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— 14 —

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UNITED STATES NATIONAL MUSEUM.

No. 14.

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PUBLISHED UNDER THE DIRECTION OF THE SMITHSONIAN INSTITUTION.

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WASHINGTON:  
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1879.

### ADVERTISEMENT.

This work is the fourteenth of a series of papers intended to illustrate the collections of Natural History and Ethnology belonging to the United States and constituting the National Museum, of which the Smithsonian Institution was placed in charge by the act of Congress of August 10, 1846.

It has been prepared at the request of the Institution, and printed by authority of the honorable Secretary of the Interior.

SPENCER F. BAIRD,  
*Secretary Smithsonian Institution.*

SMITHSONIAN INSTITUTION,  
*Washington, April 3, 1879.*



INTERNATIONAL EXHIBITION, 1876.

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# CATALOGUE

OF THE

COLLECTION TO ILLUSTRATE

THE

ANIMAL RESOURCES AND THE FISHERIES

OF THE

UNITED STATES,

EXHIBITED AT PHILADELPHIA IN 1876 BY THE SMITHSONIAN INSTITUTION  
AND THE UNITED STATES FISH COMMISSION, AND FORMING A  
PART OF THE UNITED STATES NATIONAL MUSEUM.

PREPARED UNDER THE DIRECTION OF

G. BROWN GOODE.



WASHINGTON:  
GOVERNMENT PRINTING OFFICE.  
1879.





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---

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*Secretary Smithsonian Institution.*

SPENCER F. BAIRD,  
*Director of the Exhibition.*

G. BROWN GOODE,  
*In charge of Collection.*

---

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*Committee on Whale and Fish Oils.*—Capt. N. E. ATWOOD, Provincetown, Mass.  
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*Modeler.*—JOSEPH PALMER.  
*Taxidermist.*—JULIUS STOERZER.  
*Photographer.*—T. W. SMILLIE.







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COMMERCIAL STATISTICS OF ANIMAL PRODUCTS IN THE UNITED STATES.  
 A REVIEW OF A PORTION OF THE REPORT OF THE CHIEF OF THE  
 BUREAU OF STATISTICS FOR THE FISCAL YEAR ENDING JUNE 30, 1877.  
 BY G. BROWN GOODE.

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## INTRODUCTORY NOTE.

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On the occasion of the International Exhibition, in 1876, certain appropriations were made by Congress to the Smithsonian Institution and the United States Fish Commission. The former was called upon to prepare an exhibition to illustrate the economical value of the mineral and animal products of the country, while the latter was to perform a similar task for the national fisheries. It was subsequently found desirable for the Smithsonian Institution to unite with the Indian Bureau in displaying the condition of the aboriginal tribes of the United States in prehistoric and modern times. Four distinct departments of work were thus provided for, (1) an ethnological exhibition, (2) an exhibition of minerals, (3) an exhibition of animal resources, and (4) a fishery exhibition. The first and second were arranged on opposite sides of the nave in the Government building, at Philadelphia, and at its north end. The latter, it was found, could not be separated, since the character of the specimens and the methods of arrangement required were the same. They were arranged in one series on the north side of the east transept and to the east of the nave extending north to the beginning of the mineral series.

The following catalogue is a simple enumeration of the objects exhibited in this series, and illustrative of the animal resources and the fisheries of the United States. It is essentially a reproduction of the card-catalogue prepared in 1876 and still in use in the administration of the collection, which, having been greatly augmented by systematic efforts in the United States and by donations from foreign governments, now forms an important section of the United States National Museum. The catalogue has been as far as practicable made complete up to the present time, in so far as it relates to North America. No effort has, however, been made to include the collateral series of specimens from foreign countries.

The plan of arrangement is fully shown in the TABLE OF CONTENTS. Beginning with the Useful and Injurious Animals, it next takes up the MEANS OF PURSUIT AND CAPTURE, then, successively, the METHODS OF PREPARING THEM FOR USE, THE USEFUL PRODUCTS, and, finally,



the MEANS OF PROTECTION AND CULTURE. The preliminary plan of classification is given in full, whether specimens were obtained to illustrate it or not, and indicates wherein the collection is still imperfect.\*

It seems appropriate to remark that a very large number of the specimens included in this catalogue and exhibited in Philadelphia were borrowed from the permanent collections of the National Museum, and have for many years been on exhibition in the Smithsonian building.

G. BROWN GOODE.

WASHINGTON, *April* 11, 1879.

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\* For a fuller exposition of this plan see the following pamphlet:

International Exhibition 1876. | Board in Behalf of United States Executive Departments. | ===== | Classification | of the | Collection to Illustrate | the Animal Resources of the United States. | A List of Substances derived from the Animal Kingdom, with Synopsis of the Useful and Injurious Animals | and a Classification of the Methods | of Capture and Utilization. | ——— | By G. Brown Goode, M. A., | Assistant Curator | U. S. National Museum. | ——— | Washington: | Government Printing Office. | 1876. | 8vo. pp. xiii (1) 126. Also published as Bulletin No. 6, Department of the Interior, United States National Museum; and as Article VI in Vol. XII of the Smithsonian Miscellaneous Collections, Washington, 1878.



## SECTION A.

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### LIST OF ANIMALS OF NORTH AMERICA BENEFICIAL OR INJURIOUS TO MAN.

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#### \* I. MAMMALS.

##### ORDER FERÆ.

##### SUBORDER FISSIPEDIA.

##### FELIDÆ.

**Lynx rufus**, (Guldenstädt,) Raf.—BAY LYNX or WILD CAT.—North America.

12476. Mounted. Denver, Col. C. E. Aiken. Dec. 14, 1875.

12477. Mounted. (Young.) Denver, Col. C. E. Aiken.

**Lynx canadensis**, (Geoff. & Desm.,) Raf.—CANADA LYNX.—Northern North America.

12475. Mounted. Houlton, Me. Rev. R. R. McLeod. Dec. 15, 1875.

**Felis eyra**, Desm.—EYRA CAT.—Southwestern North America.

9532. Mounted. Tehuantepec, Mex. F. Sumichrast.

**Felis yaguarundi**, Desm.—YAGUARUNDI CAT.—Southwestern North America.

8480. Mounted. Tabasco, Mex. Col. Sarto.

**Felis concolor**, Linn.—PUMA or COUGAR.—America generally.

11813. Mounted. Central Colorado. James Stevenson. 1874.

**Felis onca**, Linn.—JAGUAR.—Southwestern States, Central and South America.

10390 ÷ 12296. Mounted. Died in captivity at Government Insane Asylum, Washington.\*

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\* The numbers prefixed to the enumeration of specimens are Smithsonian catalogue numbers. When two numbers are given, separated by the mark of division (÷), the first mentioned refers to the particular preparation of the animal in question; the second, to some other related part entered in a different series. For example, in 10390 ÷ 12296, the first number belongs to the skin and the second to the skeleton of a specimen of *Felis onca*.



**Felis pardalis**, Linn.—OCELOT or TIGER CAT.—Southwestern North America.

12179 ÷ 14179. Mounted. Talamanca, Costa Rica. Talamanca expedition. Prof. W. M. Gabb.

12187. Mounted. Talamanca, Costa Rica. Talamanca expedition. Prof. W. M. Gabb.

**CANIDÆ.****Canis lupus**, Linn., *var. griseo-albus*.—GRAY WOLF.—North America generally.

3573 ÷ 3520. Mounted. (Winter pelage.) Platte River, Neb. C. Drexler.

**Vulpes fulvus**, (Desm.,) *var. fulvus*, (Desm.)—RED FOX.—Northern North America.

7124. Mounted. (Male.) La Pierre's House, Rocky Mts. R. Kennicott. Dec., 1861.

6403. Mounted. (Female.) Yukon River. R. Kennicott. Oct. 21, 1860.

**Vulpes fulvus**, (Desm.,) *var. decussatus*.—CROSS FOX.

6407. Mounted. (Female). Ft. McPherson, Peels River, Hudson's Bay Territory. R. Kennicott. Nov. 28, 1861.

"A very fine cross fox, nearly silver, small and apparently young. The Indians told me she would be a silver fox next year."—Kennicott.

6408. Mounted. (Female.) Ft. McPherson, Peels River, H. B. T. R. Kennicott. Nov. 30, 1861.

"A good typical cross fox; tail rather small."—Kennicott.

6404. Mounted. (Male.) Yukon River. R. Kennicott. Oct. 22, 1860.

"A rather fine cross fox, approaching more nearly the silver fox than the red."—Kennicott.

12466. Mounted. Houlton, Maine. Rev. R. R. McLeod. Dec. 31, 1875.

**Vulpes fulvus**, (Desm.,) *var. argentatus*.—SILVER FOX: BLACK FOX.

6410. Mounted (Male.) Yukon River. R. Kennicott. Nov. 17, 1860.

"A fine silver fox."—Kenn.

6411. Mounted. (Female.) Ft. McPherson, Peels River, H. B. T. R. Kennicott. Oct. 17, 1861.

"Black fox; some had still less silver."—Kenn.

**Vulpes macrurus**, Baird.—PRAIRIE FOX.—Western States.

— Mounted. Wyoming.

**Vulpes velox**, (Say,) Aud. & Bach.—KIT FOX or SWIFT FOX.—Western States.

12470. Mounted. Colorado. Chas. E. Aiken. Jan. 15, 1876.

12469. Mounted. Colorado. Chas. E. Aiken. Jan. 15, 1876.

11085. Mounted. Rocky Mountains.

**Vulpes lagopus**, (Linn.,) Gray.—ARCTIC FOX.—Alaska.

— Skin. St. Paul's Id., Alaska. G. R. Adams.



**Urocyon virginianus**, (Schreber,) Gray.—GRAY FOX.—United States generally.

— Mounted. Virginia.

**Urocyon virginianus**, (Schreber,) *var. littoralis*.—COAST GRAY FOX.—Islands of the California coast.

12440. Mounted. Santa Cruz, Cal. H. W. Henshaw. U. S. Survey W. of 100 M.

### MUSTELIDÆ.

**Mustela Pennanti**, Erxl.—FISHER.—Northern North America.

12472. Mounted. Houlton, Maine. Rev. R. R. McLeod. Jan. 15, 1876.

3279. Mounted. Olympia, W. T. Geo. Gibbes.

**Mustela americana**, Turton.—PINE MARTIN or AMERICAN SABLE.—Northern United States.

12544. Mounted. Hudson's Bay Territory. R. Kennicott.

379. Mounted. Hudson's Bay Territory. R. Kennicott

— Mounted. Hudson's Bay Territory. R. Kennicott.

1015. Mounted. Hudson's Bay Territory. R. Kennicott.

6414. Mounted. Yukon River, mouth of Porcupine, Hudson's Bay Territory. R. Kennicott.

6429. Mounted. Yukon River, mouth of Porcupine, Hudson's Bay Territory. R. Kennicott.

**Putorius erminea**, (Linn.,) Cuvier.—WHITE WEASEL : ERMINE.—Northern United States.

9355. Mounted. Kodiak. F. Bischoff. 1868.

6498 ÷ 1029. Mounted. (Male.) Yukon River, mouth of Porcupine R. R. Kennicott.

1427. Mounted. (Male.) Middleboro, Mass. J. W. P. Jenks.

**Putorius longicauda**, Bonaparte.—LONG-TAILED WEASEL.—Western United States.

9350. Mounted. Wyoming Territory. Dr. F. V. Hayden.

**Putorius vison**, Rich.—MINK.—North America generally.

12432. Mounted. (Male.) Moore's Lake, Minn. J. H. Batty.

4396. Mounted. Liard River. R. Kennicott.

1653 ÷ 12309. Mounted. United States.

2392. Mounted. Cape Flattery, W. T. Dr. Suckley.

**Putorius nigripes**, Aud. & Bach.—BLACK-FOOTED FERRET.—Western States (in holes of Prairie dogs).

12409. Mounted. Spotted Tail Agency, Neb. Col. A. Chambers, U. S. A. Oct. 1, 1875.

12462. Mounted. Cheyenne, Wyoming. Capt. Jas. Gilliss, U. S. A. Dec. 27, 1875.



**Gulo luscus**, Sabine.—WOLVERENE or GLUTTON.—Northern North America.

3747. Mounted. Great Salt Lake, Utah. Capt. Stansbury.  
4361. Mounted. Ft. Simpson, H. B. T. B. R. Ross.

**Taxidea americana**, Waterh.—AMERICAN BADGER.—Western United States and Pacific Slope.

12471. Mounted. Colorado. Chas. E. Aiken. Jan. 15, 1876.

**Mephitis mephitica**, (Shaw) Baird.—COMMON SKUNK.—Eastern United States.

4348. Mounted. Washington, D. C. C. Drexler.  
12522. Mounted. Golden, Col. C. E. Aiken.  
1071. Mounted. Middleboro, Mass. J. W. P. Jenks.  
4127. Mounted. Lynn, Mass. George Welch.  
1070. Mounted. (Male.) Middleboro, Mass. J. W. P. Jenks. Dec. 3, 1855.

**Mephitis mexicana**, Gray.—MEXICAN SKUNK.—Mexico.

8566. Mounted. Orizaba, Mex. Mr. Botteni.

**Spilogale zorilla**, (Linn.) Coues.—LITTLE STRIPED SKUNK.—Western United States and Pacific Slope.

1188. Mounted. Santa Clara, Cal. Dr. J. S. Newberry. Nov., 1855.

**Conepatus mapurito**, (Gmelin) Coues.—WHITE-BACKED SKUNK.—Southwestern United States.

- 790 — 1886. Skin. Western Texas. Capt. J. Pope, U. S. A.

**LUTRINÆ.**

**Lutra canadensis**, Sab.—AMERICAN OTTER.—North America generally.

3280. Mounted. Steilacoom, Wash. Ter. George Gibbs.  
5145 ÷ 4456. Mounted. Washington, D. C. National Institution.

**ENHYDRINÆ.**

**Enhydra marina**, Fleming.—SEA OTTER.—Pacific Coast of the United States.

9457. Mounted. (Adult.) Alaska. Dr. T. T. Minor.  
9458. Mounted. Alaska. Dr. T. T. Minor.

**URSIDÆ.**

**Ursus horribilis**, Ord.—GRIZZLY BEAR.—Western United States and Pacific Slope.

12308. Mounted. (16 years old.) Laramie, Wyoming. Major Twiss. (Confined in the Government Insane Hospital, Washington, from 1858 to 1874.)



**Ursus americanus**, Pallas.—BLACK BEAR.—United States generally.

12380. Mounted. Northern Michigan. John Wallace.

**Thalarctos maritimus**, (Linn.) Gray.—WHITE or POLAR BEAR.—Northern America, Europe and Asia.

12379. Mounted. Greenland. John Wallace.

### PROCYONIDÆ.

**Procyon lotor**, (Linn.) Storr.—RACCOON.—United States generally.

5148. Mounted. National Institution.

5147. Mounted. National Institution.

26789. Mounted. Wyoming, N. Y. H. A. Ward. Rochester, N. Y.

**Nasua fusca**, .—COATIMUNDI.—Texas.

12757. Mounted. Brownsville, Texas. Dr. J. C. Merrill, U. S. A.

### PINNIPEDIA.

### OTARIIDÆ.

**Callirhinus ursinus**, (Schreber) Gray.—FUR SEAL.—North Pacific Ocean and Bering's Sea.

12918-34. Mounted. (Group of 17.) Prybilov Islands, Alaska. Alaska Commercial Company, San Francisco.

12935. Mounted. Alaska. H. W. Elliott.

**Eumetopias Stelleri**, (Fischer) Gray.—SEA LION.—Pacific Coast.

12489. Mounted. (Female.) Prybilov Islands, Alaska. Alaska Commercial Company, San Francisco.

12488. Mounted. (Male.) Prybilov Islands, Alaska. Alaska Commercial Co., San Francisco.

12936. Mounted. (Young.) North Pacific.

**Zalophus Gilliespii**, (Macbain) Gill.—THE SEA DOG.—Pacific Coast.

12937. Mounted. Southern California. Capt. Baker.

### PHOCIDÆ.

### PHOCINÆ.

**Phoca vitulina**, Linn.—THE COMMON SEAL; HARBOR SEAL.—North Atlantic.

12453. Cast. Provincetown, Mass. 1875.

623. Photograph. (Young.) U. S. Fish Commission.

624. Photograph. U. S. Fish Commission.



**Phoca Richardsii**, (Gray) Gill.—LEOPARD SEAL.—North Pacific.

3742. Mounted. California.  
12494. Mounted. Adakh Id. Alaska. W. H. Dall.

**Pagophilus grœnlandicus**, (Müll.) Gray.—HARP SEAL.—Arctic Seas.

5853. Mounted. Sable Island, N. S. P. W. Dodd.  
8122. Mounted. Franklin Harbor, Arctic Seas. R. McFarlane.  
5851. Mounted. Sable Island, N. S. P. W. Dodd.  
12040. Mounted. St. John's, N. F. Rev. M. Harvey.  
5852. Mounted. Sable Island, N. S. P. W. Dodd.  
12039. Mounted. St. John's, N. F. Rev. M. Harvey.  
12038. Mounted. St. John's, N. F. Rev. M. Harvey.

**Erignathus barbatus**, (O. Fabricius) Gill.—SQUARE-FLIPPER SEAL.—Arctic Seas.

12422. Skin. Newfoundland. Government of Newfoundland.

**Histiophoca equestris**, (Pallas) Gill.—BANDED SEAL.—Pacific Coast, Arctic Seas.

7580. Skin (in collection of Furs). Cape Romanzoff. W. H. Dall.

**Pusa gryphus**, (O. Fabricius) Gill.—GRAY SEAL.—Atlantic Coast.

8694. Mounted. Seeland. Zoological Museum, Copenhagen.

**CYSTOPHORINÆ.****Cystophora cristata**, (Erxl.) Nilsson.—HOODED SEAL.—Atlantic Coast.

12043. Mounted. St. John's, N. F. Rev. M. Harvey.

**Macrorhinus angustirostris**, Gill.—SEA ELEPHANT; ELEPHANT SEAL.—Pacific Coast.

12441. Mounted. (Male.) California. Capt. C. M. Scammon.

**ROSMARIDÆ.****Rosmarus obesus**, (Illig.) Gill.—WALRUS.—North Atlantic.

11870. Mounted. Greenland. Dr. I. I. Hayes.

**Rosmarus Cookii**, (Fremery) Gill.—WALRUS.—Northern Pacific.

12493. Mounted. Prybilov Islands, Alaska. Alaska Commercial Co., San Francisco.



## ORDER, UNGULATA.

## BOVIDÆ.

## BOVINÆ.

**Bison americanus**, (Gmelin) Gray.—AMERICAN BUFFALO.—  
Plains between Rocky Mountains and Missouri River.

12919. Mounted. Colorado. C. E. Aiken.

**Ovibos moschatus**, Blainville.

12298. Mounted. (Female.) Arctic Coast, H. B. T. W. L. Hardestie. Jan. 23, 1875. Also skeleton of same animal.

12297. Mounted. (Male.) Arctic Coast, H. B. T. W. L. Hardestie. Jan. 23, 1875. Also skeleton of same animal.

6255. Mounted. (Male.) Ft. Good Hope, H. B. T. J. S. Onion.

## ANTILOPINÆ.

**Mazama montana**, (Ord) Gill.—MOUNTAIN GOAT.—Northern Rocky Mountains of the United States and British America.

11894. Mounted. (Male.) Montana. W. F. Wheeler and J. Armitage.

11893. Mounted. Washington Territory. U. S. Northern Boundary Survey.

## OVINÆ.

**Ovis montana**, Cuvier.—BIGHORN; MOUNTAIN SHEEP.—Rocky Mountain regions.

11891. Mounted. (Male.) Ft. Fetterman, Dakota. James Stevenson, U. S. Geol. Survey.

1608. Horns. H. B. Möllhausen.

## ANTILOCAPRIDÆ.

**Antilocapra americana**, Ord.—PRONGHORN ANTELOPE OR CABREE.—Plains west of Missouri from Lower Rio Grande to Saskatchewan.

2034. Mounted. (Male.) Yellowstone River. Dr. F. V. Hayden.

2471. Horns. Ft. Chadbourne, Texas. Dr. Swift, U. S. A.

6914. Horns. Ft. Whipple, Arizona Ty. Dr. Elliott Coues, U. S. A.

5084. Horns. Upper Missouri. ?

## CERVIDÆ.

**Alces machlis**, (Linn.) Gray.—MOOSE.—Northwestern United States.

11868. Mounted. (Adult male.) Nova Scotia. Geo. A. Boardman.

12542. Mounted. (Adult male.) Nova Scotia. Mr. Jack.

11861. Mounted. (Young calf.) Nova Scotia. Dr. Bernard Gilpin.

857. Antlers. Maine. General S. Churchill, U. S. A.

— . Antlers. Adirondacks, N. Y. Henry J. Biddle.



**Tarandus rangifer**, J. Brookes, subspecies **caribou**, Aud. & Bach.—WOODLAND CARIBOU.—Northeastern North America.

12473. Mounted. Houlton, Me. Rev. R. R. McLeod.  
 12407. Mounted. Houlton, Me. Rev. R. R. McLeod.  
 11865. Mounted. Lake Superior. J. Barnston.  
 3289. Antlers. (Female.) Nelson River.  
 3290. Antlers. (Female.) Nelson River.

**Tarandus rangifer**, (Br.) subsp. **grønlandicus**, Br.—BARREN GROUND CARIBOU.—Arctic America.

6255. Mounted. Arctic America.  
 905. Antlers. North Greenland. S. Sternberg.  
 903. Antlers. North Greenland. S. Sternberg.  
 6782. Antlers. Plover Bay. Capt. C. M. Scammon, U. S. R. M.  
 7539. Antlers. Yukon River. W. H. Dall.  
 4636. Antlers. Port Foulke, N. Greenland. Dr. I. I. Hayes.

