE XXXVIII.

Figure 1.—*Rossia megaptera* V., sp. nov. Dorsal view, natural size.

Figure 2.—*Ommastrephes illecebrosus.* Male, $\frac{1}{3}$ natural size. Opened on the ventral side. The peritoneal membrane, most of the renal organs on the right side, and the reproductive organs, except the testicle (*t*), have been removed. M, mantle cut open; F, caudal fin; P, posterior part of pen; S, stomach; S′, cœcal lobe; H, systemic heart; *c*, the eye; *b*, olfactory or nuchal crests; *d*, siphon; *f*, *f*, connective cartilages on the base of the siphon; *f′*, *f′*, connective cartilages of the mantle, which fit into *f*, *f*; *m′*, lateral muscles of neck; *g*, *g*, gills; *l*, liver; *i*, ink-sac; *h*, intestine or rectum; *a o*, anterior aorta, going to head; *b o*, efferent branchial vessel; *o*, median ventral artery of mantle; *o′*, *o′*, lateral arteries going to mantle and fins; *a u*, branchial auricles; *v c*, anterior vena-cava; *v c″*, posterior vena-cava of left side (the right one has been removed); *r*, *r*, saccular ventral renal organs; *r′*, more compact glandular (renal) organ, connected with the posterior venæ-cavæ; *t*, testicle or spermary; *p″*, hooded posterior tip of pen, enclosing the end of the spermary. From an alcoholic specimen.

Figure 3.—*Architeuthis Harveyi* V. (No. 24). Sucker (50th) of lateral arm, second pair, showing the scales around the aperture, front view, enlarged about 4 diameters.

Figure 4.—The same specimen. Otolith; *a*, side-view; *b*, front-view.

Figure 5.—The same specimen. Portion of radula, showing most of three transverse rows of teeth; *a*, median teeth; *b*, *b′*, inner-lateral teeth; *c*, *c′*, and *d*, two outer-lateral rows of teeth, much enlarged.

Figure 6.—The same, more enlarged, lettered as in fig. 5.

Figure 7*c′*.—The same. One of the teeth from the outer-lateral row.

Figure 8.—*Octopus Bairdii* V. Male. Figured in the act of swimming, dorsal view; *a*, terminal spoon of hectocotylized arm. From a living specimen, nearly natural size.

PLATE XXXIX.

Figure 1.—*Desmoteuthis hyperborea* V. Female. Specimen opened on the ventral side. M, mantle; F, caudal fin; P, P′, posterior part of pen; *c*, *c*, eyes; *d*, siphon; *d o*, aperture of same; *d″*, base and posterior entrance of same; *f′*, commissure attaching the siphon to the mantle laterally; *g*, *g*, gills; *h*, rectum; S, S, S, divisions of stomach and cœcal lobe; *l*, *l*, long tubular intestine, plicated within, and with rows of follicular glands along each side; *i*, liver and ink-sac; H, systemic heart or ventricle; *b o*, branchial efferent vessels; *a u*, branchial auricles; *v c″*, posterior vena-cava; *r′*, renal organs; *o v*, ovary; *o v′*, some ovules larger than the rest; *o p*, *o p*, right and left oviducts; *x′*, nidamental glands of the oviducts; *x x*, *x x′*, accessory nidamental glands. From a mutilated specimen.

Figure 2.—*Ommastrephes illecebrosus.* Female, less than natural size. Lettering as in Plate 38, fig. 2, with the following additional letters: *b″*, lower nuchal facet, with the auditory pore; *u*, urethreal openings in the peritoneal membrane, communicating between the gill-cavity and the visceral cavity, containing the renal organs, *r*, *r*; *v c′*, lateral pallial veins, or venæ-cavæ; *o v*, ovary; *o d*, *o d′*, right and left oviducts; *o p*, the anterior opening; *o x*, *x x*, nidamental glands.

Figure 3.—*Ommastrephes illecebrosus.* Jaws enlarged $1\frac{1}{2}$ diameters: *a*, superior; *b*, inferior mandible.