**Cervus canadensis**, Erxl.—AMERICAN ELK.—Northern North America.

12474. Mounted. Ft. Sanders, Wyoming. Col. A. G. Brackett, U. S. A.  
 4457. Antlers. Elk Co., Penna. Prof. S. S. Haldeman.  
 2911. Antlers. Ft. Berthold, Missouri River. Lt. Warren, U. S. A., Dr. F. V. Hayden.  
 867. Antlers. Utah. Col. O. Cross, U. S. A.  
 2579. Antlers. Platte River. Lt. Bryan, U. S. A.  
 3552. Antlers. Ft. Tejon, Lower Cal. John Xantus.  
 3551. Antlers. Ft. Tejon, Cal. John Xantus.  
 840. Antlers. Ft. Union, Mo. A. Culbertson.  
 761. Antlers. Ft. Union, Mo. A. Culbertson.  
 760. Antlers. Ft. Union, Mo. A. Culbertson.  
 2916. Antlers. Ft. Berthold, Missouri River. Lt. Warren, U. S. A., Dr. F. V. Hayden.  
 2905. Antlers. Ft. Berthold. Dr. F. V. Hayden.  
 2903. Antlers. Ft. Berthold. Dr. F. V. Hayden.  
 2910. Antlers. (Male.) Ft. Berthold. Dr. F. V. Hayden.  
 3486. Antlers. Oregon. U. S. Expl. Exped. Capt. Wilkes, U. S. N.  
 3487. Antlers. Oregon. U. S. Expl. Exped. Capt. Wilkes, U. S. N.

**Cariacus virginianus**, (Boddært) Gray.—VIRGINIA DEER.—United States east of the Missouri.

12461. Mounted. Cumberland, Md. D. P. Welpley. Dec. 26, 1875.  
 1889 ÷ 2587. Mounted. (Young female.) Medicine Bow River, Ark. W. S. Wood. Sept. 6, 1856.  
 12349. Mounted. (Albino.) Peshtigo, Wis. J. H. Leavenworth.  
 2909. Antlers.  
 763. Antlers. (Male.) Lewisburg, Pa. J. C. Barber.  
 4174. Antlers.  
 668. Antlers. (Male.) Cumberland, Md.  
 3386. Antlers. (Male.) Ft. Mason, Tex. Maj. G. H. Thomas.  
 914. Antlers. (Male.) Washington, D. C.  
 961. Antlers. (Male.) Arkansas. J. M. Stanley.



**Cariacus virginianus**, (Boddært) Gray—Continued.

3383. Antlers. (Male.) Ft. Mason, Tex. Maj. G. H. Thomas.  
 3387. Antlers. (Male.) Ft. Mason, Tex. Maj. G. H. Thomas.  
 896. Antlers. St. Louis, Mo. J. S. Bowman.  
 3388. Antlers. (Male.) Ft. Mason, Tex. Maj. G. H. Thomas.  
 667. Antlers. (Male.) Cumberland, Md.  
 3062. Antlers. (Male.) Essex Co., N. Y.  
 895. Antlers. (Male.) St. Louis, Mo. J. S. Bowman.  
 9843. Antlers. Near Denver, Colo. E. Palmer.  
 5077. Antlers. (Male.) Washington, D. C.  
 5083. Antlers. Upper Missouri?

**Cariacus virginianus**, (Bodd.) Gray, *var. mexicanus*.—VIRGINIA DEER.

11859. Mounted. Talamanca, Costa Rica. Prof. W. M. Gabb.

**Cariacus macrotis**, (Say) Gray.—MULE DEER.—Central North America.

11864. Mounted.  
 12583. Mounted. Cheyenne, Wyo. Capt. J. M. Gilliss, U. S. A.  
 6615. Antlers. Prescott, Ariz. Dr. E. Coues.  
 831. Antlers. Big Sioux. ? T. Culbertson.  
 4175. Antlers.  
 6918. Antlers. Ft. Laramie. Col. W. O. Collins.  
 3682. Antlers. Mountains of New Mexico. Dr. J. S. Newberry.

**Cariacus columbianus**, (Rich.) Gray.—COLUMBIA BLACK-TAILED DEER.—Pacific Slope.

8154. Antlers. Puget Sound. J. G. Swan.  
 3203. Antlers. Whidby's Island, Puget Sound, W. T. Dr. Geo. Suckley.  
 5080. Antlers. Puget Sound. Dr. C. B. Kennerly.  
 3204. Antlers. Whidby's Island, Puget Sound. Dr. Geo. Suckley.

**Cervus dama**, Linn.—FALLOW DEER (introduced).

1200. Antlers. Park, Clarke Co., Va. Col. J. Fuley.  
 2257. Antlers. Clarke Co., Va. Col. J. Fuley.

**DICOTYLIDÆ.****Dicotyles torquatus**, Cuv.—PECCARY.—Red River, Arkansas, and South.

12346. Mounted. Talamanca, Costa Rica. Talamanca Exped. Prof. W. M. Gabb.

**ORDER, SIRENIA.****TRICHECHIDÆ.****Trichechus manatus**, Linn.—MANATEE.—Florida, West Indies, and N. E. South America.

12295. Mounted. Florida. P. T. Barnum.  
 16037. Skeleton. Florida. H. A. Ward.



## ORDER, CETE.

## DELPHINIDÆ.

## DELPHINAPTERINÆ.

**Delphinapterus catodon**, (Linn.) Gill.—WHITE-FISH or WHITE WHALE.—Arctic and Subarctic Seas (ascending large rivers).

12490. Cast. Gulf of St. Lawrence. G. R. Renfrew & Co., Quebec.

16038. Skeleton. Gulf of St. Lawrence. G. R. Renfrew & Co.

389. Photograph. U. S. Fish Commission.

**Monodon monoceros**, Linn.—NARWHAL.—Arctic Seas.

15304. Tusk. Greenland. Purchased from George Y. Nickerson.

## DELPHININÆ.

**Leucorhamphus borealis**, (Peale) Gill.—RIGHT-WHALE PORPOISE.—Pacific Coast.

— Skeleton.

**Delphinus Bairdii**, Dall.—BAIRD'S PORPOISE.—California Coast.

16042. Skeleton. California. W. H. Dall.

15403. Skull. San Gabriel River, Cal. Lieut. Bergland, U. S. A.

**Delphinus bombifrons**, Cope.—PORPOISE.—Atlantic Coast.

12481. ? Cast. New York Harbor. John Wallace.

**Tursiops erebennus**, (Cope) Gill.—PORPOISE.—Atlantic Coast.

15786. Skeleton. Rockaway, Long Id. Alfred Lawrence.

**Tursiops Gillii**, Dall.—COW-FISH.—Pacific Coast.

16043. Skeleton. California. W. H. Dall.

**Lagenorhynchus perspicillatus**, Cope.—SKUNK PORPOISE.—Eastern Coast.

12305. Cast. Cape Cod. Vinal N. Edwards.

**Lagenorhynchus obliquidens**, Gill.—STRIPED or COMMON PORPOISE.—Pacific Coast.

14329. Skeleton. California. C. M. Scammon.

**Lagenorhynchus gubernator**, Cope.—Eastern Coast.

— Cast. Casco Bay, Me. U. S. Fish Commission.

**Lagenorhynchus leucopleurus**, (Raasch) Gray.—COW-FISH.—Eastern Coast.

12939. Cast. Cape Cod, Mass. U. S. Fish Commission.



**Lagenorhynchus thicola**, Gray.—PORPOISE.—West coast of North America.

**Orca atra**, Cope.—KILLER.—Pacific Coast.

13018. Jaw. California. Capt. C. M. Scammon.

**Orca gladiator**, (Bonnaterre) Gray.—KILLER.—Atlantic Coast.

11918. Skull. South Atlantic. S. F. Baird.

**Phocæna vomerina**, Gill.—BAY PORPOISE.—Pacific Coast.

16044. Skeleton. California. W. H. Dall.

**Phocæna lineata**, Cope.—STRIPED PORPOISE.—Atlantic Coast.

621. Photograph. U. S. F. C.

**Phocæna brachycion**, Cope.—THE SNUFFING PIG or HERRING HOG.—Atlantic Coast.

12302. Cast. Cape Cod. Vinal N. Edwards.

#### GLOBICEPHALINÆ.

**Globicephalus Scammoni**, Cope.—BLACK-FISH.—Pacific Coast.

9076. Skull. California. Capt. C. M. Scammon.

**Globicephalus intermedius**, (Harlan) Gray.—BLACK-FISH.—Atlantic Coast.

12479. Cast. (Fœtus.) Cape Cod. U. S. Fish Commission.

12480. Plaster cast, (7 feet.) Cape Cod. Edwards. Nov. 14, 1874.

12480. Cast.

12840. Cast 351. Cast of head. South Dennis, Mass. U. S. Fish Commission. 1875.

12841. Cast 352. Cast of head. South Dennis, Mass. U. S. Fish Commission. 1875.

**Grampus griseus**, (Cuv.) Gray.—GRAMPUS; COW-FISH.—North Atlantic.

15771 ÷ 12759, 508. Cast. Dec. 2, 1875.

15772 ÷ 12760, 503. Skulls. Nov. 29, 1875.

15773 ÷ 12761, 506. Cast of head and cast of whole. Nov. 30, 1875.

506 A. Cast. (Over entrance.)

622. Photograph. U. S. Fish Commission.

12940. Cast of head. Cape Cod, Mass. V. N. Edwards.

12941. Cast of head. Cape Cod, Mass. V. N. Edwards.

12942. Cast of head. Cape Cod, Mass. V. N. Edwards.

**Grampus Stearnsii**, Dall.—WHITE-HEADED or MOTTLED GRAMPUS.—Pacific Coast.

13021. Skeleton. California. W. H. Dall.



**ZIPHIIDÆ.****ZIPHIINÆ.**

**Mesoplodon Sowerbiensis**, (Blainv.) Gervais.—**SOWERBY'S WHALE.**—Atlantic Coast.

**ANARNACINÆ.**

**Anarnacus semijunctus**, (Cope) Gill.—**BOTTLE-HEAD WHALE.**—Atlantic Coast.

**PHYSETERIDÆ.****PHYSETERINÆ.**

**Physeter macrocephalus**, Linn.—**SPERM WHALE.**—Tropico-politan Seas.

25052. Iron model. Made by captain of whaling ship. J. H. Thompson. New Bedford, Mass.

16046. Jaws. U. S. Fish Commission.

16047. Jaws. National Institute.

25004. Wooden model. Capt. Benj. Russell. New Bedford, Mass.

**KOGIINÆ.**

**Kogia Floweri**, Gill.—**PORPOISE SPERM WHALE.**—Pacific Coast.

8016. Lower jaw. Lower California.

**BALÆNOPTERIDÆ.****AGAPHELINÆ.**

**Agaphelus gibbosus**, (Cope) Cope.—**SCRAGG WHALE.**—Atlantic Ocean.

**Rhachianectes glaucus**, Cope.—**GRAY WHALE.**—Pacific Ocean.

13803. Skull. California. W. H. Dall.

**MEGAPTERINÆ.**

**Megaptera versabilis**, Cope.—**HUMPBACK WHALE.**—Pacific Coast.

13804. Vertebra. Aleutian Islands. W. H. Dall.

**Megaptera osphyia**, Cope.—**HUMPBACK WHALE.**—Atlantic Coast.

**Eschrichtius robustus**, Lilljeborg.—**GRÄSÖ WHALE.**—Atlantic Coast.

**BALÆNOPTERINÆ.**

**Sibbaldius tectirostris**, Cope.—**FINBACK WHALE.**—Atlantic Ocean.

16045. Skeleton. Cape Cod. U. S. Fish Commission.



**Sibbaldius tuberosus**, Cope.—FINBACK WHALE.—Atlantic Ocean.

**Sibbaldius borealis**, (Fischer) Geoffroy.—SULPHUR-BOTTOM WHALE.—Atlantic Ocean.

16039. Skeleton. Cape Cod. U. S. Fish Commission.

**Sibbaldius sulfureus**, Cope.—SULPHUR-BOTTOM WHALE.—Pacific Ocean.

**Balænoptera rostrata**, (Müller) Gray.—GRAMPUS.—Atlantic Coast.

**Balænoptera velifera**, Cope.—FINBACK WHALE; OREGON FINNER.—Pacific Ocean.

**Balænoptera Davidsonii**, Scammon.—SHARP-HEADED FINNER WHALE.—Pacific Coast.

16040. Skeleton. California. Capt. C. M. Scammon.

### BALÆNIDÆ.

**Balæna mysticetus**, Linn.—BOWHEAD WHALE.—Arctic Seas.

12938. Model in plaster. From drawings and measurements of Capt. C. M. Scammon.

16041. Jaws. Arctic Ocean. U. S. Fish Commission.

**Eubalæna Cullamach**, (Chamisso) Cope.—PACIFIC RIGHT WHALE.—North Pacific.

12988. Model in plaster. From drawings and measurements of Capt. C. M. Scammon.

**Eubalæna cisarctica**, Cope.—RIGHT WHALE.—Atlantic Coast.

## ORDER, INSECTIVORA.

### TALPIDÆ.

**Scalops aquaticus**, (Linn.) Cuv.—Eastern United States.

3965. Mounted. (Male.) Washington, D. C. G. Exall.

5830. Mounted. (Female.) Washington, D. C. G. Exall.

3966. Mounted. District of Columbia, 1858. C. Drexler.

3964. Mounted. (Albino.) Virginia, October 30, 1846. D. F. Kent.

**Scalops argentatus**, Aud. & Bach.—SILVERY MOLE.—Western United States.

11351. Alcoholic. Mt. Carmel, Ill. R. Ridgway.

783. Mounted. Tremont, Ill. W. J. Shaw.



**Scapanus Townsendii**, (Bachman) Pomel.—OREGON MOLE.—  
Pacific Slope.

3963. Mounted. Oregon. T. R. Peale. U. S. Exploring Expedition.

1963. Mounted. Ft. Steilacoom, Wash. Ter. Dr. George Suckley, U. S. A.

**Scapanus Breweri**, (Bachman) Pomel.—HAIRY-TAILED MOLE.—  
Eastern United States.

823. Mounted. Cleveland, Ohio. Dr. J. P. Kirtland.

**Condylura cristata**, (Linn.) Illiger.—STAR-NOSED MOLE.—North-  
ern cismontane States.

3968. Mounted. Washington, D. C.

ORDER, GLIRES.

SCIURIDÆ.

**Sciurus cinereus**, Linn.—FOX SQUIRREL.—Eastern United States.

4143. Mounted. District of Columbia. C. Drexler.

321 — 1240. Mounted. Western Missouri. Dr. P. R. Hoy. 1854.

4044. Mounted. (Male.) District of Columbia. A. R. Jenkins.

**Sciurus carolinensis**, Gmelin.—GRAY SQUIRREL.—United States.

4042. Mounted. District of Columbia. S. F. Baird.

334 ÷ 1252. Mounted. Racine, Wis. Rev. A. C. Barry.

332 ÷ 1250. Mounted. Racine, Wis. Dr. P. R. Hoy.

11071. Mounted. New York. J. G. Bell.

5844. Mounted. Washington, D. C. J. K. Townsend.

**Sciurus fessor**, Peale.—CALIFORNIA GRAY SQUIRREL.—Pacific  
Slope.

4040. Mounted. (Male.) California. Dr. Heerman.

**Sciurus Abertii**, Woodhouse.—TUFT-EARED SQUIRREL.—Southern  
Colorado, New Mexico, &c.

12576. Mounted. (Male.) Colorado Springs, Colo. C. E. Aiken.

12578. Mounted. (Male.) Colorado Springs, Colo. C. E. Aiken.

2430. Mounted. San Francisco Mts., N. M. Dr. Woodhouse.

**Sciurus hudsonius**, Pallas.—RED SQUIRREL; CHICKAREE.—  
Cismontane United States and Alaska.

12435. Mounted. (Male.) Hartford, Minn. J. H. Batty.

9241. Mounted. New Brunswick. G. A. Boardman.

3264. Mounted. Laramie Peak. J. Henman.

**Tamias striatus**, (Linn.) Cuv.—CHIPMUNK.—Eastern United  
States.

4013. Mounted. Washington, D. C. A. J. Falls.



**Tamias quadrivittatus**, (Say) Rich.—MISSOURI STRIPED SQUIRREL.—Pacific Slope, in mountains.

4661. Mounted. Yreka, Cal. W. Vielle.

4662. Mounted. Yreka, Cal. W. Vielle.

**Tamias lateralis**, (Say) Allen.—SAY'S STRIPED SQUIRREL.—Rocky Mountains, from Mexico northward.

9320. Mounted. Carson City, Nevada. U. S. Survey of Fortieth Parallel. Robert Ridgway. March, 1868.

**Spermophilus grammurus**, (Say) Bach.—CALIFORNIA GROUND SQUIRREL.—Western Texas and New Mexico west to Sierra Nevada Mountains.

1046÷2215. Mounted. Los Nogales, Sonora. Maj. W. H. Emory, U. S. A.

**Spermophilus grammurus**, (Say) Bach., *var. Beechyi*.—CALIFORNIA GROUND SQUIRREL.—Cala. and Lower Cala., west of Sierra Nevadas.

469. Mounted. Tejon Valley, Cal. Dr. A. L. Heerman.

470. Mounted. Tejon Valley, Cal. Dr. A. L. Heerman.

**Spermophilus Harrisi**, Aud. & Bach.—HARRIS' GROUND SQUIRREL.—The Great Interior Basin and Lower California.

471÷1600. Mounted. Mohave Desert. Lieut. R. S. Williamson.

**Spermophilus Franklani**, (Sabine) Rich.—GRAY GOPHER.—Northern Illinois, northward to the Saskatchewan.

985. Skin. Racine, Wis. Dr. P. R. Hoy.

**Spermophilus tereticaudis**, Aud. & Bach.—ROUND-TAILED GROUND SQUIRREL.—Arizona.

1584. Skin. Fort Yuma, Cal. Maj. G. H. Thomas.

**Spermophilus tridecem-lineatus**, (Mitchell) Aud. & Bach.—STRIPED GOPHER; PRAIRIE SQUIRREL.—The prairies of the United States.

437÷1303. Mounted. Head of Arkansas River. Capt. E. G. Beckwith.

**Spermophilus mexicanus**, (Erxleben) Wagner.—MEXICAN GROUND SQUIRREL.—Southwestern Texas and Southern New Mexico, southeastward into Mexico.

3662. Mounted. Eagle Pass, Texas. Dr. W. S. King, U. S. A.

**Spermophilus Parryi**, Rich.—PARRY'S MARMOT.—Northern parts of the Continent, from Hudson's Bay to Behring's Strait.

8736. Mounted. Pelly Lake. R. R. MacFarlane. June 21, 1864.

5789. Mounted. Lockhart River, H. B. T. B. R. Ross. July 4, 1860.

9366. Mounted. Kodiak. F. Bischoff. Sept. 13, 1868.



**Spermophilus pilosoma**, Bennett.—SONORA GROUND SQUIRREL.—Eastern base of the Rocky Mountains north to Western Wyoming.

2620. Fort Thorn, N. Mex. Dr. T. C. Henry.

**Spermophilus Richardsoni**, (Sabine) Baird.—YELLOW GOPHER.—Plains of the Saskatchewan southward to the Upper Missouri.

12360. Skin. Fort Saunders, Wyo. Col. A. G. Brackett.

**Spermophilus Townsendi**, Bach.—TOWNSEND'S GROUND SQUIRREL.—Plains of Columbia.

3775. Camp Lloyd, Utah. Capt. J. H. Simpson, U. S. A.

**Spermophilus annulatus**, Aud. & Bach.—RINGED GROUND SQUIRREL.—Plains of Colima, Mexico.

—, Skins.

**Cynomys ludovicianus**, (Ord) Baird.—PRAIRIE DOG.—Great plains east of the Rocky Mountains.

4057. Mounted. (Female.) Platte River, Ark. Dr. Woodhouse.

7770 ÷ 345. Mounted. (Male.) Ft. Larned. Dr. E. Coues. May 31, 1864.

11458. Mounted. Colorado. J. H. Batty.

9559. Mounted. Soda Springs, Colo. Jas. Stevenson.

**Cynomys columbianus**, (Ord) Allen.—SHORT-TAILED PRAIRIE DOG.—The parks and plains within and west of the Rocky Mountains to the plains of Columbia.

5849. Mounted. Fort Bridger, Utah. C. Drexler.

**Arctomys monax**, Linn.—WOODCHUCK.—Eastern North America.

26788. Mounted. Wyoming, N. Y. H. A. Ward, Rochester, N. Y.

**Arctomys caligatus**, Eschscholtz.—NORTHWESTERN MARMOT.—Puget's Sound northward, west of the Rocky Mountains.

9493. Mounted. Ft. Kenag, Alaska. F. Bischoff. May 16, 1869.

12485. Mounted.

**Arctomys flaviventer**, Aud. & Bach.—YELLOW-FOOTED MARMOT.—Rocky Mountains west of the Pacific Coast.

8834. Mounted. Fort Anderson. R. McFarlane.

12753. Mounted. Near Fort Ellis, Montana. W. B. Platt.

### HAPLODONTIDÆ.

**Haplodontia leporina**, Rich.—SEWELLEL; SHOWT'L.—Pacific Slope (especially about Puget's Sound).

1966. Mounted. (Male.) Ft. Steilacoom, Wash. Ter. Dr. Geo. Suckley.

4046. Mounted. Puget's Sound. Ex. Ex.



**CASTORIDÆ.**

**Castor canadensis**, Kuhl.—AMERICAN BEAVER.—United States generally.

9724. Mounted. (Young.) Henry Fork, G. R. Dr. F. V. Hayden. Oct., 1870.

**GEOMYIDÆ.**

**Geomys bursarius**, Rich.—POUCHED or POCKET GOPHER.—Missouri to Minnesota and Nebraska.

91. Mounted. Columbia River, Oregon. Acad. Nat. Sci. Phila.

**Geomys tuza**, (Ord,) Coues.—FLORIDA SALAMANDER.—Southeastern States.

11905. Skins. Jacksonville, Fla. G. Brown Goode.

**Geomys castanops**, Baird.—TEXAS POUCHED GOPHER.—Texas and New Mexico.

4007. Mounted. Bent's Fork. Lt. Abert.

**Thomomys talpoides**, (Rich) Baird.—CALIFORNIA GOPHER.—Northern and Western North America.

366÷1280. Mounted. Monterey, California. Lt. W. P. Trowbridge.

**Thomomys clusius**, Coues.—SMALL-FOOTED POUCHED GOPHER.—Rocky Mountains.

—Skins. Ft. Bridger, Utah.

**MURIDÆ.**

**Mus decumanus**, Pallas.—BROWN RAT.—United States generally. (Introduced.)

5847. Mounted. Washington, D. C.

**Mus rattus**, Linn.—BLACK RAT.—United States generally, but rare. (Introduced.)

12÷921. Skin. Foxburg, Pa. S. F. Baird.

**Mus musculus**.—COMMON MOUSE.—United States generally. (Introduced.)

4051. Mounted. (Albino.) District of Columbia.

**Hesperomys leucopus**, Wagner.—WHITE-FOOTED MOUSE.—Northern United States west of the Mississippi River.

1358. Mounted. Halifax, N. S. A. Downes.

Bull. N. M. No. 14—2



**Neotoma floridana**, Say & Ord.—FLORIDA RAT; WOOD RAT.—Atlantic Slope northward to New York.

4334. Mounted. Hillsboro, Va. N. Janney.

**Neotoma cinerea**, (Ord) Baird.—ROCKY MOUNTAIN RAT.—Pacific Slope and Upper Missouri.

5665. Mounted. Fort Liard, Hudson's Bay Terr. Ross and Hardesty.

**Fiber zibethicus**, Cuv.—MUSK RAT.—United States generally.

4060. Mounted. (Female.) District of Columbia. R. O. Pollard.

### HYSTRICIDÆ.

**Erethizon dorsatus**, (Linn.) Flem., *var. dorsatus*.—WHITE-HAIRED PORCUPINE.—Northern United States.

11086. Mounted. Maine. John Wallace.

12402. Mounted. (Female.) Mt. Washington, N. H. C. J. King. July 3, 1875.

**Erethizon dorsatus**, (Linn.) F. Cuv., *var. epixanthus*.—YELLOW-HAIRED PORCUPINE.—Pacific Slope and Upper Missouri region.

9745. Mounted. Fort Bridger, Wyoming. Dr. F. V. Hayden, U. S. Geologist. Sept. 29, 1870.

### SUBORDER DUPLICIDENTATA.

### LEPORIDÆ.

**Lepus timidus**, Fab., *var. arcticus*.—POLAR HARE.—Arctic and Subarctic America.

1356. Mounted. (Young.) Newfoundland. John Downes. Summer 1856.

5181. Mounted. Newfoundland. J. R. Willis.

353. Mounted. Newfoundland. J. G. Bell. Winter 1854.

**Lepus americanus**, Erxl., *var. americanus*, Allen.—NORTHERN HARE; WHITE HARE.—Northeastern North America.

12478. Mounted. Cumberland, Md. D. P. Welpley.

**Lepus americanus**, Erxl.—NORTHERN HARE; WHITE RABBIT.—Alaska and British North America east of the Rocky Mountains.

4430. Mounted. (Male.) Ft. Liard, H. B. T. Robert Kennicott.

**Lepus americanus**, *var. virginianus*.—VIRGINIA HARE.—Eastern United States south of Nova Scotia.

11067. Mounted. J. G. Bell.

959. Mounted. Middleboro, Mass. J. W. P. Jenks.



**Lepus americanus**, Erxl., *var.* **Washingtonii**.—RED HARE.—  
West of Rocky Mountains from Columbia River into British  
Columbia.

3817. Mounted. Chiloweyuck Depot, Oregon. Dr. C. B. Kennerly, U. S. A.  
June, 1859.

**Lepus americanus**, Erxl., *var.* **Bairdii**.—BAIRD'S HARE.—  
Higher parts of Rocky Mountains.

4265. Mounted. (Female.) Wind River Mountains. Dr. F. V. Hayden.

5882. Mounted. Head of Flathead River, Washington Ty. Dr. C. B. Kennerly,  
N. W. Boundary Survey. Winter 1860.

3791. Mounted. Ft. Bridger, Utah. J. H. Simpson.

303. Mounted. Shoalwater Bay. Dr. J. G. Cooper, Pacific R. R. Survey.  
March 5, 1854.

**Lepus campestris**, Bach.—PRAIRIE HARE.—Central plains of  
North America.

1552. Mounted. Upper Missouri. Dr. F. V. Hayden.

4240. Mounted. (Male.) Deer Creek. Dr. F. V. Hayden. Dec. 18, 1859.

69 ÷ 972. Mounted. Ft. Union, Neb. T. Culbertson.

12013. Mounted. (Male.) Frenchman's Creek, Montana. Dr. E. Coues, U. S. A.,  
Northern Boundary Survey. July 5, 1874.

**Lepus callotis**, Wagler.—JACKASS HARE; JACK RABBIT.—South-  
western United States.

1170. Mounted. Klamath Lake. Dr. J. S. Newberry.

8477. Mounted. (Female.) Ft. Whipple, Arizona. Dr. E. Coues, U. S. A.  
May 17, 1865.

450. Mounted. Red River, Ark. Capt. Marcy.

**Lepus californicus**, Gray.—CALIFORNIA HARE.—California.

11070. Mounted. California. J. G. Bell.

1980. Mounted. Petaluma, California. E. Samuels.

12586. Mounted. Cape St. Lucas. John Xantus.

**Lepus sylvaticus**, Bach.—GRAY RABBIT.—Eastern United States.

12483. Mounted. Fairfax Co., Va. G. Brown Goode.

11069. Mounted. New York? J. G. Bell.

11068. Mounted. New York? J. G. Bell.

4017. Mounted. New York. J. G. Bell.

**Lepus Bachmani**, Waterhouse.—BACHMAN'S HARE.—Texas.

234; 243. Skins. Brownsville, Texas. Couch and Van Vliet.

**Lepus sylvaticus**, Bach., *var.* **Audubonii**.—AUDUBON'S HARE.  
—Southern Arizona and California.

1596. Mounted. San Diego, Cal. Dr. J. F. Hammond. Dec., 1855.

1594. Mounted. (Female.) San Diego, Cal. Dr. J. F. Hammond. Dec. 28,  
1856.



**Lepus sylvaticus**, Bach., *var. Nuttalli*.—SAGE RABBIT.—United States west of 97th meridian.

8896. Mounted. (Female.) Camp Grant, Ariz. Edward Palmer. Feb. 20, 1867.

**Lepus Trowbridgii**, Baird.—TROWBRIDGE'S HARE.—California.

1183. Mounted. Santa Clara, Cal. Dr. J. S. Newberry. Nov., 1855.  
2974 ÷ 351. Mounted. Petaluma, Cal. E. Samuels.

**Lepus aquaticus**, Bach.—WATER RABBIT.—Gulf States.

2306. Mounted. Prairie Mer Rouge, La. James Fairie.  
2309. Mounted. Prairie Mer Rouge, La. James Fairie.

**Lepus palustris**, Bach.—MARSH RABBIT.—Southeastern United States, on lowlands.

4018. Mounted. St. Simon's Island, Ga. Dr. Wilson. 1860.  
1256. ? Mounted. Society Hill, S. C. M. A. Curtis. 1856.  
1621. Mounted. St. Simon's Island, Ga. Dr. S. M. Wilson.

## ORDER, EDENTATA.

### DASYPODIDÆ.

**Tatusia septem-cinctus**, (Linn.,) Gray.—ARMADILLO.—Southwestern United States and South.

10197. Mounted. Tobasco, Mexico. C. H. Laszlo.

## ORDER, AMARSUPIALI.

### DIDELPHIDÆ.

**Didelphys virginiana**, Shaw.—POSSUM.—United States generally.

12951. Stuffed skins. Family group of nine. Washington, D. C. G. Brown Goode.

## II. BIRDS.

From want of space it has not been thought desirable to exhibit a collection of North American birds.



## III. REPTILES.

## ORDER, CROCODILIA.

## CROCODILIDÆ.

**Crocodylus americanus**, Seba.—FLORIDA CROCODYLE.—Southern Florida.

8384. Mounted. Biscayne Bay, Fla. Purchased from H. A. Ward.

**Alligator mississippiensis**, Daudin.—ALLIGATOR.—Southeastern North America.

9980. Cast. Jacksonville, Fla. F. C. Goode.

8543. Cast. Jacksonville, Fla. G. Brown Goode.

## ORDER, TESTUDINATA.

## TESTUDINIDÆ.

**Testudo carolina**, Linn.—FLORIDA GOPHER-TORTOISE.—Southeastern North America.

9627. Cast. Florida. G. Brown Goode.

**Testudo Berlandieri**, Agassiz.—Southwestern United States.

8926. Brownsville, Tex. Dr. J. C. Merrill, U. S. A.

## EMYDIDÆ.

**Malacoclemmys palustris**, Gmelin.—DIAMOND-BACK TERRAPIN.—Coast from New York to Texas.

8709. Washington Market. J. W. Milner.

9028. Cast. Mandeville, La. G. Kohn.

**Pseudemys rugosa**, Shaw.—RED-BELLIED TERRAPIN.—New Jersey to Virginia.

8910. Cast. Kinston, N. C. J. W. Milner.

**Pseudemys concinna**, Leconte.—FLORIDA TERRAPIN.—Southeastern United States.

8907-8. Cast. Florida. Professor Baird.

**Pseudemys mobiliensis**,

9026. Cast. Mandeville, La. G. Kohn.



**CHELYDRIDÆ.**

**Macrochelys lacertina**, Schw.—ALLIGATOR TURTLE.

9211. Cast. Greenville, Miss. S. W. Ferguson.

**Chelydra serpentina**, Linn.—SNAPPING TORTOISE.—Canada to Ecuador.

8916. Cast. Washington, D. C. Joseph Palmer.

**TRIONYCHIDÆ.**

**Aspidonectes ferox**, Schw.—SOFT-SHELL TURTLE.—Georgia to Western Louisiana.

8708. Cast. Milledgeville, Ga. Tarleton H. Bean.

8899. Florida. Professor Baird.

**Aspidonectes spinifer**, Les.—SOFT-SHELL TURTLE.—Middle and northern tributaries of the Mississippi and the Saint Lawrence.

8309. Mounted. Rising Sun, Ind.

9614. Alcoholic. Mt. Carmel, Ill. R. Ridgway.

**CHELONIIDÆ.**

**Chelonia mydas**, Schw.—GREEN TURTLE.—Atlantic Coast south of Long Island.

8392÷15267. Cast in papier-maché. New York market. E. G. Blackford.

**Chelonia virgata**, Schw.—PACIFIC GREEN TURTLE.—Pacific Coast.

9639. Cast. San Diego, Cal. G. N. Hitchcock.

**Thalassochelys caouana**, Linn.—LOGGERHEAD TURTLE.

8386÷15259. Cast. New York market. E. G. Blackford.

**Eretmochelys imbricata**, Linn.—HAWK'S BILL TURTLE.—Southern Atlantic Coast.

—, Cast. New York market. E. G. Blackford.

**Eretmochelys squamata**, Linn.—PACIFIC HAWK'S BILL TURTLE.—Pacific Coast.

12388. Shells. Fiji Island. U. S. Expl. Expedition.

**SPHARGIDIDÆ.**

**Sphargis coriacea**, Rondelet.—LEATHERBACK TURTLE.—Atlantic Coast to Massachusetts.

8389—15266. Cast. New York market. E. G. Blackford.



## V. FISHES.

## ORDER, PEDICULATI.

## MALTHEIDÆ.

**Malthe cubifrons**, Rich.—SEA BAT.—West Indian Fauna.

16727. Cast. St. Augustine, Fla. Dr. J. M. Laing, U. S. A.

800. Photograph. U. S. Fish Commission.

**Malthe vespertilio**, (Linn.) Cuv.—SEA BAT.—West Indian Fauna.

12575. Alcoholic specimen. Amazons. British Museum.

## LOPHIIDÆ.

**Lophius piscatorius**, Linn.—GOOSE FISH; ANGLER.—Nova Scotia to Cape Hatteras.

15086. Alcoholic specimen. Tompkinsville, N. Y. Copley.

14910. Cast. Wood's Holl, Mass. U. S. Fish Commission. June 22, 1873.

16657. Cast. Wood's Holl, Mass. U. S. Fish Commission.

12, 13, 14, 15. Photographs. U. S. Fish Commission.

## ANTENNARIIDÆ.

**Pterophryne histrio**, (Linn.) Gill.—MOUSE-FISH.—Pelagic.

20683. Alcoholic specimens. Wood's Holl, Mass. V. N. Edwards.

## ORDER, PLECTOGNATHI.

## MOLIDÆ.

**Mola rotunda**, Cuv.—SUN-FISH.—Newfoundland to Cape Hatteras.

15832. Cast. Noank, Conn. U. S. Fish Commission. Sept. 16, 1874.

15833. Cast. Noank, Conn. U. S. Fish Commission. Sept. 16, 1874.

1. Photograph. U. S. Fish Commission.

784. Color sketch. (Richard.) U. S. Fish Commission.

## DIODONTIDÆ.

**Chilomycterus geometricus**, (Linn.) Kaup.—BUR-FISH.—South of Cape Cod; West Indian Fauna, &c.

15572. Cast. New York market. E. G. Blackford. Oct. 7, 1875.

15883. Cast. Wood's Holl, Mass. U. S. Fish Commission. Aug. 1, 1873.

523-4-5. Color sketch. (Richard.) U. S. Fish Commission.



**Chilomycterus fuliginosus**, (De Kay,) Gill.

13938. Alcoholic specimen. Watch Hill, R. I. U. S. Fish Commission. Sept. 18, 1874.

**Trichodiodon pilosus**, (Mitch.) Bleeker.—HAIRY BOX-FISH.—Cape Cod to Cape Hatteras.

—. Alcoholic specimen. Beesly's Point, N. J. Prof. S. F. Baird. 1854.

**TETRODONTIDÆ.****Tetrodon lævigatus**, (Linn.) Gill.—RABBIT-FISH.—Cape Cod to Florida.

14867. Cast. Vineyard Sound, Mass. U. S. Fish Commission. July 13, 1874.  
2, 3. Photographs. U. S. Fish Commission.

**Chilichthys turgidus**, (Mitch.) Gill.—SWELL-FISH.—Cape Cod to Florida.

10740. Cast. Wood's Holl, Mass. U. S. Fish Commission.  
499. Color sketch. (Richard.) U. S. Fish Commission.  
615-16. Color sketch. Prof. Alex. Agassiz.

**OSTRACIDÆ.****Ostracium quadricorne**, Linn.—COW-FISH.—West Indian Fauna.

10008. Cast. Bermudas. G. Brown Goode. March, 1872.  
664. Color sketch. (Burkhardt.) Florida. Prof. Alex. Agassiz. Alive in Boston Aquarial Garden June, 1860.

**Ostracium triquetrum**, Linn.—CUCKOLD.—West Indian Fauna.

579-80. Color sketch. (Burkhardt.) Santa Cruz. Prof. Alex. Agassiz; Dr. Jeffries.

**Lactophrys trigonus**, (Linn.) Poey.—TRUNK-FISH.—West Indian Fauna; occasional in Massachusetts.

20610. Alcoholic specimens. Wood's Holl, Mass. V. N. Edwards.

**BALISTIDÆ.****Balistes ringens**, Linn.—SPOTTED FILE-FISH.—West Indian Fauna.

581. Color sketch. (Burkhardt.) Island of Sombrero, W. I. Prof. Alex. Agassiz. Sept., 1859.

**Balistes vetula**, Linn.—OLDWIFE; FILE-FISH.—West Indian Fauna; accidental on coast.

14909. Cast. Wood's Holl, Mass. U. S. Fish Commission. Oct. 8, 1873.  
11380. Photograph. U. S. Fish Commission.



**Balistes capriscus,**

15233. Alcoholic specimen. East Coast. John Sutherland.

**Stephanolepis setifer,** (Bennet) Gill.—STORER'S FILE-FISH.—  
Nova Scotia to Florida.

16519. Alcoholic specimen. Wood's Holl, Mass. U. S. Fish Commission.  
Sept., 1875.

617. Color sketch. (Burkhardt.) Cape Cod. Prof. Alex. Agassiz. Aug., 1859.

498. Color sketch. (Richard.) Wood's Holl, Mass. U. S. Fish Commission.  
Aug., 1875.

**Canthorhinus occidentalis.**—West Indian Fauna, &c.

16746. Alcoholic specimen. Chesapeake Bay. Capt. John Evans. Oct., 1875.

**Alutera cuspicauda,** De Kay.—LONG-TAILED FILE-FISH.—Cape  
Cod to Florida.

16341. Cast. Wood's Holl, Mass. U. S. Fish Commission. Sept. 13, 1875.

15569. Cast. New York. E. G. Blackford.

15827. Cast. New York market. E. G. Blackford.

15839. Cast. New York market. E. G. Blackford. Oct. 9, 1875.

412-13-14. Color sketches. U. S. Fish Commission.

**Ceratacanthus aurantiacus,** (Mitch.) Gill.—ORANGE FILE-  
FISH.—Cape Cod to Florida.

14914. Cast. Wood's Holl, Mass. U. S. Fish Commission. Aug. 14, 1873.

15870. Cast. Wood's Holl, Mass. U. S. Fish Commission. Aug. 14, 1873.

14916. Cast. Wood's Holl, Mass. U. S. Fish Commission. Aug. 14, 1873.

5, 6, 7, 8, and 9. Photographs. U. S. Fish Commission.

500. Color sketch.

## ORDER, LOPHOBRANCHII.

**HIPPOCAMPIDÆ.****Hippocampus antiquorum,** Leach.—SEA-HORSE; HORSE-FISH.  
—Cape Cod to Cape Hatteras.

21044. Alcoholic specimen. St. George's Banks. G. Brown Goode.

**SYNGNATHIDÆ.****Syngnathus Peckianus,** Storer.—PIPE-FISH.—Newfoundland to  
Cape Hatteras.

16492. Alcoholic specimen. Wood's Holl, Mass. U. S. Fish Commission.



## ORDER, TELEOCEPHALI.

## HETEROSOMATA.

## SOLEIDÆ.

**Achirus lineatus**, (Linn.) Cuv.—AMERICAN SOLE; HOG CHOKER.  
—Cape Cod to Florida.

15743. Cast, (upper side.) Wood's Holl, Mass. U. S. Fish Commission. Feb. 21, 1874.

15743. Cast, (under side.) Wood's Holl, Mass. U. S. Fish Commission. Feb. 21, 1874.

380. Photograph. U. S. Fish Commission.

448. Photograph, (upper side.)

449. Photograph, (under side.)

561. Color sketch. Prof. Alex. Agassiz.

**Solea vulgaris**, Quensel.—SOLE.—Coast of Europe.

12513. Cast. England.

16. Photograph. U. S. Fish Commission.

## PLEURONECTIDÆ.

**Euchalarodus Putnami**, Gill.—PUTNAM'S FLAT-FISH.—Found only in Salem Harbor.

5368. Alcoholic specimen. Salem, Mass. F. W. Putnam.

**Pseudopleuronectes americanus**, (Walb.) Gill.—FLAT-FISH;  
WINTER FLOUNDER.—Nova Scotia to Cape Hatteras.

14911. Cast. Wood's Holl, Mass. U. S. Fish Commission. July 22, 1873.

15692. Cast. Wood's Holl, Mass. U. S. Fish Commission. Dec., 1873.

15709. Cast. Wood's Holl, Mass. U. S. Fish Commission. Feb. 28, 1874.

14891. Cast. Wood's Holl, Mass. U. S. Fish Commission. Feb. 20, 1874.

14913. Cast. Wood's Holl, Mass. U. S. Fish Commission. Feb. 2, 1874.

15934. Cast. Wood's Holl, Mass. U. S. Fish Commission.

18, 19, 20, 21, 22, 380. Photographs. U. S. Fish Commission.

785. Color sketch. (Richard.) U. S. Fish Commission.

**Myzopsetta ferruginea**, (Storer) Gill.—RUSTY FLOUNDER.—  
Nova Scotia to Cape Cod.

15068. Cast. New York market. E. G. Blackford.

15067. Cast. New York market. E. G. Blackford. March 22, 1875.

23. Photograph. U. S. Fish Commission.

786. Color sketch. (Richard.) U. S. Fish Commission.

**Pleuronectes glaber**, (Storer) Gill.—SMOOTH-BACK FLOUNDER.—  
Northern New England Coast.

20873. Cast. Portland, Me. Tarleton H. Bean.



**Glyptocephalus cynoglossus**, (Linn.) Gill.—POLE FLOUNDER.  
—Maine.

24. Photograph. U. S. Fish Commission.  
12685. Alcoholic specimen. Treat's Island, Eastport, Me. U. S. Fish Commission. Aug., 1872.