Figure 4.—*Loligo Pealei.* Portion of the radula, much enlarged.

PLATE XL.

Figure 1.—*Loligo Pealei*, var. *pollida*. Male. Ventral view, about $\frac{2}{3}$ natural size. The mantle has been cut open, a little to one side of the median line; most of the peritoneal membrane has been removed. C, lower side of head; M, mantle; F, caudal fin; *a*, lachrymal pore; *b*, olfactory crests; *c*, eye; *d*, siphon, cut open; *d''*, cavity of siphon; *e*, valve of siphon; *f*, one of the connective cartilages of the siphon; *f'*, one of the connective cartilages of the mantle, in the form of a ridge, fitting into the siphonal cartilage; *g*, gill; *h*, termination of the intestine, or rectum; *i*, ink-sac; *i'*, duct of ink-sac; *l*, portion of liver, in position; *m'*, *m'*, muscular columns connecting the head and siphon with dorsal portion of the body; H, systemic heart, or ventricle, crossed by the artery of the ink-sac; *a o*, bulbous base of anterior aorta; *o*, ventral pallial artery, or median branch of the posterior aorta, supplying the ventral parts of the mantle; *o'*, one of the caudal arteries or lateral branches of the posterior aorta going to the caudal fin and posterior parts of the mantle; *a u*, *a u*, branchial auricles; *b v*, afferent vessel going to the gills; *b o*, efferent branchial vessels, returning the blood to the ventricle, their swollen basal portions acting as auricles; *v c*, anterior vena-cava; *r*, *r*, ventral renal organs, two ventral sacculated branches of the vena-cava (on the left side, the vein from the ink-sac and rectum is shown); *r'*, *r'*, two pyriform renal organs, or sacculated and glandular portions of the posterior venæ-cavæ, directly connected with *r*, *r*; *v*, *v c'*, lateral pallial veins, going to the dorsal sacculated divisions of the venæ-cavæ; *v c''*, *v c''* two posterior venæ-cavæ, returning from the caudal fin and mantle; S, first stomach, or gizzard; S', large, saccular cœcal appendage of the stomach; *k*, glandular, plicated division of the stomach; *t*, spermary or testicle; *p r*, prostate gland, with the vesiculæ-seminales and spermatophore-sac; *p*, efferent sperm-duct or 'penis'; P, posterior portion of the pen.

Figure 2.—The same. Dorsal view of the reproductive organs, part of the renal organs, heart, etc., dissected out. The lettering is as in figure 1, with the following additions: *v d*, vas-deferens, closely folded upon itself; *s s*, spermatophore-sac; *p o*, genital artery; *g o*, spermatic artery and vein; S'', commencement of intestine: *p t*, part of peritoneal membrane.

Figure 3.—*Loligo Pealei*. Female in the breeding season. Oviduct, filled with ova, dissected out. Ventral view, about $\frac{1}{2}$ natural size; *v o*, commencement of convoluted, thin membranous portion of oviduct; *o d*, entrance to glandular portion; *o d'*, glandular portion of oviduct, surrounded by the large, laminated gland, *x'*, the arterial vessels of which have been injected; *o p*, orifice of the oviduct.

Figure 3*a*.—The same specimen, seen from the dorsal side.

Figures 4*a*, 4*b*.—*Loligo Pealei*. Male. Side and front views of horny rim of one of the marginal suckers of the tentacular club, enlarged 10 diameters.

Figure 5.—The same. Portion of the rim and marginal denticles of one of the large median suckers of the tentacular club, much enlarged.

Figures 3, 3*a* are by the author; the others by J. H. Emerton, from alcoholic specimens.

PLATE XLI.

Figure 1.—*Loligo Pealei*, var. *borealis*. Female, in the breeding season. Ventral view, about $\frac{1}{2}$ natural size. The mantle has been cut open nearly in the median line and the peritoneal membrane partly removed. The lettering is the same as

in fig. 1 of Pl. XL, with the following additions: 1, 2, 3, 4, first, second, third and fourth pairs of sessile arms; *t a*, tentacular arms; *d'*, external orifice of siphon; *o v*, *o v'*, ovary, mostly concealed by the oviduct; *v o*, commencement of glandular portion of oviduct; *x'*, large gland surrounding the oviduct; *o d'*, anterior portion of oviduct; *o p*, orifice of oviduct; *x x*, pair of large, ventral, laminated, nidamental glands; *x*, pair of folliculated and mottled accessory nidamental glands; *u*, one of the urethral openings of the peritoneal membrane.

Figure 2.—*Loligo Pealei.* Embryo taken from the egg, ventral view, much enlarged; *a*, *a*, *a*, ventral arms, tentacular arms, and third pairs of sessile arms; *c*, *c*, eyes on stout peduncles or lobes from the sides of the head; *m*, mantle-edge; *h*, branchial auricles; *y*, unabsorbed yolk-mass.

Figure 3.—The same. An embryo, within the egg, somewhat more advanced than fig. 2, side view, less enlarged. The lettering is as in fig. 2, with the following additions: *a'*, second pair of arms; *a''*, third pair; *a'''*, tentacular arms; *a''''*, ventral arms; *s*, orifice of siphon; *o*, otolith; *f*, rudimentary caudal fins. Chromatophores are developed on the mantle.

Figure 4.—The same. An embryo at the period of hatching. Ventral view, enlarged about 25 diameters. The yolk-sac is nearly absorbed.

Figure 5.—The same. A somewhat older larva, taken swimming at the surface. Dorsal view, enlarged about 7 diameters. The dorsal arms are still very small; the tentacular arms are the largest; the chromatophores are large and symmetrically arranged, but only part of them are figured; the caudal fins do not reach the posterior end.

Figures 2 and 3 are from camera-lucida drawings of living specimens by the author; 4 is by J. H. Blake from life; 1 and 5 are by J. H. Emerton, from alcoholic specimens.

PLATES XLII, XLIII, AND XLIV.

These relate to the next article, which see.

PLATE XLV.

Figure 1.—*Lestoteuthis Fabricii* Verrill. Young. Pen, enlarged two diameters. Copied from G. O. Sars.

Figure 1*a*.—The same. Part of odontophore. Copied from G. O. Sars.

Figure 1*b*.—The same. Portion of tentacular club, front view, enlarged. Copied from G. O. Sars.

Figure 2.—The same. Young. General figure, dorsal view, enlarged two diameters. From an American example.

Figures 2*a*, 2*b*.—The same. Front and side views of one of the suckers from the outer rows of a lateral arm of the same specimen.

Figures 2*c*, 2*d*.—The same. Front and side views of a hook-sucker from the median rows of the same arm.

Figure 3.—*Loligo Pealei.* Young female. Dorsal view of a specimen taken at Newport, R. I, in August. Enlarged two diameters. From a fresh specimen.

Figure 4.—The same. Young, just hatched. Ventral view, seen as a transparent object from a specimen raised from the eggs, at Newport, R. I., August 5th. Much enlarged; *a''*, *a'''*, *a''''*, three of the pairs of arms, showing the suckers on *a'''*, the tentacular arms; *d*, the beak; *l*, odontophore; *e*, the eye; *f*, caudal fin; *g*, gill; *h*, ventricle of the heart; *h'*, *h'*, branchial auricles: *i*, ink-bag; *m*, mantle; *o*, otoliths; *s*, siphon; *s'*, base of siphon; *t*, end of intestine; *u*, stomach; *y*, portion of yolk-sac, not yet absorbed.

Figure 5.—*Sthenoteuthis megaptera* V. Beak and inner buccal membrane, front view, natural size.

Figure 5*a*.—The same. Large sucker from the tentacular arm of the same specimen, front view, enlarged two diameters.

PLATE XLVI.

Figure 1.—*Calliteuthis reversa* Verrill. Female. Ventral view, natural size.

Figure 1*a*.—The same. Beak, buccal membranes and base of arms, front view, natural size.

Figure 1*b*.—The same. One of the larger suckers from a lateral arm, enlarged.