**Lophopsetta maculata**, (Mitch.) Gill.—WATERY FLOUNDER;  
SPOTTED TURBOT.—Cape Cod to Cape Hatteras.

15693. Cast. Wood's Holl, Mass. U. S. Fish Commission.  
10662. Cast. Wood's Holl, Mass. U. S. Fish Commission.  
25, 26. Photographs. U. S. Fish Commission.  
780-1. Color sketch. (Richard.) U. S. Fish Commission.

**Chænopsetta ocellaris**, (De Kay) Gill.—COMMON FLOUNDER.—  
Cape Cod to Cape Hatteras.

15177. Cast. Norfolk, Va. U. S. Fish Commission.  
10721. Cast. Wood's Holl, Mass. U. S. Fish Commission.  
14899. Cast. Block Island, R. I. U. S. Fish Commission. Sept. 24, 1874.  
10684. Cast. Wood's Holl, Mass. U. S. Fish Commission.  
15176. Cast. Norfolk, Va. U. S. Fish Commission.  
27, 28. Photographs. U. S. Fish Commission.  
533-4. Color sketch. (Richard.) U. S. Fish Commission.

**Chænopsetta oblonga**, (Mitch.) Gill.—FOUR-SPOTTED FLOUNDER.  
—Cape Cod to Cape Hatteras.

10716. Cast. Wood's Holl, Mass. U. S. Fish Commission.  
10661. Cast. Wood's Holl, Mass. U. S. Fish Commission.  
29, 30. Photographs. U. S. Fish Commission.

**Chænopsetta dentata**, (Linn.) Gill.—SOUTHERN FLOUNDER.—  
Cape Hatteras to Florida.

18048. Alcoholic specimen. St. John's River, Fla. Professor Baird.

**Hippoglossus americanus**, Gill.—HALIBUT.—Newfoundland to  
Cape Hatteras.

15698. Cast. Eastern Mass. U. S. Fish Commission. Feb. 28, 1874.  
15705. Cast. Eastern Mass. U. S. Fish Commission. Feb. 28, 1874.  
16587. Cast. Boston, Mass. F. H. Johnson. Sept. 24, 1875.  
15732. Cast.  
31, 32. Photographs. U. S. Fish Commission.  
767. Color sketch. (Richard.) U. S. Fish Commission.

**Hippoglossoides limandoides**, Günther.—SAND DAB.

21037. Alcoholic specimen. Halifax, N. S. U. S. Fish Commission. Sept. 11, 1877.  
21818. Alcoholic specimen. Gloucester, Mass. U. S. Fish Commission. July 29, 1878.  
14913. Cast. Wood's Holl, Mass. V. N. Edwards. Feb. 2, 1874.



**Reinhardtius hippoglossoides**, (Walb.) Gill.—GREENLAND  
TURBOT.—Greenland.

14869. Cast, (upper side.) Newfoundland. E. G. Blackford. Feb., 1874.  
14869. Cast. Newfoundland. E. G. Blackford. Feb., 1874.  
33. Photograph. U. S. Fish Commission.  
21564. Cast. Le Have Bank. U. S. Fish Commission.

**Psettichthys melanostictus**, Girard.—CALIFORNIA “SPOTTED  
SOLE.”—Coast of California.

16701. Cast. San Francisco, Cal. L. Stone. Jan. 27, 1876.  
16699. Cast. San Francisco, Cal. L. Stone. Jan. 27, 1876.  
16700. Cast. San Francisco, Cal. L. Stone. Jan. 27, 1876.  
16699, 16700, 16701. Alcoholic specimens. San Francisco. U. S. Fish Commission.  
36, 39. Photographs. U. S. Fish Commission.  
777. Color sketch. U. S. Fish Commission.  
754. Color sketch. (Agassiz.) Prof. Alex. Agassiz.

**Platichthys stellatus**, (Pall.) Gill.—ROUGH FLOUNDER.—Coast  
of California.

16698. Cast. San Francisco, Cal. L. Stone.  
38. Photograph. U. S. Fish Commission.  
531-2. Color sketch. (Richard.) U. S. Fish Commission.  
657. Color sketch. (Agassiz.) San Francisco. Prof. Alex. Agassiz. Nov.,  
1859.

**Parophrys vetulus**.—“SOLE.”—Coast of California.

17064. Alcoholic specimen. San Francisco, Cal. U. S. Fish Commission.  
776. Color sketch. (Richard.) U. S. Fish Commission.

**Ancylopsetta quadrocellata**, Gill.

- 17123-4. Alcoholic specimens. Charleston, S. C. Prof. S. F. Baird. March,  
1877.  
17123. Cast. Charleston, S. C. Prof. S. F. Baird. March, 1877.

**Rhombus maximus**, Will.—TURBOT.—Coasts of Europe.

12511. Cast. England. Middleton, Carman & Co.  
35, 391. Photograph. U. S. Fish Commission.

**Rhombus lævis**, Rondel.—BRILL.—Coasts of Europe.

12512. Cast. England. Middleton, Carman & Co.  
34. Photograph. U. S. Fish Commission.

ANACANTHINI.

**MACRURIDÆ.**

**Macrurus rupestris**, Bl.—ONION-FISH.—North Atlantic.

15608. Cast. St. George's Banks. E. G. Blackford. Oct. 27, 1875.  
786. Color sketch. (Richard.) U. S. Fish Commission.



**Macrurus Bairdii**, Goode & Bean.—SPIKE-TAIL.

21014. Alcoholic specimen. (Type.) Gulf of Maine. U. S. Fish Commission.  
Aug. 19, 1877.

**GADIDÆ.****Pollachius carbonarius**, (Linn.) Bon.—POLLACK.—Greenland to Cape Hatteras.

15971. Cast. Wood's Holl, Mass. U. S. Fish Commission.  
16254. Cast. Martha's Vineyard. U. S. Fish Commission. July 30, 1875.  
41, 42, 43. Photographs. U. S. Fish Commission.  
787. Color sketch. (Richard.) U. S. Fish Commission.

**Gadus morrhua**, Linn.—COD-FISH.—Polar Regions to Cape Hatteras.

16770. Cast. Irish Sea. Liverpool Free Public Museum.  
14902. Cast. New York market. E. G. Blackford. April 3, 1874.  
15923. Cast. Portland, Me. U. S. Fish Commission.  
44, 45, 381, 392. Photographs. U. S. Fish Commission.  
610. Color sketch. Prof. Alex. Agassiz.

**Microgadus proximus**, (Girard) Gill.—TOM COD.—Coast of California.

16696. Cast. San Francisco, Cal. L. Stone. June 27, 1876.  
47. Photograph. U. S. Fish Commission.  
616. Color sketch. (Agassiz.) San Francisco. Prof. Alex. Agassiz. Nov.,  
1859.

**Microgadus tomcodus**, (Walb.) Gill.—TOM COD; FROST-FISH.—Newfoundland to Cape Hatteras.

14884. Cast. Wood's Holl, Mass. U. S. Fish Commission. June 11, 1873.  
14885. Cast. Wood's Holl, Mass. U. S. Fish Commission. June 11, 1873.  
16608. Cast. Wood's Holl, Mass. U. S. Fish Commission. Sept. 27, 1875.  
46. Photograph. U. S. Fish Commission.  
652. Color sketch. (Agassiz.) Prof. Alex. Agassiz.

**Melanogrammus æglefinus**, (Linn.) Gill.—HADDOCK.—Newfoundland to Cape Hatteras.

14897. Cast. Wood's Holl, Mass. U. S. Fish Commission. June 18, 1873.  
14896. Cast. Portland, Me. U. S. Fish Commission. Aug. 2, 1873.  
48, 49, 50. Photograph. U. S. Fish Commission.  
427. Color sketch. (Richard.) U. S. Fish Commission.

**Phycis chuss**, (Walb.) Gill.—HAKE.—Newfoundland to Cape Hatteras.

16598. Cast. Boston, Mass. F. H. Johnson.

**Phycis tenuis**, (Mitch.) De Kay.—SQUIRREL HAKE.—Newfoundland to Cape Hatteras.

15729. Cast. Wood's Holl, Mass. U. S. Fish Commission. June 18, 1873.  
51. Photograph. U. S. Fish Commission.



**Phycis Chesteri**, Goode & Bean.—LONG-FINNED HAKE.

21840. Alcoholic specimen. (Type.) Gulf of Maine. U. S. Fish Commission.  
Aug. 27, 1878.

**Urophycis regius**, (Walb.) Gill.—SPOTTED CODLING.—Cape Cod to Cape Hatteras.

788. Color sketch. (Emerton.) U. S. Fish Commission.  
16845-6. Casts and alcoholic specimens. New York. Fred. Mather.

**Molva vulgaris**, Fleming.—LING.—Polar Seas.

16775. Cast. Coast of England. Liverpool Free Public Museum.  
390. Photograph. U. S. Fish Commission.

**Rhinonemus caudacuta**, (Storer) Gill.—FOUR-BEARDED ROCK-LING.—Nova Scotia to Cape Cod.

16656. Alcoholic specimen. Wood's Holl, Mass. V. N. Edwards.

**Ciliata argentata**, (Reinh.) Gill.—MACKEREL MIDGE.—Greenland to Cape Hatteras.

16179. Alcoholic specimen. Vineyard Sound, Mass. U. S. Fish Commission.

**Hypsiptera argentea**, Günther.

21831. Alcoholic specimen. Off Cape May, N. J. Capt. R. H. Hurlbert.

**Brosmius americanus**, Gill.—CUSK.—Nova Scotia to Cape Cod.

16605. Cast. Boston, Mass. Wm. Prior, jr., & Co. Sept. 25, 1875.  
15886. Cast. Wood's Holl, Mass. U. S. Fish Commission. Feb. 21, 1874.  
52. Photograph. U. S. Fish Commission.  
429. Color sketch. (Richard.) U. S. Fish Commission.

**Haloporphyrus viola**, Goode & Bean.—BLUE HAKE.

21837. Alcoholic specimen. (Type.) Banquereau. Capt. Jos. W. Collins. Aug.,  
1878.

**Lota maculosa**, (Les.) Rich.—BURBOT.—Fresh waters of Northern North America.

16640. Cast. New York. E. G. Blackford.  
16638. New York. E. G. Blackford.  
53, 54, 55. Photographs. U. S. Fish Commission.  
428. Color sketch. (Richard.) U. S. Fish Commission.  
491. Color sketch. (Rötter.) Prof. Alex. Agassiz.

**MERLUCIDÆ.****Merlucius bilinearis**, (Mitch.) Gill.—WHITING; SILVER HAKE.—Nova Scotia to Cape Hatteras.

15747. Cast. U. S. Fish Commission.  
15931. Cast. Wood's Holl, Mass. U. S. Fish Commission. Oct. 28, 1873.  
56. Photograph. U. S. Fish Commission.  
562. Color sketch. Prof. Alex. Agassiz.



**OPHIDIIDÆ.****Ophidium marginatum**, Mitch.—Cape Cod to Cape Hatteras.

10762. Alcoholic specimen. Tompkinsville, N. Y. C. Copley.

**LYCODIDÆ.****Zoarces anguillaris**, (Peck) Storer.—EEL POUT.—Newfoundland to Cape Hatteras.

14888. Cast. New York market. E. G. Blackford. March, 1874.

15694. Cast. Nantucket Shoals. U. S. Fish Commission.

651. Color sketch. Prof. Alex. Agassiz.

**CRYPTACANTHIDÆ.****Cryptacanthodes maculatus**, Storer.—SPOTTED WRY-MOUTH.—Nova Scotia to Cape Cod.

16621. Provincetown, Mass. U. S. Fish Commission.

15889. Cast. Portland, Me. U. S. Fish Commission.

15890. Cast. Portland, Me. U. S. Fish Commission.

423. Color sketch. (Richard.) U. S. Fish Commission.

613. Color sketch. (Burkhardt.) Boston. Prof. Alex. Agassiz. Dec., 1861.

**Cryptacanthodes inornatus**, Gill.—GHOST-FISH.—Coast of Massachusetts.

1761. Alcoholic specimen. Maine. W. Stimpson.

**AMMODYTIDÆ.****Ammodytes americanus**.—SAND EEL.

382. Photograph. U. S. Fish Commission.

422. Color sketch. (Richard.) U. S. Fish Commission.

**STICHÆIDÆ.****Stichæus punctatus**, (Fabr.) Reinh.—North Atlantic Coast.

590. Color sketch. (Burkhardt.) Prof. Alex. Agassiz.

21068. Alcoholic specimen. Halifax, N. S. U. S. Fish Commission. Sept. 4, 1877.

**Eumesogrammus subbifurcatus**, (Storer) Gill.—Nova Scotia to Cape Cod.

21067. Alcoholic specimen. Halifax, N. S. U. S. Fish Commission. Aug. 25, 1877.



**XIPHIDIONTIDÆ.**

**Murænoides mucronatus**, (Mitch.,) Gill.—ROCK EEL.—Nova Scotia to Cape Hatteras.

13847. Alcoholic specimen. Eastport, Me. U. S. Fish Commission.  
488. Color sketch. Prof. Alex. Agassiz.

**Murænoides ornatus**, (Girard) Gill.—PACIFIC ROCK EEL.—Pacific Coast.

639. Color sketch. (Agassiz.) Ft. Roberts, Gulf of Georgia, Wash. Terr. Prof. Alex. Agassiz. July, 1859.

**ANARRHICHADIDÆ.**

**Anarrhichas vomerinus**, (Ag.) Storer.—WOLF-FISH.—Greenland to Cape Hatteras.

16439. Cast. Boston, Mass. F. H. Johnson. Sept. 8, 1875.  
14900. Cast. Coxswain's Ledge, R. I. U. S. Fish Commission. July 25, 1875.  
57. Photograph. U. S. Fish Commission.  
770. Color sketch. (Richard.) U. S. Fish Commission.

**Anarrhichas lupus**, Linn.

21875. Specimen in brine. Gloucester. U. S. Fish Commission. 1878.

**BATRACHIDÆ.**

**Batrachus tau**, Linn.—TOAD-FISH; OYSTER-FISH.—Nova Scotia to Gulf of Mexico.

10743. Cast. Wood's Holl, Mass. U. S. Fish Commission.  
501-2. Color sketch. (Richard.) U. S. Fish Commission.

**Porichthys notatus**.—Pacific Coast.

640. Color sketch. (Agassiz.) Simiahmoo, Wash. Terr. Prof. Alex. Agassiz. June, 1859.

**URANOSCOPIDÆ.**

**Astroscopus anoplus**, (Cuv. & Val.) Brevoort.—NAKED STAR-GAZER.—New York to Florida.

4622. Alcoholic specimen. Norfolk, Va. Prof. Theo. Gill.  
571. Color sketch. (Burkhardt.) Pensacola, Fla. Prof. Alex. Agassiz; Dr. Jeffreys. April, 1854.  
572. Color sketch. (Burkhardt.) Hampton Roads, Va. Prof. Alex. Agassiz; T. Leib. April, 1854.  
584. Color sketch. (Burkhardt.) Jacksonville, Fla. Prof. Alex. Agassiz. 1853.  
585. Color sketch. (Burkhardt.) Charleston, S. C. Prof. Alex. Agassiz. 1854.  
586. Color sketch. (Burkhardt.) Coney Island, N. Y. Prof. Alex. Agassiz. April, 1854.



**CYCLOPTERIDÆ.****Cyclopterus lumpus**, Linn.—LUMP-FISH.—North Atlantic.

15688. Cast. New York. E. G. Blackford. May 15, 1874.  
 15730. Cast. New York. E. G. Blackford. April 18, 1874.  
 16660. Cast. Wood's Holl, Mass. U. S. Fish Commission.  
 58. Photograph. U. S. Fish Commission.  
 788. Color sketch. (Emerton.) Young specimen. Fisher's Island Sound.  
 U. S. Fish Commission. Aug., 1874.

**LIPARIDIDÆ.****Liparis lineata**, (Lepechin) Kroyer.—STRIPED LIPARIS.—North Atlantic.

13960. Alcoholic. Watch Hill Reef, R. I. U. S. Fish Commission. Aug., 1874.  
 788. Color sketch. (Emerton.) U. S. Fish Commission.

**Liparis Montagu**, Don.—SEA SNAIL.—North Atlantic.

20432. Alcoholic. Wood's Holl, Mass. U. S. Fish Commission.

**TRIGLIDÆ.****Dactylopterus volitans**, (Linn.) Lacep.—FLYING GURNARD.—Temperate and Tropical Atlantic and Mediterranean.

15873. Cast. Wood's Holl, Mass. U. S. Fish Commission. Aug. 8, 1873.  
 —. Color sketch. (Richard.) U. S. Fish Commission.

**Prionotus carolinus**, (Linn.) Cuv. & Val.—BROAD-FINGERED SEA ROBIN.—Cape Cod to Florida.

59. Photograph. U. S. Fish Commission.  
 443. Color sketch. (Richard.) U. S. Fish Commission.  
 566. Color sketch. (Burkhardt.) Prof. Alex. Agassiz.

**Prionotus evolans**, (Linn.) Gill.—STRIPED SEA ROBIN.—Cape Cod to Florida.

15735. Cast. Wood's Holl, Mass. U. S. Fish Commission.  
 15727. Cast. Wood's Holl, Mass. U. S. Fish Commission.  
 16411. Cast. Wood's Holl, Mass. U. S. Fish Commission. Sept. 25, 1875.  
 60, 61, 62. Photographs. U. S. Fish Commission.  
 401, 402. Color sketch. (Richard.) U. S. Fish Commission.

**AGONIDÆ.****Aspidophoroides monoptygius**, (Bloch.) Storer.—Polar Seas and south to Connecticut.

21700. Alcoholic. Massachusetts Bay. U. S. Fish Commission.



**COTTIDÆ.****Cottus octodecimspinosus**, Mitch.—SCULPIN.—Nova Scotia to Cape Hatteras.

16437. Cast. Boston, Mass. F. H. Johnson. Sept. 8, 1875.  
 63. Photograph. U. S. Fish Commission.  
 537-8. Color sketch. Prof. Alex. Agassiz.

**Cottus grœnlandicus**, Cuv. & Val.—GREENLAND SCULPIN.—Polar Regions to Cape Cod.

16436. Cast. Boston, Mass. F. H. Johnson.  
 65. Photograph. U. S. Fish Commission.  
 545. Color sketch. Prof. Alex. Agassiz.

**Cottus Mitchilli**, Cuv. & Val.—PIGMY SCULPIN.—New England Coast.

14806. Alcoholic specimens. Wood's Holl, Mass. U. S. Fish Commission.  
 62. Photograph. U. S. Fish Commission.  
 546. Color sketch. Prof. Alex. Agassiz.

**Uranidea viscosa**, (Hald.) De Kay.—AMERICAN MILLER'S THUMB.

609. Color sketch. (Roetter.) Plymouth, Mass. Prof. Alex. Agassiz. March, 1869.

**HEMITRIPTERIDÆ.****Hemitripteris americanus**, (Gmel.) Cuvier.—SEA RAVEN.—Newfoundland to New York; Seas of Japan.

15736. Cast. Wood's Holl, Mass. U. S. Fish Commission.  
 16414. Cast. Wood's Holl, Mass. U. S. Fish Commission. Sept. 2, 1875.  
 66, 67. Photographs. U. S. Fish Commission.  
 471-2. Photographs.  
 476. Photograph of young.

**SCORPÆNIDÆ.****Sebastes marinus**, (Linn.) Lütken.—NORWAY HADDOCK; HEM-DURGAN; RED PERCH.—Polar Seas and south to Cape Cod.

- Alcoholic. Eastport, Me. U. S. Fish Commission.

**Sebastes viviparus**, Kroyer.—ROSE-FISH.—North Atlantic.

15879. Cast. Wood's Holl, Mass. U. S. Fish Commission.  
 397. Photograph. U. S. Fish Commission.  
 789. Color sketch. Prof. Alex. Agassiz.