Figure 2.—*Heteroteuthis tenera* Verrill. Dorsal view of female, enlarged two diameters.

Figure 2*a*.—The same. Tentacular club, enlarged four diameters.

Figure 2*b*.—The same. Pen, enlarged four diameters.

Figure 2*c*.—The same. Jaws, side view, enlarged four diameters; *a*, superior; *b*, inferior mandible.

Figure 2*d*.—The same. Part of the odontophore, much enlarged.

Figure 3.—The same. Front view of male, enlarged two diameters.

Figures 3*a*, 3*b*.—The same. Front and side-views of one of the suckers of the lateral arms of the same specimen.

Figure 4.—*Rossia sublevis* Verrill. Pen from ♀ (see Plate 47, fig. 2), enlarged four diameters.

Figure 5.—*Rossia Hyatti* Verrill. Female. Suckers, enlarged fifteen diameters; *a*, one of the largest from third pair of arms, side-view; *b*, *c*, two forms of suckers from the tentacular club.

Figure 6.—*Rossia megaptera* Verrill. Female. Suckers, enlarged fifteen diameters; *a*, front view of one of the largest from third pair of arms; *b*, *c*, *d*, three suckers from the tentacular club.

Figures 5 and 6 are camera-lucida drawings by the author; the rest are by J. H. Emerton.

PLATE XLVII.

Figure 1.—*Chiroteuthis lacertosa?* Verrill. One of the tentacular arms, outer side, natural size.

Figure 1*a*.—The same. Front view of club, enlarged two diameters.

Figure 1*b*.—The same. One of the suckers, enlarged.

Figure 2.—*Rossia sublevis, var.* Verrill. Female. Dorsal view, natural size.

Figure 2*a*.—The same. One of the suckers of the tentacular club, side-view, much enlarged.

Figure 2*b*.—The same. Marginal scales on the edge of the sucker, more enlarged.

Figure 3.—The same. One of the arms of the third pair, from another female example, enlarged two diameters.

Figure 4.—The same. Corresponding arm of the male.

Figure 5.—*Heteroteuthis tenera* Verrill. Dorsal view of male, enlarged two diameters.

Figure 5*a*.—The same. One of the larger marginal suckers of the tentacular club; front view, much enlarged.

Figure 5*b*.—The same. Portion of the margin of the sucker, more enlarged; to show the scales.

PLATE XLVIII.

Figure 1.—*Mastigoteuthis Agassizii* Verrill. Dorsal view, slightly enlarged.

PLATE XLIX.

Figure 1.—*Lestoteuthis Fabricii* V. (*Cheloteuthis rapax* Verrill.) Club of tentacular arm, front view, enlarged two diameters. The horny hooks are lost from the claws, *a*, *a'*, *a''*; *b*, *c*, small lateral suckers; *d*, *d'*, small suckers of distal portion; *e*, *e'*, connective suckers and tubercles.

Figure 1*a*.—The same. One of the suckers corresponding to *c* of fig. 1, front view, much enlarged.

Figure 1*b*.—The same. A small sucker, corresponding to *d* of fig. 1.

Figure 1*c*, 1*d*.—The same. Front and side-views of one of the claws, with its enclosed horny hook or 'nail,' from the middle of a lateral arm, enlarged eight diameters.

Figure 1*e*.—The same. Connective cartilage from base of siphon, front view, enlarged two diameters.

Figure 1*f*.—The same, Beak and pharynx, side view, enlarged two diameters.

Figure 2.—*Mastigoteuthis Agassizii* Verrill. Front view of the beak, buccal membranes (*b*, *d*), and bases of the arms; enlarged two diameters.

Figure 3*a*.—The same. Side view of head, siphon, and anterior part of mantle, showing the cartilage (*c*), on the inner surface of the mantle, which interlocks with *c'* on the base of the siphon; *e*, olfactory (?) papilla, near the ear; *p*, an aquiferous pore (?); *s*, siphon; *t a*, base of tentacular arms; 1, 2, 3, 4, bases of corresponding pairs of arms.