**Sebastes rosaceus**, (Girard) Gill.—ROSY ROCK-FISH.—Coast of California.

16688. Cast. San Francisco, Cal. L. Stone.  
 68. Photograph. U. S. Fish Commission.



**Sebastomus auriculatus**, (Girard) Gill.—BLACK-EARED ROCK-FISH.—Coast of California.

612. Color sketch. (Agassiz.) San Francisco, Cal. Prof. Alex. Agassiz. Nov., 1859.

**Sebastomus fasciatus**, (Girard) Gill.—BANDED ROCK-FISH.—Coast of California.

483. Color sketch. (Richard.) San Francisco. Livingston Stone. U. S. Fish Commission. March, 1876.

614. Color sketch. (Agassiz.) Deep Bay, Mayne Id., W. T. Prof. Alex. Agassiz. May 20, 1859.

**Sebastomus elongatus**, (Girard) Gill.—Pacific Coast.

643. Color sketch. (Agassiz.) San Francisco. Prof. Alex. Agassiz. Nov., 1859.

**Sebastosomus melanops**, (Girard) Gill.—BLACK-HEADED ROCK-FISH.—Coast of California.

653. Color sketch. (Agassiz.) San Francisco. Prof. Alex. Agassiz. Nov., 1859.

16689. Cast. San Francisco, Cal. L. Stone.

482. Color sketch. (Richard.) U. S. Fish Commission.

**Sebastodes paucispinis**, (Ayres) Gill.—Coast of California.

637. Color sketch. (Agassiz.) San Francisco. Prof. Alex. Agassiz. Nov., 1859.

**Chirus constellatus**, (Girard) Gill.—“ROCK TROUT.”—Coast of California.

16697. Cast. San Francisco, Cal. L. Stone.

69. Photograph. U. S. Fish Commission.

455. Photograph. U. S. Fish Commission.

**Chirus pictus**, Girard.—Pacific Coast.

642. Color sketch. (Agassiz.) San Francisco. Prof. Alex. Agassiz. Nov., 1859.

**Chirus guttatus**, Girard.—Coast of California.

638. Color sketch. (Agassiz.) San Francisco. Prof. Alex. Agassiz. Nov., 1859.

**SCARIDÆ.****Scarus squalidus**, Poey.—TAWNY PARROT-FISH.—West Indian Fauna.

973. Stuffed skin. Havana market. Prof. F. Poey.

**Scarus Abildgaardii**.—PARROT-FISH.—West Indian Fauna.

9738. Stuffed skin. Havana market. Prof. F. Poey.



**Scarus radians**, Val.—SPANISH PORGY.—West Indian Fauna.

550. Color sketch. (Burkhardt.) New Providence. Prof. Alex. Agassiz;  
F. S. Shaw. April, 1861.

**Pseudoscarus cœruleus**.—BLUE PARROT-FISH; KILMAGORE.—  
West Indian Fauna.

9733. Stuffed skin. Havana market. Prof. F. Poey.

**LABRIDÆ.****Tautoga onitis**, (Linn.) Günther.—TAUTOG; BLACK-FISH.—Bay of  
Fundy to South Carolina.

10598. Cast. Wood's Holl, Mass. U. S. Fish Commission.  
15622. Cast. Wood's Holl, Mass. U. S. Fish Commission.  
14893. Cast. Chesapeake Bay. U. S. Fish Commission. May 12.  
10599. Cast. Wood's Holl, Mass. U. S. Fish Commission. May 12.  
10643. Cast. Wood's Holl, Mass. U. S. Fish Commission.  
15959. Cast. Wood's Holl, Mass. U. S. Fish Commission.  
10599. Cast. Wood's Holl, Mass. U. S. Fish Commission.  
70, 71. Photographs. U. S. Fish Commission.  
450. Color sketch. (Adult.) (Richard.) U. S. Fish Commission.  
451. Color sketch. (Young.) U. S. Fish Commission.  
554. Color sketch. (Burkhardt.) Prof. Alex. Agassiz.  
661. Color sketch. Prof. Alex. Agassiz.

**Tautogolabrus adspersus**, (Walb.) Gill.—CUNNER; CHOGSET.—  
Newfoundland to Cape Hatteras.

14894. Cast. Wood's Holl, Mass. U. S. Fish Commission.  
10746. Cast. Wood's Holl, Mass. U. S. Fish Commission.  
381. Photograph. U. S. Fish Commission.  
383. Photograph.  
645. Color sketch. Prof. Alex. Agassiz.  
431-433. Color sketch. U. S. Fish Commission.

**Harpe rufus** (Linn.) Gill.—SPANISH LADY-FISH.—West Indian  
Fauna.

597. Color sketch. (Burkhardt.) Santa Cruz. Prof. Alex. Agassiz; Dr.  
Jeffries.

**Chærojulis radiatus**, (Linn.) Goode.—BLUE-FISH.—West Indian  
Fauna.

596. Color sketch. (Burkhardt.) New Providence. Prof. Alex. Agassiz; F.  
S. Shaw. April, 1861.

**Lachnolæmus falcatus**, (Linn.) Val.—West Indian Fauna.

20780. Cast. Key West, Fla. E. G. Blackford.  
598. Color sketch. Prof. Alex. Agassiz.  
599. Color sketch. (Burkhardt.) Prof. Alex. Agassiz.  
600. Color sketch. Prof. Alex. Agassiz.  
601. Color sketch. Prof. Alex. Agassiz.



**POMACENTRIDÆ.****Glyphidodon saxatilis**, (Linn.) Cuv.—SERGEANT-MAJOR.—West Indian Fauna.

589. Color sketch. (Burkhardt.) Prof. Alex. Agassiz.

591. Color sketch. (Dall.) Bermudas. Alive in Barnum's Aquarium. Prof. Alex. Agassiz. Dec., 1862.

**Pomacentrus leucostictus**, M. & T.—West Indian Fauna.

21703. Alcoholic. Ft. Jefferson, Fla. Thos. Moore.

**Heliastes insolatus**, C. & V.—West Indian Fauna.

21704. Alcoholic. Ft. Jefferson, Fla. Thos. Moore.

**EMBIOTOCIDÆ.****Embiotoca Webbi**, Girard.—Coast of California.

626. Color sketch. (Agassiz.) San Francisco. Prof. Alex. Agassiz. Nov., 1859.

**Embiotoca Jacksoni**, Agassiz.—Coast of California.

625. Color sketch. (Agassiz.) San Francisco. Prof. Alex. Agassiz. Nov., 1859.

**Tæniotoca lateralis**, (Ag.) A. Ag.—STRIPED PERCH.—Coast of California.

16691. Cast. San Francisco, Cal. L. Stone.

72. Photograph. U. S. Fish Commission.

456. Photograph. U. S. Fish Commission.

658. Color sketch. (Agassiz.) Crescent City, Cal. Prof. Alex. Agassiz. May, 1859.

659. Color sketch. (Female.) (Agassiz.) San Francisco. Prof. Alex. Agassiz. Nov., 1859.

660. Color sketch. San Francisco. Prof. Alex. Agassiz. April, 1860.

**Damalichthys vacca**, Girard.—Coast of California.

627. Color sketch. (Agassiz.) San Francisco. Prof. Alex. Agassiz. April, 1860.

**Metrogaster aggregatus**, Ag.—Pacific Coast.

641. Color sketch. (Female.) (Agassiz.) San Francisco, Cal. Prof. Alex. Agassiz. Dec., 1859.

**Hypsurus Caryi**, Agass.—PERCH.—Pacific Coast.

606. Color sketch. San Francisco, Cal. Prof. Alex. Agassiz. April 1, 1860.

**Phanerodon furcatus**, Girard.—Coast of California.

636. Color sketch. (Female.) (Agassiz.) San Francisco. Prof. Alex. Agassiz. Nov., 1859.



**Amphistichus argenteus**, Ag.—Coast of California.

635. Color sketch. (Agassiz.) (Male.) San Francisco. Prof. Alex. Agassiz. April, 1860.

**Amphistichus similis**, Girard.—Coast of California.

634. Color sketch. (Agassiz.) San Francisco. Prof. Alex. Agassiz. Nov., 1859.

**Rhachochilus toxotes**, Agassiz.—Coast of California.

633. Color sketch. (Agassiz.) San Francisco. Prof. Alex. Agassiz. March, 1860.

**Holconotus pulchellus**, A. Ag.—Coast of California.

632. Color sketch. (Male.) (Agassiz.) San Francisco. Prof. Alex. Agassiz. April, 1860.

**Holconotus rhodoterus**, Girard.—Coast of California.

641. Color sketch. (Female.) (Agassiz.) San Francisco. Prof. Alex. Agassiz. Dec., 1859.

**Hyperprosopon argenteus**, Gibbon.—Coast of California.

620. Color sketch. (Female.) (Agassiz.) San Francisco. Prof. Alex. Agassiz. March, 1860.

628. Color sketch. (Female.) (Agassiz.) San Francisco. Prof. Alex. Agassiz. April, 1860.

**Abeona Trowbridgii**, Girard.—Coast of California.

629. Color sketch. (Female.) (Agassiz.) California. Prof. Alex. Agassiz.

**TENTHIDIDÆ.****Acanthurus chirurgus**, (Bl.) Schn.—DOCTOR-FISH.—West Indian Fauna.

569. Color sketch. (Burkhardt.) Florida. Prof. Alex. Agassiz. Alive in Boston Aquarial Gardens. June, 1860.

570. Color sketch. (Burkhardt.) Florida. Prof. Alex. Agassiz. Alive in Boston Aquarial Gardens. June, 1860.

**Acanthurus nigricans**, (Linn.) Gill.—BLACK DOCTOR-FISH.—West Indian Fauna and occasional north.

21367. Alcoholic. Bermudas. G. Brown Goode.

21698. Dried specimen. Key West, Fla. Thomas Moore. Nov., 1878.

**CHAETODONTIDÆ.****Sarothrodus capistratus**, (Linn.) Poey.—COQUETTE.—West Indian Fauna.

588. Color sketch. (Burkhardt.) New Providence. Prof. Alex. Agassiz; F. S. Shaw. April, 1861.

592. Color sketch. (Burkhardt.) Prof. Alex. Agassiz.

603. Color sketch. Prof. Alex. Agassiz.



**Sarothrodus maculocinctus**, Gill.

16955. Alcoholic specimens. Wood's Holl, Mass. U. S. Fish Commission. 1876.

**Holacanthus tricolor**, (Bl.) Lac.—BLACK ANGEL-FISH.—West Indian Fauna.

593. Color sketch. (Burkhardt.) Santa Cruz. Prof. Alex. Agassiz; Dr. Jeffries.

594. Color sketch. (Burkhardt.) Sombrero Id., W. I. Prof. Alex. Agassiz; S. R. Knox.

**Holacanthus ciliaris**, (Linn.) Lac.—ANGEL-FISH.—West Indian Fauna.

575. Color sketch. (Burkhardt.) Florida. Prof. Alex. Agassiz. Alive in Boston Aquarial Gardens. June, 1860.

576. Color sketch. (Burkhardt.) Florida. Prof. Alex. Agassiz. Alive in Boston Aquarial Gardens. June, 1860.

577. Color sketch. (Burkhardt.) Florida. Prof. Alex. Agassiz. Alive in Boston Aquarial Gardens. June, 1860.

21876. Alcoholic. Bermudas. G. Brown Goode.

583. Color sketch. (Burkhardt.) Bermudas. Prof. Alex. Agassiz. Alive in Barnum's Aquarium. 1862.

**Pomacanthus arcuatus**, (Linn.) Cuv.—PALOMETTA.—West Indian Fauna.

602. Color sketch. (Burkhardt.) Florida. Prof. Alex. Agassiz. Alive in Boston Aquarial Garden. June, 1860.

**XIPHIIDÆ.****Xiphias gladius**, SWORD-FISH.—Atlantic and Mediterranean.

16126. Cast in *papier-maché*. Off Noman's Land, Mass. U. S. Fish Commission. Aug., 1875.

21699. Sword  $1\frac{5}{8}$  inches long. Taken from nostril of *Lamna cornubica*. Gloucester, Mass. U. S. Fish Commission. Sept. 26, 1878.

**Tetrapturus albidus**, Poey.—SPIKE-FISH.—Cape Cod to West Indies.

15834. Cast. Wood's Holl, Mass. U. S. Fish Commission. July 23, 1873.

73. Photograph. U. S. Fish Commission.

411. Water-color sketch. U. S. Fish Commission.

**Histiophorus americanus**, Cuv. & Val.—SAIL-FISH.—Atlantic Coast of America.

16664. Cast. Wood's Holl, Mass. U. S. Fish Commission. Aug., 1872.

74. Photograph. U. S. Fish Commission.

**TRICHIURIDÆ.****Trichiurus lepturus**, Linn.—HAIR-TAIL; SCABBARD-FISH.—Temperate and Tropical Atlantic.

14874. Cast. Wood's Holl, Mass. U. S. Fish Commission.

559. Color sketch. (Burkhardt.) Prof. Alex. Agassiz.



**SCOMBRIDÆ.**

**Scomber scombrus**, Linn.—MACKEREL.—Northern Atlantic.

16443. Cast. New York market. E. G. Blackford. Sept. 10, 1875.  
 10604. Cast. (Male.) Washington market. S. F. Baird.  
 10650. Cast. Wood's Holl, Mass. U. S. Fish Commission.  
 10650. Cast. Wood's Holl, Mass. U. S. Fish Commission.  
 76, 77, 78, 393, 395. Photographs. U. S. Fish Commission.  
 755-6-7. Color sketches. U. S. Fish Commission.  
 654. Color sketch. Prof. Alex. Agassiz.

**Sarda pelamys**, (Linn.) Cuv.—BONITO.—Atlantic and Mediterranean.

16325. Cast. Wood's Holl, Mass. U. S. Fish Commission.  
 15748. Cast. New York market. E. G. Blackford.  
 79, 80, 81. Photographs. U. S. Fish Commission.  
 467-8. Color sketches. (Richard.) Wood's Holl. U. S. Fish Commission.  
 1875.  
 558. Color sketch. New York. Prof. Alex. Agassiz. Oct. 20, 1847.

**Orcynus secundi-dorsalis**, (Storer) Gill.—TUNNY; HORSE-MACKEREL.—Newfoundland to Florida.

16509. Cast. New York market. E. G. Blackford.  
 82, 83, 84. Photographs. U. S. Fish Commission.  
 436, 37, 96, 513. Color sketches. (Richard.) U. S. Fish Commission.

**Orcynus alliteratus**, (Raf.) Gill.—LITTLE TUNNY; ALBICORE.—Pelagic.

15710. Cast. Noank, Conn. U. S. Fish Commission.  
 15683. Cast. Noank, Conn. U. S. Fish Commission.  
 85. Photograph. U. S. Fish Commission.  
 497. Color sketch. (Richard.) U. S. Fish Commission.

**Orcynus pelamys**, (Linn.) Poey.—OCEANIC BONITO.—Temperate and Tropical Seas.

21852. Alcoholic. Chilmark, Mass. U. S. Fish Commission.  
 21562-3. Casts. Wood's Holl, Mass. U. S. Fish Commission.  
 21566. Alcoholic. New York market. E. G. Blackford.

**Orcynus alalonga**, (Gmelin) Risso.—LONG-FINNED BONITO.—Atlantic, Mediterranean.

21844. Alcoholic. Banquereau. Capt. Wm. Thompson.

**Orcynus argenti-vittatus**, (C. & V.) Goode & Bean?—Atlantic.

21702. Skins. Banquereau. Capt. Wm. Thompson.



**Cybium maculatum**, (Mitch.) Cuv.—SPANISH MACKEREL.—Atlantic shores of Tropical and Temperate America.

15367. Cast. Norfolk, Va. U. S. Fish Commission.  
 16407. Cast. Wood's Holl, Mass. U. S. Fish Commission.  
 15750. Cast. New York. E. G. Blackford.  
 86. Photographs. U. S. Fish Commission.  
 514. Color sketch. (Richard.) U. S. Fish Commission.  
 663. Color sketch. Prof. Alex. Agassiz.

**Cybium regale**, (Bl.) Cuv.—SPOTTED CERO.—West Indian Fauna and north to Cape Cod.

16622. Cast. Key West, Fla. E. G. Blackford.  
 87, 88, 89. Photographs. U. S. Fish Commission.  
 406-515. Color sketch. (Richard.) U. S. Fish Commission.  
 21612. Stuffed. Cuba. Prof. Felipe Poey.

**Cybium caballa**, Cuv. & Val.—CERO.—Atlantic Shores of Tropical and Temperate America.

16478. Cast. New York market. E. G. Blackford. Sept. 14, 1875.  
 90, 91, 92, 93, 94, and 95. Photographs. U. S. Fish Commission.  
 405-486-7. Color-sketch. (Richard.) U. S. Fish Commission.  
 21611. Stuffed. Cuba. Prof. Felipe Poey.

**CARANGIDÆ.****Vomer setipinnis**, (Mitch.) Ayres.—SILVER-FISH.—Maine to Florida. West Indian Fauna.

16915. Cast. Wood's Holl, Mass. V. N. Edwards. Sept. 7, 1873.  
 16615. Cast. New York. E. G. Blackford.

**Argyreiosus vomer**, Lac.—SILVER-FISH.—Cape Cod to Florida, and West Indian Fauna.

16475. Cast. New York. E. G. Blackford.  
 15905. Cast. Wood's Holl, Mass. V. N. Edwards.  
 96. Photograph. U. S. Fish Commission.  
 440, 495. Color sketches. (Richard.) U. S. Fish Commission.

**Paratractus pisquetus**, (Cuv. & Val.) Gill.—YELLOW CRE-VALLÉ.—Cape Cod to Florida.

16471. Cast. Wood's Holl, Mass. U. S. Fish Commission. Sept. 14, 1875.  
 15843. Cast. Wood's Holl, Mass. U. S. Fish Commission.  
 15888. Cast. Wood's Holl, Mass. U. S. Fish Commission.  
 15887. Cast. Wood's Holl, Mass. U. S. Fish Commission.  
 98, 99, 100. Photographs. U. S. Fish Commission.  
 778-9. Color sketches. (Richard.) U. S. Fish Commission.

**Trachurops crumenophthalmus**, (Bloch.) Gill.—BIG-EYED SCAD; GOGGLE-EYE.—Pelagic.

16481. Alcoholic. New York market. E. G. Blackford.  
 97. Photograph. U. S. Fish Commission.



**Decapterus punctatus**, (Mitch.) Gill.—ROUND ROBIN.—West Indian Fauna and north to Massachusetts.

18951. Alcoholic. Wood's Holl, Mass. U. S. Fish Commission.  
21365. Alcoholic. Bermudas. G. Brown Goode.

**Decapterus macarellus**, (C. & V.) Gill.—MACKEREL SCAD.—West Indian Fauna and north to Massachusetts.

16239. Alcoholic specimen. Wood's Holl, Mass. U. S. Fish Commission.  
21630. Alcoholic. Newport, R. I. Samuel Powel.

**Carangus hippos**, (Linn.) Gill.—HORSE CREVALLÉ.—Atlantic Coasts of Temperate and Tropical America, East Indian and Australian Seas.

14859. Cast. Florida. E. G. Blackford.  
101. Photograph. U. S. Fish Commission.  
21654. Alcoholic. Newport, R. I. Samuel Powel.

**Carangus chrysos**, (Mitch.) Gill.—YELLOW MACKEREL.—West Indian Fauna and north to Cape Cod.

15708. Cast. Wood's Holl, Mass. U. S. Fish Commission. Sept. 15, 1873.  
15746. Cast. Wood's Holl, Mass. U. S. Fish Commission. Oct. 8, 1873.  
15696. Cast. Wood's Holl, Mass. U. S. Fish Commission.  
102, 103. Photographs. U. S. Fish Commission.

**Blepharichthys crinitus**, (Akerly) Gill.—THREAD-FISH.—West Indian Fauna and north to Cape Cod.

16520. Cast. Wood's Holl, Mass. U. S. Fish Commission. Sept. 18, 1875.  
105–105. Photographs. U. S. Fish Commission.  
475. Color sketch. (Richard.) U. S. Fish Commission.

**Zonichthys fasciatus**, (Bloch.) Sw.—BERMUDA BONITO; MED-REGAL.—Cuba, South Carolina, Bermuda.

15828. Cast. New York. E. G. Blackford.  
404. Color sketch. U. S. Fish Commission.

**Trachynotus carolinus**, (Linn.) Gill.—POMPANO.—Atlantic Coasts of America south of Cape Cod.

15904. Cast. Norfolk, Va. U. S. Fish Commission. June 20, 1873.  
15809. Cast. New York market. E. G. Blackford. October 12, 1875.  
106, 107. Photographs. U. S. Fish Commission.  
473–4. Color sketches. (Richard.) U. S. Fish Commission.

**Trachynotus ovatus**, (Linn.) Gthr.—SHORT POMPANO.—Pelagic.

16707. New York. E. G. Blackford.  
400. Color sketch. (Young.) (Richard.) Vineyard Haven, Mass. U. S. Fish Commission.  
547. Color sketch. (Richard.) U. S. Fish Commission.



**Halatractus zonatus**, (Mitch.) Gill.—BANDED RUDDER-FISH.—  
Cape Cod to Florida.

16472. Cast. Wood's Holl, Mass. U. S. Fish Commission. Sept. 14, 1875.  
 16532. Cast. Wood's Holl, Mass. U. S. Fish Commission.  
 108-9. Photographs. U. S. Fish Commission.  
 477. Color sketch. U. S. Fish Commission.  
 478. Color sketch. U. S. Fish Commission.  
 479. Color sketch. U. S. Fish Commission.

**Seriola Lalandii**, C. & V.?—AMBER-FISH.—Atlantic Ocean; Japan.

16709. Cast. Florida. E. G. Blackford.  
 110. Photograph. U. S. Fish Commission.

**Oligoplites occidentalis**, (Linn.) Gill.—LEATHER JACKET.—  
West Indies; occasional on coast.

16354. Cast. New York market. E. G. Blackford. Aug. 13, 1875.  
 111. Photograph. U. S. Fish Commission.  
 429. Color sketch. (Richard.) U. S. Fish Commission.

**CORYPHÆNIDÆ.****Coryphæna Sueuri**, Cuv. & Val.—DOLPHIN.—Pelagic; occa-  
sional on coast.

16441. Cast. New York market. E. G. Blackford.  
 —. Color sketch. (Richard.) U. S. Fish Commission.  
 16420. Cast. New York. E. G. Blackford.  
 16482. Cast. New York. E. G. Blackford.

**Coryphæna punctulata**, (Cuv. & Val.) Gthr.—SMALL-SPOTTED  
DOLPHIN.—Pelagic; occasional on coast.

16406. Cast. Noank, Conn. J. H. Latham. Aug. 25, 1875.  
 112, 113, and 114. Photographs. U. S. Fish Commission.

**STROMATEIDÆ.****Palinurichthys perciformis**, (Mitch.) Gill.—BLACK RUDDER-  
FISH.—Newfoundland to Cape Hatteras.

16616. Cast. Martha's Vineyard. U. S. Fish Commission. Sept. 25, 1875.  
 15935. Cast. Wood's Holl, Mass. U. S. Fish Commission.  
 544. Color sketch. (Richard.) U. S. Fish Commission.

**Poronotus triacanthus**, (Peck.) Gill.—HARVEST-FISH; BUTTER-  
FISH.—Maine to Cape Hatteras.

16591. Cast. Wood's Holl, Mass. U. S. Fish Commission.  
 115. Photograph. U. S. Fish Commission.  
 359-60-61. Color sketches. (Richard.) U. S. Fish Commission.  
 516-17. Color sketches.



**Peprilus Gardenii**, (Bl., Schn.) Gill.—SHORT HARVEST-FISH.—  
West Indian Fauna and north to New York.

16819. Cast. Chesapeake Bay. Sibley.  
15234. New York market. John Sutherland.

**LATILIDÆ.**

**Caulolatilus microps**, Goode & Bean.—Gulf of Mexico.

20971. Alcoholic. Pensacola, Fla. Silas Stearns.

**BERYCIDÆ.**

**Holocentrum sogo**, Bloch.—SQUIRREL.—West Indian Fauna,  
accidental on coast; found at Newport, R. I.

578. Color sketch. (Burkhardt.) Bermudas. Prof. Alex. Agassiz. Alive  
in Barnum's Aquarium. Dec., 1862.  
595. Color sketch. (Burkhardt.) New Providence. Prof. Alex. Agassiz; F  
S. Shaw. April, 1861.  
21232. Alcoholic. Bermudas. J. M. Jones.

**SCIAENIDÆ.**

**Cynoscion regalis**, (Bl.) Gill.—SQUETEAGUE; WEAK-FISH.—Cape  
Ann to Florida.

16216. Cast. Wood's Holl, Mass. U. S. Fish Commission. July 27, 1875.  
12216. Cast. Wood's Holl, Mass. U. S. Fish Commission. July 27, 1875.  
116, 117, 118, 119. Photographs. U. S. Fish Commission.  
469-70. Color sketches. (Richard.) U. S. Fish Commission.

**Cynoscion carolinensis**, (Cuv. & Val.) Gill.—SPOTTED SQUE-  
TEAGUE.—Gulf of Mexico and Southern Atlantic States.

15928. Cast.  
15929. Cast.  
120, 121, 122. Photographs. U. S. Fish Commission.  
790. Color sketch. (Richard.) U. S. Fish Commission.

**Cynoscion nothus**, Holbrook.—SILVER SQUETEAGUE.—Southern  
Coast.

21480. Alcoholic. Pensacola, Fla. Silas Stearns.

**Pogonias chromis**, Lacep.—DRUM.—Cape Cod to Florida; Gulf  
of Mexico.

15699. Cast. Wood's Holl, Mass. U. S. Fish Commission.  
15686. Cast. Fisher's Island Sound. Charles Potter. July 10, 1874.  
123, 124, 125. Photographs. U. S. Fish Commission.  
791. Color sketch. (Richard.) U. S. Fish Commission.  
21282. Alcoholic. St. John's River, Fla. G. Brown Goode.



**Haploidonotus grunniens**, Raf.—FRESH-WATER DRUM.—Great Lakes and Mississippi Valley.

15701. Cast. Sandusky, Ohio. J. W. Milner. 1873.

126-127. Photographs. U. S. Fish Commission.

**Liostomus obliquus**, (Mitch.) De Kay.—SPOT.—Cape Cod to Florida.

15816. Cast. Norfolk, Va. U. S. Fish Commission.

15817. Cast. June 10, 1873.

141. Photograph. U. S. Fish Commission.

567. Color sketch. New York. Prof. Alex. Agassiz. Oct. 26, 1847.

**Liostomus xanthurus**, Lacep.—YELLOW-TAILED SPOT.—Southern Atlantic States.

142. Photograph. U. S. Fish Commission.

**Bairdiella punctata**, (Linn.) Gill.—SILVER-FISH; YELLOW TAIL.—Cape Cod to Florida.

143. Photograph. U. S. Fish Commission.

19060. Alcoholic. St. John's River, Florida. G. Brown Goode.

**Sciaenops ocellatus**, (Linn.) Gill.—RED BASS; SPOTTED BASS.—Cape Cod to Florida; Gulf of Mexico.

15463. Cast. Washington market. J. W. Milner.

15739. Cast. New York. E. G. Blackford.

128, 129, 130. Photographs. U. S. Fish Commission.

— Oil painting. (J. H. Richard.)

**Menticirrus alburnus**, (Linn.) Gill.—SOUTHERN KING-FISH.—Cape Hatteras to Florida.

137. Photograph. U. S. Fish Commission.

19081. Alcoholic. St. John's River, Fla. G. Brown Goode.

**Menticirrus nebulosus**, (Mitch.) Gill.—KING-FISH.—Cape Cod to Florida.

16219. Cast. Wood's Holl, Mass. U. S. Fish Commission. July 27, 1875.

15579. Cast. New York market. E. G. Blackford. October 14, 1875.

15579. Cast. New York market. E. G. Blackford. October 14, 1875,

131, 132, 133, 134, 135, and 136. Photographs. U. S. Fish Commission.

508-9-10-11-12. Color sketches. (Richard.) U. S. Fish Commission.

**Micropogon undulatus**, (Linn.) Cuv. & Val.—CROAKER.—Atlantic Coasts of America south of Cape Cod.

15845. Cast. Norfolk, Va. U. S. Fish Commission. June 19, 1873.

15810. Cast. Norfolk, Va. U. S. Fish Commission. July 18, 1873.

138, 139, 140. Photographs. U. S. Fish Commission.

19056. Alcoholic. St. John's River, Fla. G. Brown Goode.



**GERRIDÆ.****Eucinostomus argenteus**, B. & G.—Cape Cod and southward.

16960. Alcoholic. Wood's Holl, Mass. U. S. Fish Commission.

**Eucinostomus Lefroyi**, Goode.—BERMUDA SHAD.—West Indian Fauna.

21358. Alcoholic. Bermudas. G. Brown Goode.

**PIMELEPTERIDÆ.****Pimelepterus Boscii**, Lacep.—BREAM.—West Indian Fauna and north to Cape Cod.

20844. Alcoholic. Newport, R. I. S. Powell.

20635. Alcoholic. Wood's Holl, Mass. U. S. Fish Commission.

21368. Alcoholic. Bermudas. G. Brown Goode.

**SPARIDÆ.****Lagodon rhomboides**, (Linn.) Holbrook.—SAILOR'S CHOICE.—West Indian Fauna and north to Cape Cod.

21280. Alcoholic. St. John's River, Fla. G. Brown Goode.

**Archosargus probatocephalus**, (Walb.) Gill.—SHEEPSHEAD.—Cape Cod to Florida; Gulf of Mexico.

10685. Cast. Washington market. J. W. Milner.

15825. Cast. New York market. E. G. Blackford. October 20, 1875.

15826. Cast. New York market. E. G. Blackford. October 14, 1875.

14880. Cast. Norfolk, Va. U. S. Fish Commission. July 11, 1872.

15818. Cast. New York. E. G. Blackford.

144, 145. Photographs. U. S. Fish Commission.

548. Color sketch. (Richard.) U. S. Fish Commission.

**Stenotomus argyrops**, (Linn.) Gill.—SCUPPAUG; SCUP; PORGY.—Cape Ann to Florida.

16035. Cast. Buzzard's Bay. U. S. Fish Commission. July 10, 1875.

10668. Cast. Wood's Holl, Mass. V. N. Edwards.

16209. Cast.

10601. Cast. Wood's Holl, Mass. V. N. Edwards.

146-47. Photographs. U. S. Fish Commission.

439. Color sketch. (Young.) (Richard.) U. S. Fish Commission.

**Sargus Holbrookii**, Bean.—CHARLESTON BREAM.—Carolinas.

20979. Cast. Charleston, S. C. G. Brown Goode.

**Sparus aculealus**, (Cuv. & Val.) Gill.?—BASTARD SNAPPER.—Southern Coast.

20981. Cast. Charleston, S. C. G. Brown Goode.



**PRISTIPOMATIDÆ.**

**Hæmylum arcuatum**, Cuv. & Val.—BLUE-CHECKED RED-MOUTH.  
—South Atlantic Coast of United States.

14907. Cast. Florida. E. G. Blackford.

**Hæmylum formosum**, (Linn.) Cuv.—SQUIRREL RED-MOUTH.—  
South Atlantic Coast of United States.

15846. Cast. Florida. E. G. Blackford.

**Hæmylum**, sp.—South Atlantic Coast of United States.

15840. Cast. Florida. E. G. Blackford.

**Hæmylum chrysopterum**, (Linn.) Cuv.? — YELLOW-FINNED  
GRUNT.—South Atlantic Coast of United States.

15918. Cast. Florida. E. G. Blackford.

**Hæmylum elegans**, Cuv. & Val.—BLUE-STRIPED RED-MOUTH.—  
South Atlantic Coast of United States.

15815. Cast. Florida. E. G. Blackford.

573. Color sketch. (Dall.) Florida. Prof. Alex. Agassiz. Alive in Boston  
Aquarial Garden. June, 1860.

574. Color sketch. (Burkhardt.) Bermudas. Prof. Alex. Agassiz. Alive in  
Barnum's Aquarium. Nov. 1862.

**Hæmylum arara**, Poey?—ARARA RED-MOUTH.—West Indian  
Fauna.

552. Water-color sketch. (Burkhardt.) Florida. Prof. Alex. Agassiz. Alive  
in Boston Aquarial Garden. June, 1860.

**Orthoprists fulvomaculatus**, (Mitch.) Gill.—SPECKLED  
GRUNT.—South Atlantic Coast of United States.

15812. Cast. Norfolk, Va. U. S. Fish Commission.

15814. Cast. Norfolk, Va. U. S. Fish Commission.

15908. Cast.

**Anisotremus virginicus**, (Linn.) Gill.—South Atlantic Coast of  
United States.

15903. Cast. Florida. E. G. Blackford. April 16, 1874.

148. Photograph. U. S. Fish Commission.

551. Color sketch. (Burkhardt.) New Providence. Prof. Alex. Agassiz; F.  
S. Shaw. April, 1861.

**Lutjanus Blackfordii**, Goode & Bean.—RED SNAPPER.—West  
Indian Fauna and north to Savannah Bank.

15700. Cast. New York market. E. G. Blackford. May 7, 1874.

12515. Cast. Washington market. J. W. Milner.

149. Photograph. U. S. Fish Commission.



**Lutjanus**, sp.—SNAPPER.—West Indian Fauna and Southern Atlantic States.

15917. Cast. Florida. E. G. Blackford.

**Lutjanus**, sp.—South Atlantic Coast of United States.

16641. Cast. Key West, Fla. E. G. Blackford.

**Lutjanus caxis**, (Bl., Schn.) Gill.—GRAY SNAPPER.—West Indian Fauna and Southern Atlantic States.

18101. Alcoholic. Bermudas. G. Brown Goode.

**Lutjanus Stearnsii**, Goode & Bean.—GULF SNAPPER.—Gulf of Mexico.

21330. Cast. Pensacola, Fla. Silas Stearns.

**Rhomboplites, aurorubens**, (Cuv. & Val.) Gill.—MANGROVE SNAPPER.—West Indian Fauna.

21224. Alcoholic. Charleston, S. C. C. C. Leslie.

21338. Alcoholic. Pensacola, Fla. Silas Stearns.

**Ocyurus chrysurus**, (Bl.) Gill.—GOLDEN TAIL.—West Indian Fauna.

14905. Cast. New York market. Florida. E. G. Blackford. April 16, 1874.

150. Photograph. U. S. Fish Commission.

555. Color sketch. (Burkhardt.) New Providence. Prof. Alex. Agassiz; F. S. Shaw. April, 1861.

### CENTRARCHIDÆ.

**Eupomotis aureus**, (Walb.) Gill & Jordan.—SUN-FISH.—Fresh waters of Eastern North America.

14941. Cast. Washington market. G. Brown Goode. February, 1875.

151, 152. Photograph. U. S. Fish Commission.

505. Color sketch. (Richard.) U. S. Fish Commission.

**Lepiopomus pallidus**, (Mitch.) Gill & Jordan.—BLUE-NOSE BREAM.—Great Lakes and Southeastern United States.

18368. Alcoholic. St. John's River, Fla. G. Brown Goode.

**Pomoxys nigromaculatus**, (Les.) Girard.—GRASS BASS.—Great Lakes, Mississippi Valley, and Southern Atlantic States.

10382. Cast. Norfolk, Va. Dr. H. C. Yarrow.

153, 154. Photograph. U. S. Fish Commission.

**Ambloplites rupestris**, (Raf.) Gill.—ROCK BASS.—Great Lakes and Mississippi Valley.

15958. Cast. U. S. Fish Commission.

151. Photograph. U. S. Fish Commission.



**Micropterus pallidus**, (Raf.) Gill & Jordan.—LARGE-MOUTH BLACK BASS.—Great Lakes, Mississippi River and tributaries; Southern States; introduced northward.

10380. Cast. Norfolk, Va. Dr. H. C. Yarrow.  
 10668. Cast. Norfolk, Va. U. S. Fish Commission. Nov. 5, 1873.  
 10381. Cast. Norfolk, Va. Dr. H. C. Yarrow.  
 15880. Cast. Carrollton, Ky. J. W. Milner.  
 10380. Cast. Norfolk, Va. Dr. H. C. Yarrow.  
 155, 156. Photographs. U. S. Fish Commission.

**Micropterus salmoides**, (Lac.) Gill.—SMALL-MOUTHED BLACK BASS.—Great Lakes and Mississippi Valley; introduced eastward.

15297. Cast. Potomac River. Maj. Hobbs.

### PERCIDÆ.

**Perca fluviatilis**, L.—YELLOW PERCH.—Fresh waters of Eastern United States and Western Europe.

14976. Cast. Washington market. G. Brown Goode. Feb. 27, 1875.  
 167, 168, 169. Photographs. U. S. Fish Commission.  
 792. Color sketch. (Richard.) U. S. Fish Commission.

**Stizostedium vitreum**, (Mitch.) Jordan & Copeland, (Val.) Cope.—YELLOW PIKE-PERCH.—Fresh waters of Central United States.

15658. Cast. New York market. E. G. Blackford.  
 14862. Cast. Sandusky, Ohio. J. W. Milner. Oct., 1873.  
 611. Color sketch. (Roetter.) Sackett's Harbor, N. Y. Prof. Alex. Agassiz. Nov., 1868.  
 15658. Cast. New York market. E. G. Blackford. Nov. 5, 1875.  
 170, 171, 172, 173, 174. Photographs. U. S. Fish Commission.  
 793. Color sketch. (Richard.) U. S. Fish Commission.

**Stizostedium canadense**, (Smith) Jordan.—CANADA PIKE-PERCH.—St. Lawrence River to the Upper Missouri.

178. Photograph. U. S. Fish Commission.  
 15752. Cast. Ohio River. J. W. Milner.  
 15837. Cast.  
 175, 176, 177. Photographs. U. S. Fish Commission.

### SERRANIDÆ.

**Epinephelus morio**, (Cuv.) Gill.—RED-BELLIED SNAPPER.—West Indian Fauna and Southern Atlantic States.

12516. Cast. Washington market. J. W. Milner.  
 165. Photograph. U. S. Fish Commission.

**Epinephelus**, sp.—SNAPPER.—West Indian Fauna and Southern Atlantic States.

14923. Cast. Florida. E. G. Blackford.



**Epinephelus Drummond-Hayi**, Goode & Bean.—STAR SNAPPER; HIND; JOHN PAW.—West Indian Fauna.

16795. Cast. South Florida. E. G. Blackford.  
 21255. Alcoholic. Pensacola, Fla. Silas Stearns.  
 —. Color sketch. Bermuda. Col. H. Drummond-Hay.

**Epinephelus nigritus**, Holbrook.—BLACK GROUPEL.—Coast of Florida.

21239. Cast. Pensacola, Fla. Silas Stearns.

**Epinephelus striatus**, (Bloch.) Gill.—HAMLET; GROUPEL.—West Indian Fauna.

18088. Alcoholic. Bermudas. G. Brown Goode.  
 582. Color sketch. (Burkhardt.) Bermudas. Prof. Alex. Agassiz. Alive in Barnum's Aquarium. Nov., 1862.

**Epinephelus guttatus**, (Gmel.) Goode.—BERMUDA HIND.—West Indian Fauna.

18118. Alcoholic. Bermudas. G. Brown Goode.  
 587. Color sketch. (Burkhardt.) Bermudas. Prof. Alex. Agassiz. Alive in Barnum's Aquarium. Nov., 1862.

**Trisotropis undulosus**, (Cuv.) Gill.?—ROCK GROUPEL.—Cape Hatteras to Florida; West Indian Fauna.

15462. Cast. New York market. E. G. Blackford. June 14, 1875.  
 15881. Cast. New York market. E. G. Blackford. June 14, 1875.  
 794. Color sketch. (Richard.) U. S. Fish Commission.

**Promicrops guasa**, (Poey) Gill.—JEW-FISH; GUASA.—West Indian Fauna.

15305. Cast. Key West. E. G. Blackford.  
 444. Color sketch. (Richard.) U. S. Fish Commission.

**Centropristis atrarius**, (Linn.) Barn.—SEA BASS.—Cape Cod to Florida.

10642. Cast. Wood's Holl, Mass. U. S. Fish Commission.  
 10597. Cast. Wood's Holl, Mass. U. S. Fish Commission. May 12, 1874.  
 15684. Cast. (Male.) Noank, Conn. U. S. Fish Commission. August, 1874.  
 15685. Cast. Wood's Holl, Mass. U. S. Fish Commission. September 2, 1875.  
 10667. Cast. (Female.) Wood's Holl, Mass. U. S. Fish Commission.  
 15963. Cast. Hog-fish Rocks, Va. U. S. Fish Commission. July 5, 1873.  
 157, 158, 159, 160, 161, 162, 163, 164, 381. Photographs. U. S. Fish Commission.  
 463-4 and 5. Color sketches. (Richard.) U. S. Fish Commission.

**Diplectrum fasciculare**, (Cuv. & Val.) Holb.—SQUIRREL.—Cape Hatteras to Florida; West Indian Fauna.

15844. Cast. New York. E. G. Blackford.  
 166. Photograph. U. S. Fish Commission.



**LABRACIDÆ.**

**Roccus lineatus**, (Schn.) Gill.—STRIPED BASS; ROCK-FISH.—St. Lawrence to Florida.

10664. Cast. (Female.) Potomac River. Dr. H. C. Yarrow.  
 15737. Cast. Wood's Holl, Mass. U. S. Fish Commission. May 27, 1873.  
 15725. Cast. Washington market. G. Brown Goode.  
 15706. Cast. New York. E. G. Blackford. Nov. 28, 1874.  
 185-186, 187. Photographs. U. S. Fish Commission.  
 782-3. Color sketch. (Richard.) U. S. Fish Commission.

**Roccus chrysops**, (Raf.) Gill.—WHITE BASS.—Great Lakes and Mississippi Valley.

15807. Cast. New York market. E. G. Blackford. Oct. 7, 1875.  
 188. Photographs. U. S. Fish Commission.  
 503. Color sketch. (Richard.) U. S. Fish Commission.

**Morone americana**, (Gmel.) Gill.—WHITE PERCH.—Nova Scotia to Florida.

10748. Cast. Wood's Holl, Mass. U. S. Fish Commission.  
 10729. Cast. (Female.) Wood's Holl, Mass. U. S. Fish Commission.  
 10730. Cast. Wood's Holl, Mass. U. S. Fish Commission.  
 16618. Cast. Wood's Holl, Mass. U. S. Fish Commission.  
 179, 180, 181, 182, 183, 184. Photographs. U. S. Fish Commission.  
 766. Color sketch. (Richard.) U. S. Fish Commission.

**EPHIPPIIDÆ.**

**Parephippus quadratus**, (Gun.) Gill.—MOON-FISH.—Cape Cod to Florida; West Indian Fauna.

14886. Cast. Norfolk, Va. U. S. Fish Commission. July, 1873.  
 14887. Cast. Norfolk, Va. U. S. Fish Commission. July, 1873.  
 15820. Cast. Norfolk, Va. U. S. Fish Commission.  
 196, 197. Photographs. U. S. Fish Commission.

**LOBOTIDÆ.**

**Lobotes surinamensis**, Cuv.—TRIPLE-TAIL FLASHER.—Cape Cod to Florida; West and East Indies.

15702. Cast. Wood's Holl, Mass. U. S. Fish Commission. August 28, 1873.  
 16202. Cast. New York market. E. G. Blackford. July 20, 1875.  
 201, 202. Photographs. U. S. Fish Commission.

**POMATOMIDÆ.**

**Pomatomus saltatrix**, (Linn.) Gill.—BLUE-FISH.—Pelagic.

15871. Cast. Wood's Holl, Mass. V. N. Edwards. June 11, 1873.  
 13166. Cast. Norfolk, Va. G. Brown Goode.  
 15753. Cast.  
 189, 190, 191, 192, 193, 194, 195, 386. Photographs. U. S. Fish Commission.  
 528-2-30. Color sketches. (Richard.) U. S. Fish Commission.



**ELACATIDÆ.**

**Elacate canadus**, (Linn.) Gill.—COBIA ; CRAB-EATER.—Cape Cod to West Indies.

16250. Cast. New York market. E. G. Blackford. July 30, 1875.  
 14922. Cast. Point Lookout, Va. J. H. Skidmore. July 9, 1874.  
 198, 199, 200. Photographs. U. S. Fish Commission.