Figure 3*b*.—The same. Pen, ventral view enlarged two diameters.

Figure 3*c*.—The same pen. Side-view.

Figure 3*d*.—The same. Portion from near the end of one of the tentacular arms, enlarged sixteen diameters.

Figure 3*e*.—The same. Suckers from the tentacular arm, much enlarged: *a*, side-view; *a'* and *a''*, nearly front views.

Figure 3*g*.—The same. One of the suckers from the middle of a lateral arm, front view, much enlarged.

Figure 4.—*Octopus Bairdii* Verrill. Portion of odontophore, much enlarged.

Figure 4*a*.—The same. Jaws: *s*, superior; *i*, inferior mandibles, enlarged two diameters.

PLATE L.

Figure 1.—*Alloposus mollis* V. Young male. Side view, showing the sac containing the hectocotylized arm, cut open, so as to expose the partially developed arm. One-half natural size.

Figure 1*a*.—The same. Hectocotylized arm removed from the sac, enlarged two diameters.

Figure 2.—The same. Young female. Ventral view, one-half natural size.

Figure 2*a*.—The same specimen. Dorsal view, one-half natural size.

PLATE LI.

Figure 1.—*Octopus Bairdii, var.* Verrill. Side view of a young male, enlarged about two diameters.

Figure 1*a*.—The same. Terminal appendage of the hectocotylized arm, enlarged eight diameters.

Figure 2.—*Octopus lentus* Verrill. Side view of a male, enlarged about two diameters.

Figure 3.—*Alloposus mollis* Verrill. Portion of an arm, with suckers, from near the base, natural size.

Figure 4.—*Alloposus mollis* Verrill. Terminal portion of a mature, detached hectocotylized arm, natural size.

PLATE LII.

Figure 1.—*Eledone verrucosa*, Verrill. Side view of the male, natural size.

Figure 1*a*.—The same. Distal portion of the hectocotylized arm, to edge of basal web, showing the terminal appendage and the lateral groove.

PLATE LIII.

Figure 1.—*Eledone verrucosa*, Verrill. Dorsal view of the male, natural size.

PLATE LIV.

Figure 1.—*Architeuthis princeps* V. Side view. Restored mostly from No. 13. One-twenty-fourth natural size.

Figure 2.—*Sthenoteuthis pteropus* V. Side view of the specimen from Bermuda. One-fourth natural size.

Figure 2*a*.—Caudal fin of the same specimen. Dorsal view, one-fourth natural size.

Figure 3.—*Loligo Pealei* Les. Portion from the middle of the tentacular club of a specimen having unusually small tentacular suckers; *a*, *a'*, largest median suckers; *b*, *b'*, lateral suckers, enlarged 4 diameters.

Figure 4.—*Stoloteuthis leucoptera* V. Male. Second lateral arm, showing the greatly enlarged middle suckers, enlarged 4 diameters.

PLATE LV.

Figure 1.—*Lestoteuthis Fabricii* V. One of the tentacular arms; enlarged 2 diameters.

Figure 1*a*.—The same. The larger claw. Side view.

Figure 1*b*.—The same. Lateral arm; enlarged 2 diameters.

Figures 1*b'*, 1*b''*.—The same. One of the hooks; enlarged 8 diameters.

Figure 1*c*.—The same. Portion of ventral arm; enlarged 2 diameters.

Figure 1*d*.—The same. Pen, ventral view; natural size.

Figure 2.—*Desmoteuthis tenera* V. General figure of male, dorsal view; natural size.

Figure 2*a*.—The same. Teeth of odontophore; enlarged 22 diameters.

Figure 2*b*.—The same. One of the larger suckers of the lateral arms, front view; enlarged 8 diameters.

Figure 2*c*.—The same sucker; side view.

Figure 2*d*.—Valve-like apparatus within base of siphon; natural size; *S*, orifice of siphon; *m*, median organ; *i'*, lateral papilla, and *i*, medio-dorsal papilla; *n*, *n'*, lateral cushions.