**PRIACANTHIDÆ.**

**Pseudopriacanthus altus**, (Gill) Bleeker.—SHORT BIG-EYE.—Cape Cod to Cape Hatteras.

203. Photograph. U. S. Fish Commission.  
 441. Color sketch. (Richard.) U. S. Fish Commission.  
 15583. Alcoholic. Wood's Holl, Mass. U. S. Fish Commission. Sept., 1875.  
 16954. Alcoholic. Wood's Holl, Mass. U. S. Fish Commission. 1876.

**ECHENEIDIDÆ.**

**Leptecheneis naucrateoides**, (Zuiew.) Gill.—REMORA ; SUCKER-FISH.—Coast generally.

16071. Cast. Wood's Holl, Mass. U. S. Fish Commission. July 10, 1875.  
 16617. Cast. Wood's Holl, Mass. U. S. Fish Commission. Sept. 18, 1875.  
 16344. Cast. Wood's Holl, Mass. U. S. Fish Commission. Aug. 10, 1875.  
 206, 207, 208. Photographs. U. S. Fish Commission.  
 541-2-3. Color sketch. (Richard.) U. S. Fish Commission.

**Remoropsis brachyptera**, (Lowe) Gill.—SWORD-FISH SUCKER.—Parasite of the Sword-fish (*Xiphias gladius*).

21693. Alcoholic. Sable I'd Bank. Capt. G. A. Johnson.

**Rhombochirus osteochir**, (Cuv.) Gill.—SPEAR-FISH SUCKER.—Parasites of the Bill-fish (*Tetrapturus albidus*).

15842. Cast. Wood's Holl, Mass. U. S. Fish Commission.  
 209, 210, 211. Photographs. U. S. Fish Commission.  
 764-5. Color sketches. (Richard.) U. S. Fish Commission.

**SPHYRÆNIDÆ.**

**Sphyræna borealis**, De Kay.—NORTHERN BARRACUDA.—Cape Cod to Florida.

14978. Cast. Florida. E. G. Blackford.  
 204, 205. Photographs. U. S. Fish Commission.  
 407. Color sketch. (Richard.) U. S. Fish Commission. Probably identical with *Sphyræna spet* (Haüy) Goode, the common species of the Mediterranean.



**Sphyræna picuda.**—SOUTHERN BARRACUDA.—West Indian Fauna, &c.

21886. Alcoholic. Bermudas. G. Brown Goode.

## PERCESOCES.

**MUGILIDÆ.****Mugil lineatus**, Mitch.—STRIPED MULLET.—Cape Cod to Florida; Gulf of Mexico.

15723. Cast.

212, 213, 214, 215, 216. Photographs. U. S. Fish Commission.

421. Color sketch. (Richard.) U. S. Fish Commission.

**Mugil albula**, Linn.—WHITE MULLET.—Cape Cod to Florida (probably young of the preceding species).

420. Color sketch. (Richard.) U. S. Fish Commission.

21302. Alcoholic. Florida. G. Brown Goode.

**ATHERINIDÆ.****Chirostoma notatum**, (Mitch.) Gill.—SILVER-SIDES; FRIAR.—Maine to Florida.

14930. Cast.

16612. Cast.

16620. Cast. Wood's Holl, Mass. U. S. Fish Commission.

380, 382. Photographs. U. S. Fish Commission.

518. Color sketch. (Richard.) U. S. Fish Commission.

**Chirostoma californiensis**, (Girard) Gill.—"SMELT."—Coast of California.

506. Color sketch. (Richard.) U. S. Fish Commission.

16693. Alcoholic. San Francisco. Livingston Stone.

16693. Cast. San Francisco. U. S. Fish Commission.

## HEMIBRANCHII.

**GASTEROSTEIDÆ.****Pygosteus occidentalis**, (Cuv. & Val.) Brevoort.—TEN-SPINED STICKLE-BACK.—Newfoundland to Cape Hatteras.

384. Photograph. U. S. Fish Commission.

644. Color sketch. (Burkhardt.) Prof. Alex. Agassiz.

**Gasterosteus noveboracensis**, Cuv. & Val.—NEW YORK STICKLE-BACK.—New Brunswick to Cape Hatteras.

644. Color sketch. (Burkhardt.) Prof. Alex. Agassiz.



**Apeltes quadracus**, (Mitch.) Brev.—FOUR-SPINED STICKLE-BACK.  
—New Brunswick to Florida.

384. Photograph. U. S. Fish Commission.

644. Color sketch. (Burkhardt.) Prof. Alex. Agassiz.

Many other species of *Gasterosteus* are included in the series, which were not of sufficient importance to be enumerated.**AULOSTOMIDÆ.****Aulostoma maculatum**, Val.—TRUMPET-FISH.—West Indian Fauna.

568. Color sketch. (Burkhardt.) Prof. Alex. Agassiz.

**FISTULARIIDÆ.****Fistularia serrata**, Cuv.—TOBACCO-PIPE-FISH.—Cape Cod to Florida; West Indian Fauna.

16957. Alcoholic. Wood's Holl, Mass. U. S. Fish Commission. 1876.

**SYNENTOGNATHI.****BELONIDÆ.****Belone longirostris**, (Mitch.) Gill.—SILVER GAR-FISH.—Cape Cod to Florida.

16555. Cast. Wood's Holl, Mass. U. S. Fish Commission. Sept. 21, 1875.

16423. Cast. Wood's Holl, Mass. U. S. Fish Commission. Sept. 6, 1875.

217. Photograph. U. S. Fish Commission.

563. Color sketch. Prof. Alex. Agassiz.

540. Color sketch. (Richard.) U. S. Fish Commission.

**Belone latimanus**, Poey.—SILVER GAR-FISH.—Cape Cod to Florida.

16121. Cast. Wood's Holl, Mass. U. S. Fish Commission. July 15, 1875.

795. Color sketch. (Richard.) U. S. Fish Commission.

218. Photograph. U. S. Fish Commission.

**Belone hians**, Cuv. & Val.—BOW-MOUTHED GAR-FISH.—West Indian Fauna.

21810. Alcoholic. New York market. G. Brown Goode.

**Belone Jonesii**, Goode.—HOUND-FISH.—West Indian Fauna.

21392. Alcoholic. Bermudas. G. Brown Goode.

**SCOMBERESOCIDÆ.****Exocætus exiliens**, Gmel.—BUTTERFLY FLYING-FISH.—West Indian Fauna and north to Cape Cod.

21410. Alcoholic. Bermudas. G. Brown Goode. Mar., 1872.



**Exocætus noveboracensis**, Mitch. ?—BLACK-WINGED FLYING-FISH.—Cape Cod to Florida.

—Alcoholic. Block Island, R. I. U. S. Fish Commission. Aug., 1874.

**Exocætus Rondeletii**, Cuv. & Val.—Mediterranean and Atlantic.

21409. Alcoholic. Bermudas. G. Brown Goode.

**Cypselurus furcatus**, (Mitch.) Weinland.—BEARDED FLYING-FISH.—Atlantic.

21412. Alcoholic. Bermudas. G. Brown Goode.

**Euleptorhamphus longirostris**, (Cuv. & Val.) Gill.—Cape Cod to Florida.

15648. Alcoholic. Newport, R. I. Mr. Brown.

**Scomberesox scutellatus**, Les.—HALF-BEAK; SKIPPER.—Nova Scotia to Florida.

13164. Cast.

410, 539. Color sketches. (Richard.) U. S. Fish Commission.

## HAPLOMI.

### ESOCIDÆ.

**Esox americanus**, Gmelin.—BROOK PICKEREL.—Massachusetts to Maryland.

17766. Alcoholic. Keeseville, N. Y. H. N. Hewitt.

796. Color sketch. (Richard.) U. S. Fish Commission.

493. Color sketch. Prof. Alex. Agassiz.

**Esox reticulatus**, Lesueur.—PICKEREL.—Atlantic slope, New England to Alabama.

15012. Cast. Washington, D. C. G. Brown Goode.

222. Photograph. U. S. Fish Commission.

758. Color sketch. U. S. Fish Commission.

619. Color sketch. (Roetter.) East Wareham, Mass. Museum of Comp. Zoology. Feb., 1869.

**Esox lucius**, Linn.—PIKE.—Northern America, Asia, and Europe.

14876. Cast. Sandusky, Ohio. J. W. Milner. Oct. 25, 1873.

14875. Cast. Sandusky, Ohio. J. W. Milner. Nov. 3, 1873.

219. Photograph. U. S. Fish Commission.

618. Color sketch. (Roetter.) Museum of Comp. Zoology. Sackett's Harbor. Nov., 1869.

494. Color sketch. Prof. Alex. Agassiz.

**Esox nobilior**, Thompson.—MUSKELLUNGE (weight 37 pounds).—Great Lakes and Southern British Provinces east of Rocky Mountains.

14895. Cast. Sandusky, Ohio. J. W. Milner. Oct., 1873.

220, 221. Photographs. U. S. Fish Commission.



**CYPRINODONTIDÆ.**

**Cyprinodon variegatus**, Lac.—SHORT CYPRINODON.—Cape Cod to Florida.

13986. Alcoholic. Noank, Conn. U. S. Fish Commission.

**Fundulus pisculentus**, (Mitch.) Val.—MUMMICHOG.—Nova Scotia to Florida.

13970. Alcoholic. Noank, Conn. U. S. Fish Commission.

434, 797. Color sketches. (Richard.) U. S. Fish Commission.

**Hydrargyra majalis**, (Walb.) Val.—MAY-FISH.—Brackish waters; Cape Ann to Cape Hatteras.

223-383. Photographs. U. S. Fish Commission.

13974. Alcoholic. Noank, Conn. U. S. Fish Commission.

434. Color sketch. (Richard.) U. S. Fish Commission.

## ISOSPONDYLI.

**SYNODONTIDÆ.**

**Synodus fœtens**, (Linn.) Gill.—SNAKE-FISH.—Cape Cod to Florida.

16583. Cast. New York market. E. G. Blackford. Sept. 24, 1875.

424. Color sketch. (Richard.) U. S. Fish Commission.

**MICROSTOMIDÆ.**

**Mallotus villosus**, (Müll.) Cuv.—CAPELIN.—Polar Seas and south to Nova Scotia.

3417. Alcoholic. Gross Water Bay. Dr. E. Coues.

**Osmerus pacificus**, (Rich.)—OULACHAN; CANDLE-FISH.—North Pacific.

20584. Alcoholic. Washington Ter. U. S. Fish Commission.

**Osmerus mordax**, (Mitch.) Gill.—SMELT; FROST-FISH.—Nova Scotia to Cape Hatteras.

385. Photograph. U. S. Fish Commission.

507. Color sketch. (Richard.) U. S. Fish Commission.

13863. Alcoholic. Eastport, Me. U. S. Fish Commission.

**Argentina syrtensium**, Goode & Bean.—WESTERN ARGENTINE.—Deep-sea Fauna of Western Atlantic.

21624. Alcoholic. Sable Island Bank. Capt. J. W. Collins.



**COREGONIDÆ.****Coregonus clupeiformis**, (Mitch.) Milner.—WHITE-FISH.—  
Great Lakes and British America.

16741. Cast. Michigan.  
 14973. Cast. Ecorse, Mich. George Clark.  
 15741. Cast. Ecorse, Mich. George Clark.  
 14864. Cooperstown, N. Y. Elihu Phinney.  
 224, 225, 226, 227, 228, 229, 230. Photographs. U. S. Fish Commission.

**Coregonus labradoricus**, Rich.—LAKE WHITING.—Northern  
Lakes.

232. Photograph. U. S. Fish Commission.  
 16868. Alcoholic. Lake Winnepiseogee, Me. U. S. Fish Commission.

**Prosopium quadrilaterale**, (Rich.) Milner.—“SHAD-WAITER.”  
—Great Lakes and northward.

233. Photograph. U. S. Fish Commission.  
 12360. Alcoholic. Grand Lake, Me. U. S. Fish Commission.

**Prosopium Couesii**, Milner.—CHIEF MOUNTAIN LAKE WHITE-  
FISH.—Upper Missouri Region.

14146. Alcoholic. Chief Mountain Lake. Dr. Elliott Coues, U. S. A.

**Argyrosomus Artedi**, (Les.) Hoy.—HERRING WHITE-FISH.—  
Great Lakes, etc.

235. Photograph. U. S. Fish Commission.  
 752. Color sketch. (Richard.) U. S. Fish Commission.  
 11195. Alcoholic. Au Sable, Michigan. U. S. Fish Commission.

**SALMONIDÆ.****Salmo salar**, Linn.—SALMON.—Northern America and Europe.

14898. Cast. Bucksport, Me. Joseph Palmer. July 1, 1873.  
 16744. Cast. Bucksport, Me. C. G. Atkins. Nov., 1873.  
 16743. Cast. Bucksport, Me. C. G. Atkins. Nov., 1873.  
 10314. Cast. Bucksport, Me. C. G. Atkins. July 1, 1873.  
 239, 240, 241, 242. Photographs. U. S. Fish Commission.  
 415. Water-color sketch. U. S. Fish Commission.

**Salmo salar**, *var. sebago*, Girard.—SEBAGO SALMON (land-locked.)  
—St. Croix River and Sebago Lake. Introduced into other  
lakes.

15467. Cast. Sysladobsis Lake, Me. “Dobsis Club,” through Judge Harvey  
 Jewell. June, 1875.  
 15977. Cast.  
 15978. Cast.  
 535-6. Color sketches. (Richard.) U. S. Fish Commission.



**Salmo fario**, Linn.—RIVER TROUT.—Rivers of Europe.

252. Photograph. U. S. Fish Commission.

**Oncorhynchus quinnat**, (Rich.) Günther.—QUINNAT or SACRAMENTO SALMON.—Northwest Coast of America; south to California.

10340. Cast. New York market. E. G. Blackford.

10347. Cast. Sacramento River, Cal. L. Stone. March, 1873.

248, 249, 250, 251. Photographs. U. S. Fish Commission.

416. Color sketch. (Richard.) U. S. Fish Commission.

**Cristivomer namaycush**, (Penn.) Gill & Jordan.—NAMAYCUSH TROUT; LAKE TROUT.—Northern Lakes.

246, 247. Photographs. U. S. Fish Commission.

10312. Cast. Moosehead Lake, Me. E. M. Stillwell.

16670-71. Casts. Lake Winnepiseogee. U. S. Fish Commission.

463, 526-7. Color sketches. (Richard.) U. S. Fish Commission.

**Salvelinus fontinalis**, (Mitch.) Gill & Jordan.—BROOK TROUT.—Rivers and Lakes of British North America and of the northern parts of the United States and Appalachian Range.

16626. Cast. Wood's Holl, Mass. V. N. Edwards.

15961. Cast. Sysladobsis Lake, Me. "Dobsis Club," through Judge Harvey Jewell. June, 1875.

15728. Cast. New York market. E. G. Blackford. March 22, 1875.

10311. Cast. New York market. E. G. Blackford. March 22, 1875.

15470. Cast. Sysladobsis Lake, Me. "Dobsis Club," through Judge Harvey Jewell. June, 1875.

243, 244. Photographs. U. S. Fish Commission.

751. Color sketch. (Richard.) U. S. Fish Commission.

26792. Mounted. (Male.) Rangely Lake, Me. Geo. Shepard Page. Weight 10 pounds. The largest Brook Trout on record. Taken by Geo. Shepard Page in 1867. Transported alive in a box of water (which also contained a female trout weighing  $8\frac{1}{4}$  pounds) to Stanley, Morris Co., New Jersey.**Salvelinus oquassa**, (Girard) Gill & Jordan.—OQUASSA TROUT.—Rangely Lake, Me., and vicinity.

245. Photograph. U. S. Fish Commission.

549. Color sketch. (Richard.) U. S. Fish Commission.

750. Color sketch. (Richard.) U. S. Fish Commission.

**Thymallus tricolor**, Cope.—MICHIGAN GRAYLING.—Northern portion southern peninsula of Michigan.

15226. Cast. Au Sable River, Mich. Fred. Mather. April 7, 1875.

236, 238. Photographs. U. S. Fish Commission.



**ALBULIDÆ.**

**Albula vulpes**, (Linn.) Goode.—LADY-FISH.—Pelagic; Tropical and Subtropical Seas.

255. Photograph. U. S. Fish Commission.  
21859. Alcoholic. Wood's Holl, Mass. U. S. Fish Commission.

**HYODONTIDÆ.**

**Hyodon tergisus**, Les.—MOON-EYE.—Great Lakes and Mississippi Valley.

15561. Cast. New York market. E. G. Blackford. Nov. 15, 1875.  
14863. Cast. Cincinnati, Ohio. J. W. Milner. Nov., 1873.  
253, 254. Photographs. U. S. Fish Commission.  
753. Color sketch. (Richard.) U. S. Fish Commission.

**ELOPIDÆ.**

**Elops saurus**, Linn.—BIG-EYED HERRING.—Tropical and Subtropical Seas.

15824. Cast. New York market. E. G. Blackford. Oct. 11, 1875.  
15821. Cast. New York market. E. G. Blackford. Oct. 11, 1875.  
15823. Cast. New York market. E. G. Blackford. Oct. 11, 1875.  
15822. Cast. New York market. E. G. Blackford. Oct. 14, 1875.  
15744. Cast. New York market. E. G. Blackford. Oct. 14, 1875.  
15824. Cast. New York market. E. G. Blackford. Oct. 11, 1875.  
256. Photograph. U. S. Fish Commission.  
772. Color sketch. (Richard.) U. S. Fish Commission.

**Megalops thrissoides**, (Schn.) Günther.—TARPUM.—Cape Cod to Florida.

14924. Cast. New Jersey. E. G. Blackford. July 9, 1874.  
398. Photograph. Newport, R. I. S. Powell. Aug., 1874.

**DUSSUMIERIDÆ.**

**Etrumeus teres**, (DeKay) Brevoort.—ROUND HERRING.—Cape Cod to Cape Hatteras.

20216. Alcoholic. Newport, R. I. S. Powel.

**CLUPEIDÆ.**

**Brevoortia tyrannus**, (Latr.) Goode.—MENHADEN; MOSS-BUNKER; POGIE.—Newfoundland to Gulf of Mexico.

10696. Cast. Wood's Holl, Mass. U. S. Fish Commission.  
16313. Cast. Wood's Holl, Mass. U. S. Fish Commission. Aug., 1875.  
257, 258, 259, 260, 386, 387. Photographs. U. S. Fish Commission.  
564. Color sketch. Prof. Alex. Agassiz.



**Brevoortia patronus**, Goode.—GULF MENHADEN.—Gulf of Mexico.

892. Alcoholic. Brazos Santiago, Texas.

**Alosa sapidissima**, (Wilson) Storer.—SHAD.—Newfoundland to Florida.

10641. Cast. Potomac River. J. W. Milner. 1873.

10625. Cast. Potomac River, D. C. J. W. Milner.

14878. Cast. Connecticut River. E. G. Blackford. May 7, 1874.

261, 262, 263, 264, 265. Photographs. U. S. Fish Commission.

**Opisthonema thrissa**, Gill.—THREAD HERRING.—West Indian Fauna and north to Cape Cod.

20218. Alcoholic. Newport, R. I. U. S. Fish Commission.

**Pomolobus pseudoharengus**, (Wilson) Gill.—ALEWIFE; FRESH-WATER HERRING; GASPÉREAU.—Newfoundland to Florida.

10622. Cast. (Female.) Wood's Holl, Mass. U. S. Fish Commission.

266, 267, 268, 269, 386. Photographs. U. S. Fish Commission.

457. Color sketch. (Richard.) U. S. Fish Commission.

**Pomolobus mediocris**, (Mitch.) Gill.—MATTAWOCCA; TAILOR HERRING; SEA SHAD.—Newfoundland to Florida.

10657. Cast. Potomac River. J. W. Milner. 1873.

269, 270, 271. Photographs. U. S. Fish Commission.

458, 771. Color sketches. (Richard.) U. S. Fish Commission.

**Clupea harengus**, Linn.—HERRING; SEA HERRING.—North Atlantic.

399. Photograph. U. S. Fish Commission.

13855. Alcoholic. Eastport, Me. U. S. Fish Commission.

**Clupea mirabilis**, Girard.—HERRING.—Coast of California.

605. Color sketch. Galian Id., Gulf of Georgia, W. T. Prof. Alex. Agassiz. June, 1859.

**DOROSOMIDÆ.****Dorysoma Cepedianum**, (Lac.) Gill.—MUD SHAD; WINTER SHAD.—Cape Cod to St. John's River, Fla.

14991. Cast. Potomac River. G. Brown Goode. March 1, 1875.

15695. Cast. Washington market. G. Brown Goode. Dec., 1874.

272, 273. Photographs. U. S. Fish Commission.

798. Color sketch. (Richard.) U. S. Fish Commission.

**Dorysoma Cepedianum**, *var. heterurum*, (Raf.) Jordan.—OHIO GIZZARD SHAD.—Ohio River and Lower Mississippi.

20836. Alcoholic. Sarnia, Lake Huron. S. Wilmot.



**ENGRAULIDIDÆ.**

**Engraulis vittata**, (Mitch.) B. & G.—ANCHOVY.—Cape Cod to Cape Hatteras.

382. Photograph. U. S. Fish Commission.  
14086. Alcoholic. Watch Hill, R. I., &c. U. S. Fish Commission.

**EVENTOGNATHI.****CATOSTOMIDÆ.**

**Catostomus teres**, (Mitchill) Les.—COMMON SUCKER.—Eastern Northern America.

279. Photograph. U. S. Fish Commission.  
18258. Alcoholic. Potomac River. U. S. Fish Commission.

**Myxostoma macrolepidotum**, (Les.) Jordan.—STRIPED SUCKER.—Mississippi Valley and Great Lakes.

15930. Cast. Washington market. J. W. Milner.  
16786. Cast. Washington market. J. W. Milner.  
16785. Cast. Washington market. J. W. Milner.  
278. Photograph. U. S. Fish Commission.