Figure 3.—*Brachioteuthis Beanii* Verrill. Dorsal view of the male; natural size.

Figure 3*a*.—The same. Pen, ventral view; enlarged slightly.

Figure 3*b*.—The same. Teeth of the radula; enlarged 22 diameters.

Figure 4.—*Desmoteuthis hyperborea*. Side view of one of the large suckers of the 3d pair of arms, side view; enlarged 8 diameters.

Figure 4*a*.—The same. Peculiar organs on the interior of the medio-dorsal side of the base of the siphon; enlarged 2 diameters; *i*, median, *i'*, lateral papillæ.

Figure 5.—*Chiroteuthis lacertosa* V. Young female. One of the suckers of the tentacular arms, front view; enlarged 22 diameters.

Figure 6.—*Histioteuthis Collinsii*. One of the larger suckers of the median rows of the tentacular club, side view; enlarged 2 diameters.

Figure 6*a*.—The same. One of the suckers of the sublateral rows of the tentacular club.

PLATE LVI.

Figure 1.—*Chiroteuthis lacertosa* Verrill. Dorsal view of the male; three-quarters natural size; *t a*, stump of one of the tentacular arms, with a few of the sessile suckers remaining.

Figure 1*a*.—The same. Ventral view of the pen; enlarged 3 diameters.

Figure 1*a'*.—The same. Section of the anterior part of the pen; 1*a''*, section of the posterior part of the pen; much enlarged.

Figure 1*b*.—The same. Connective cartilage of siphon; enlarged 3 diameters.

Figure 1*c*.—The same. Lateral connective cartilage of mantle.

Figures 1*d*, 1*e*.—The same. One of the larger suckers of the 3d pair of arms, front and side views; enlarged 6 diameters.

Figure 1*f*.—The same. Papilla from behind and below the eye; enlarged 3 diameters.

Figure 2.—*Brachioteuthis Beanii* V. Connective cartilage of the mantle; enlarged.

Figure 2*a*.—The same. Lateral connective cartilage of the siphon; enlarged.

Figure 3.—*Desmoteuthis tenera* V. Tentacular arm; enlarged 3 diameters.

ERRATA.

Pages 185, 206–208, correct description of pen, as on p. 395.

Page 187, line 11, for M. Gabriel, read E. Gabriel.

Page 190, line 32, for 2·5, read 3·5.

Page 193, line 11, for 1878, read 1879.

Page 213, line 11, for ·22, read 22.

Page 214, line 25, and page 215, line 6 from bottom, for ventral, read lateral.

Page 250, lines 22–25, omit the paragraph relating to *Dosidicus;* line 29, for median hook, read serrated ring; last line, for *A. Kamschatica*, read *L. Kamtschatica.*

Page 251, lines 18, 24, omit *Dosidicus;* lines 22, 25, for solid cartilaginous, read hollow; line 34, for *Kamschatica, read Kamtschatica.*

Pages 268, 277, 278, 279, 280, 281, 289, 290, 293, for *illecebrosa*, read *illecebrosus.*

Page 290, line 8 from bottom, for *Gonatus* Gray, read *Gonatus* G. O. Sars, Steenst., *non* Gray; omit quotation from Gray; line 3 from bottom, after sessile arms, insert except the ventral, [see p. 388].

Page 291, line 12, for Verrill, read Steenstrup; lines 17–22, omit references to Möller, Gray, Tryon; line 7 from bottom, after developed, insert (except on those of the ventral).

Page 292, line 26, and p. 293, line 1, for *Chiloteuthis*, read *Cheloteuthis* (=*Lestoteuthis*), [see p. 387].

Page 299, line 1, for *Bonplandi* D'Orb., read *lacertosa?* Verrill, and omit syonymy.

Page 305, line 10 from bottom, for posterior, read terminal.

Page 338, line 26, for anterio-, read antero-.

Page 347, for *Sepiola*, read *Stoloteuthis;* omit references to Leach, Gray, [see p. 417].

Page 379, line 4, for 3*a*, read 4.

Page 385, line 23, for Oversight, read Oversigt.