**Cycleptus elongatus**, (Les.) Ag.—BLACK SUCKER.—Mississippi Valley.

16781. Cast. Ohio River. J. W. Milner. Nov. 5, 1875.  
280. Photograph. U. S. Fish Commission.

**Erimyzon sucetta**, (Lac.) Jordan.—CHUB SUCKER.—Eastern United States.

281. Photograph. U. S. Fish Commission.

**Erimyzon Goodei**, Jordan.—GOODE'S SUCKER.—Florida.

19071. Alcoholic. St. John's River, Fla. G. Brown Goode.

**Bubalichthys bubalus**, Ag.—BUFFALO-FISH.—Mississippi Valley.

14883. Cast. Cincinnati, Ohio. J. W. Milner. Nov. 5, 1873.

**Carpiodes cyprinus**, (Les.) Ag.—CARP.—Eastern United States.

10735. Cast. Potomac River, D. C. J. W. Milner.  
16780. Cast. Sandusky, Ohio. J. W. Milner. Nov. 3, 1875.

**CYPRINIDÆ.**

**Ptychocheilus grandis**, (Ayres) Girard.—“PIKE.”—Pacific Slope.

282. Photograph. U. S. Fish Commission.



**Notemigonus americanus**, (Linn.) Jordan.—SHINER.—Southern Rivers.

19063. Alcoholic. St. John's River, Fla. G. Brown Goode.

**Notemigonus chrysoleucus**, (Mitch.) Jordan.—SHINER.—Eastern Atlantic States.

435. Color sketch. (Richard.) U. S. Fish Commission.

**Leuciscus pulchellus**, Storer.

630. Color sketch. (Burkhardt.) New Bedford, Mass. Prof. Alex. Agassiz. 1861.

**Carassius auratus**, (Linn.) Bleeker.—GOLD-FISH.—Domesticated; native of China and Japan.

16667. Cast. Washington, D. C. J. H. Richard.

18290. Alcoholic. Ponds of Maryland. U. S. Fish Commission.

## ORDER NEMATOGNATHI.

### SILURIDÆ.

**Ælurichthys marinus**, (Mitch.) B. & G.—FORK-TAILED CAT-FISH.—Cape Cod to Florida; Gulf of Mexico.

15575. Cast. New Bedford, Mass. U. S. Fish Commission. Oct. 11, 1875.

283, 284, 285. Photographs. U. S. Fish Commission.

522. Color sketch. (Richard.) U. S. Fish Commission.

**Amiurus catus**, (Linn.) Gill.—HORN POUT.—Eastern North America.

466. Color sketch. Prof. Alex. Agassiz. Natural size drawing by P. Roetter from a fresh specimen, East Wareham, Mass., Feb., 1869; weight, 1½ lbs. "S. T. Tisdale says he has seen the young of this species following the mother like a brood of chickens."—*Ms. note.*

**Ichthælorus furcatus**, (C. & V.) Gill.—CHANNEL CAT-FISH.—Mississippi Valley.

15690. Cast. Carrollton, Ky. J. W. Milner.

15787. Cast. Carrollton, Ky. J. W. Milner. Nov. 5, 1873.

**Pelodichthys olivaris**, (Raf.) Gill & Jordan.—MUD CAT-FISH.—Ohio Valley to Iowa and south.

15689. Cast. Carrollton, Ky. J. W. Milner. Nov. 5, 1875.



## ORDER APODES.

## CONGRIDÆ.

**Conger oceanica**, (Mitch.) Gill.—CONGER EEL.—Newfoundland to West Indies.

14873. Cast. Weight 11 lbs. Block Id., R. I. U. S. Fish Commission. Sept. 26, 1874.

14872. Cast. Block Island, R. I. U. S. Fish Commission. Sept. 26, 1874.

287. Photograph. U. S. Fish Commission.

## ANGUILLIDÆ.

**Anguilla rostrata**, (Les.) DeKay.—COMMON EEL.—Eastern United States.

15731. Cast. New York. E. G. Blackford. Aug. 26, 1874.

16392. Cast. New York. E. G. Blackford. Aug. 26, 1874.

16729. Cast. Potomac River. J. W. Milner.

16416. Cast. Wood's Holl, Mass. Wm. Palmer. Sept. 6, 1875.

10749. Cast. Wood's Holl, Mass. V. N. Edwards.

286. Photograph. U. S. Fish Commission.

480-81. Color sketches. (Richard.) U. S. Fish Commission.

773. Color sketch. Prof. Alex. Agassiz.

## NEMICHTHYIDÆ.

**Nemichthys scolopaceus?** Rich.—SNIPE EEL.—Deep waters of the Atlantic.

21195. Alcoholic. George's Bank. U. S. Fish Commission.

## SYNAPHOBRANCHIDÆ.

**Synaphobranchus pinnatus**, (Gronow) Günther.—MADEIRA EEL.—Deep waters of the Atlantic.

21848. Alcoholic. Sable Island Bank. U. S. Fish Commission.

## ORDER CYCLOGANOIDEI.

## AMIIDÆ.

**Amia calva**, Linn.—MUD-FISH.—Central and Southeastern United States.

11134. Cast. Sandusky, Ohio. J. W. Milner.

16534. Cast. New York market. E. G. Blackford. Sept. 24, 1875.

288,289. Photograph. U. S. Fish Commission.

556. Color sketch. (Burkhardt.) Charleston, S. C. Prof. Alex. Agassiz. 1853.



ORDER RHOMBOGANOIDEI.

LEPIDOSTEIDÆ.

**Lepidosteus osseus**, Linn.—GAR PIKE.—Mississippi Valley and Atlantic States south of Delaware River.

10736. Cast. Sandusky, Ohio. J. W. Milner.  
 10717. Cast. Sandusky, Ohio. J. W. Milner.  
 15366. Cast. Potomac River. J. W. Milner.  
 290, 291. Photographs. U. S. Fish Commission.

**Lepidosteus platystomus**, Raf.—SHORT-NOSED GAR PIKE.—Great Lakes and streams south and west to the Rocky Mountains.

3241. Alcoholic. Cleveland, Ohio. Prof. Baird.

ORDER SELACHOSTOMI.

POLYODONTIDÆ.

**Polyodon folium**, Lac.—PADDLE-FISH.—Fresh waters of Mississippi Valley.

14871. Cast. Cincinnati, Ohio. J. W. Milner. Nov. 5, 1873.  
 15475. Cast. Madison, Ind. George Spangler. June, 1875.  
 292. Photograph. U. S. Fish Commission.

ORDER CHONDROSTEI.

ACIPENSERIDÆ.

**Acipenser sturio**, Linn.—SHARP-NOSED STURGEON.—North Atlantic; ascending rivers.

15745. Cast. New York. E. G. Blackford.  
 14866. Cast. Wood's Holl, Mass. U. S. Fish Commission.  
 14877. Potomac River. J. W. Milner.  
 293, 294. Photographs. U. S. Fish Commission.  
 519. Color sketch. (Richard.) U. S. Fish Commission.

**Acipenser brevirostris**, Les.—SHORT-NOSED STURGEON.—Atlantic Coast of United States.

- 295, 296. Photographs. U. S. Fish Commission.  
 520. Color sketch. (Richard.) U. S. Fish Commission.

**Acipenser rubicundus**, Les.—LAKE STURGEON.—Great Lakes and south.

- 297, 298, 299, 300, and 301. Photographs. U. S. Fish Commission.



**Acipenser maculosus**, Les.—LONG-NOSED STURGEON.—Great Lakes and Western Rivers.

607-8. Color sketch. Huntsville, Ala. Prof. Alex. Agassiz. 1853.

**Scaphyrhynchops platyrhynchus**, (Raf.) Gill.—SHOVEL-NOSED STURGEON.—Mississippi Valley.

15939½. Cast. Ohio River. J. W. Milner.

15939. Cast. Ohio River. J. W. Milner.

15476. Cast. Madison, Ind. George Spangler. June, 1875.

302, 303. Photographs. U. S. Fish Commission.

## VI. ELASMOBRANCHIATES.

## ORDER HOLOCEPHALI.

## CHIMÆRIDÆ.

**Chimæra plumbea**, Gill.—BROWN CHIMÆRA.—Deep waters of Western Atlantic.

21904. Cast. Banquereau. Capt. Joseph W. Collins.

**Hydrolagus Collicei**, (Bennett) Gill.—PACIFIC CHIMÆRA.—North-west coast of North America.

993. Alcoholic. Puget Sound. Dr. George Suckley.

## ORDER RALÆ.

## MYLIOBATIDÆ.

**Myliobatis Fremenvillei**, (Les.) Storer.—EAGLE RAY.—Cape Cod to Florida.

16603. Cast. Wood's Holl, Mass. U. S. Fish Commission. Sept. 23, 1875.

14417. Cast. Wood's Holl, Mass. U. S. Fish Commission.

306-319. Photographs. U. S. Fish Commission.

760. Color sketch. U. S. Fish Commission.

**Myliobatis californicus**, Gill.—CALIFORNIA STING RAY.—Coast of California.

16687. Cast. San Francisco, Cal. L. Stone.

320. Photograph. U. S. Fish Commission.

959. Color sketch. U. S. Fish Commission.

**Rhinoptera quadriloba**, (Les.) Cuv.—COW-NOSED RAY.—Cape Cod to Florida.

304, 305. Photographs. U. S. Fish Commission.

Bull. N. M. No. 14—5



**TRYGONIDÆ.****Trygon centrura**, (Mitch.) Gill.—STING RAY.—Cape Cod to Florida.

14920. Cast. Wood's Holl, Mass. U. S. Fish Commission. June, 1873.  
 14882. Cast. Portland, Me. Skillings.  
 324, 325, 326, 327, 328, 329. Photographs. U. S. Fish Commission.

**Trygon Sabina**, Lesueur.—RIVER STING RAY.—Southern Coast entering rivers.

18068. Alcoholic. Lake Monroe, Fla. Prof. Baird.

**Trygon hastata**, (De Kay) Storer.—SMOOTH STING RAY.—Southern Coast.

21626. Skin. West Florida. Dr. J. W. Velie.

**Pteroplatea maclura**, Mull. & Henle.—BUTTERFLY RAY.—Cape Cod to Florida.

16319. Cast. Wood's Holl, Mass. U. S. Fish Commission. Aug. 5, 1875.  
 321, 322, 323. Photographs. U. S. Fish Commission.

**TORPEDINIDÆ.****Torpedo occidentalis**, Storer.—TORPEDO; CRAMP-FISH.—Cape Cod to Florida.

14912. Cast. Wood's Holl, Mass. U. S. Fish Commission. July 22, 1873.  
 14919. Cast. Wood's Holl, Mass. U. S. Fish Commission. July 5, 1873.  
 16665. Cast. Wood's Holl, Mass. U. S. Fish Commission. July 5, 1873.  
 330, 331, 332, 333, 334, 335. Photographs. U. S. Fish Commission.

**RAIIDÆ.****Raia erinacea**, Mitchill.—CLEAR-NOSED SKATE.—Nova Scotia to Florida.

- 343, 344, 345, 346. Photographs. U. S. Fish Commission.  
 14881. Cast. Portland, Me. U. S. Fish Commission.  
 10612. Cast. Wood's Holl, Mass. V. N. Edwards.  
 16508. Cast. Wood's Holl, Mass. V. N. Edwards. May 14, 1873.  
 336, 337, 338, 339, 340, 341, 342. Photographs. U. S. Fish Commission.  
 408, 409. Color sketches. (Richard.) U. S. Fish Commission.  
 761-2-3. Color sketches. U. S. Fish Commission.  
 768-9. Color sketches. U. S. Fish Commission.  
 774-5. Color sketches. Prof. Alex. Agassiz.

**Raia ocellata**, Mitchill.—SPOTTED SKATE.—New England Coast.

19434. Alcoholic. Nahant, Mass. Mus. of Comp. Zoology.

**Raia radiata**, Donovan.—SPINY SKATE.—Northern Atlantic.

19432. Alcoholic. Nahant, Mass. Mus. of Comp. Zoology.

**Raia eglanteria**, Lacep.—EGLANTINE SKATE.—Cape Ann and southward.

19439. Alcoholic. S. New England. Mus. of Comp. Zoology.



**Raia lævis**, Mitch.—SHARP-NOSED SKATE.—Nova Scotia to Florida.

14904. Cast. (Young male.) Montauk Point, N. Y. U. S. Fish Commission.  
Aug. 1, 1874.

402. Color sketch. U. S. Fish Commission.

15704. Cast. (Young.) Noank, Conn. U. S. Fish Commission. Aug. 1, 1874.

15703. Cast. Noank, Conn. U. S. Fish Commission.

16658. Cast. (Young male.)

15707. Cast.

16659. Cast.

347, 348, 349, 350, 351. Photographs. U. S. Fish Commission.

**RHINOBATIDÆ.****Rhinobatus productus**, Girard.—LONG-NOSED SKATE.—Coast of California.

16704. Cast. San Francisco, Cal. L. Stone.

352. Photograph. U. S. Fish Commission.

**PRISTIDÆ.****Pristis antiquorum**, (Linn.) Lath.—SAW-FISH.—Cape Cod to Florida; Tropical Seas.

12453. Stuffed skin. Florida. H. A. Ward.

**SQUATINIDÆ.****Squatina Dumerili**, Les.—MONK-FISH; FIDDLE-FISH.—Cape Cod to Florida; Temperate and Tropical Seas.

14890. Cast. Wood's Holl, Mass. V. N. Edwards. Sept. 1, 1873.

16410. Cast. Menemsha Bight, Mass. Jason Luce. Sept. 1, 1875.

353, 354, 355. Photographs. U. S. Fish Commission.

**ORDER SQUALI.****LAMNIDÆ.****Lamna cornubica**, (Gmel.) Fleming.—PORBEAGLE SHARK.—Atlantic, Mediterranean, Japan.

21856. Alcoholic. Gloucester, Mass. U. S. Fish Commission.

**Isuropsis Dekayi**, Gill. (d. s.)—MACKEREL SHARK.—Newfoundland to Florida.

15949. Cast. Wood's Holl, Mass. V. N. Edwards. Sept. 20, 1873.

15973. Cast. Wood's Holl, Mass. V. N. Edwards. Dec., 1875.

446. Color sketch. (Richard.) U. S. Fish Commission.

**Carcharodon Atwoodi**, (Storer) Gill.—ATWOOD'S SHARK; MAN-EATER.—Newfoundland to Florida.

— Jaws.



**Cynocephalus glaucus**, (Linn.) Gill.—BLUE-HEADED SHARK.—Atlantic.

19929. Alcoholic. Wood's Holl, Mass. V. N. Edwards.

**ODONTASPIDIDÆ.****Eugomphodus littoralis**, Gill.—SAND SHARK.—Pelagic.

16647. Cast. Wood's Holl, Mass. U. S. Fish Commission.

16648. Cast. Wood's Holl, Mass. U. S. Fish Commission.

419. Color sketch. (Richard.) U. S. Fish Commission.

445. Color sketch. (Richard.) U. S. Fish Commission.

**ALOPECIDÆ.****Alopias vulpes**, (Linn.) Bon.—THRESHER; SWINGLE-TAIL.—Atlantic and Mediterranean.

16256. Cast. Menemsha Bight, Mass. U. S. Fish Commission. July 30, 1875.

15733. Cast. Wood's Holl, Mass. U. S. Fish Commission.

417. Color sketch. (Richard.) U. S. Fish Commission.

**SPHYRNIDÆ.****Sphyrna zygaena**, (Linn.) Mull. & Henle.—HAMMER-HEAD SHARK.—Tropical and Subtropical Seas.

15833. Cast. Noank, Conn. U. S. Fish Commission.

360, 361, 362, 363, 364. Photographs. U. S. Fish Commission.

462. Color sketch. (Richard.) U. S. Fish Commission.

**Reniceps tiburo**, (Linn.) Gill.—SHOVEL-HEAD SHARK.—Atlantic and Western Pacific.

12714. Cast.

— Alcoholic. Beesley's Point, N. J. S. F. Baird.

**GALEORHINIDÆ.****Eulamia Milberti**, (Mull. & Henle) Gill.—BLUE SHARK.—Cape Cod to Florida.

15742. Cast. Wood's Holl, Mass. V. N. Edwards.

366, 367, 368, 369. Photographs. U. S. Fish Commission.

418. Color sketch. (Richard.) U. S. Fish Commission.

**Eulamia obscurus**, (Les.) Gill.—DUSKY SHARK.—Cape Cod to Florida.

16070. Cast. Wood's Holl, Mass. U. S. Fish Commission. July 10, 1875.

**Isogomphodon maculipinnis**, Poey.—SPOTTED-FIN SHARK.—Tropical and Subtropical Seas.

356, 357, 358, 359. Photographs. U. S. Fish Commission.

425. Color sketch. (Richard.) U. S. Fish Commission.

16401. Cast. Wood's Holl, Mass. U. S. Fish Commission.



**Galeocerdo tigrinus**, Mull. & Henle.—TIGER SHARK.—Atlantic; Indian Ocean.

15740. Cast. Wood's Holl, Mass. V. N. Edwards. July 22, 1873.  
 16069. Cast. Buzzard's Bay, Mass. U. S. Fish Commission. 1875.  
 370, 371. Photographs. U. S. Fish Commission.

**Mustelus canis**, (Mitch.) De Kay.—SMOOTH DOG-FISH.—Cape Cod to Cape Hatteras.

14908. Cast. Norfolk, Va. U. S. Fish Commission. June 25, 1873.  
 14925. Cast. Wood's Holl, Mass. U. S. Fish Commission.  
 10734. Cast. Wood's Holl, Mass. U. S. Fish Commission.  
 10733. Cast. Wood's Holl, Mass. U. S. Fish Commission.  
 16649. Cast. (Male.) Wood's Holl, Mass. U. S. Fish Commission.  
 372, 373, 374, 375. Photographs. U. S. Fish Commission.  
 —. Color sketches. (Richard.) U. S. Fish Commission.

**GINGLYMOSTOMATIDÆ.****Ginglymostoma cirratum**, (Gmel.) M. & H.—NURSE SHARK.—Tropical Atlantic.

16909. Alcoholic. Chesapeake Bay. Maryland Academy of Science.

**SPINACIDÆ.****Squalus americanus**, (Storer) Gill.—SPINED DOG-FISH.—Newfoundland to Cape Hatteras.

16255. Cast. Martha's Vineyard. U. S. Fish Commission. July 30, 1875.  
 376, 377. Photographs. U. S. Fish Commission.  
 426. Color sketch. (Richard.) U. S. Fish Commission.

**Centroscyllium Fabricii**, (Reinh.) M. & H.—GREENLAND DOG-FISH.—Deep waters of Western Atlantic.

21622. Cast. Lat. 42° 52' N., Lon. 63° 50' W. 220 to 260 fathoms. U. S. Fish Commission.

**SCYMNIDÆ.****Somniosus microcephalus**, (Bloch.) Gill.—SLEEPER SHARK.—North Atlantic.

- 378, 379. Photographs. U. S. Fish Commission.  
 447. Color sketch. (Richard.) U. S. Fish Commission.  
 16630. Cast. Gulf of St. Lawrence. Renfrew & Co. Nov. 20, 1875.

**Centroscymnus cœlolepis**, Bocage & Capello.—BLACK DOG-FISH.—Deep waters of North Atlantic.

21621. Cast. Lat. 42° 40' N., Lon. 63° 50' W. 220 to 260 fathoms. U. S. Fish Commission.



**ECHINORHINIDÆ.**

**Echinorhinus spinosus**, (Gmel.) Delamaille.—SPINY SHARK.—  
North Atlantic.

21913. Cast. Provincetown, Mass. E. E. Small.

**VII. MARSIPOBRANCHIATES.****ORDER HYPEROARTIA.****PETROMYZONTIDÆ.**

**Petromyzon americanus**.—LAMPREY EEL.

489-90. Color sketches. Prof. Alex. Agassiz.

**ORDER HYPEROTRETI.****MYXINIDÆ.**

**Myxine glutinosa**, Linn.—HAG-FISH; SLIME-FISH.—North At-  
lantic.

21679. Alcoholic. Le Have Bank, N. B. U. S. Fish Commission.

**VIII. LEPTOCARDIANS.****ORDER CIRROSTOMI.****BRANCHIOSTOMIDÆ.**

**Branchiostoma lubricum**, Costa.—LANCELET.—Cosmopolitan.

21877. Alcoholic. Bermudas. G. Brown Goode.



## SECTION B.

(THE CHASE AND THE FISHERIES.)

### MEANS OF PURSUIT AND CAPTURE.

#### I. HAND IMPLEMENTS OR TOOLS.

\* *For striking.*

##### 1. CLUBS.

###### Unarmed clubs.<sup>1</sup>

Salmon-clubs used by the Indians of the Northwest coast.

Hunting-clubs.<sup>1</sup>

Fishermen's clubs.

32717. "Halibut killer and gob-stick." Philip Merchant, Gloucester, Mass.  
A heavy club with which the fisherman kills the halibut by a blow upon the head. One end is sharpened for use in detaching hooks from the gullets of fish which have swallowed them.

###### Armed clubs.<sup>1</sup>

Stone-headed clubs.<sup>1</sup>

Clubs, armed with teeth or bone points.<sup>1</sup>

Clubs, armed with metal points.<sup>1</sup>

##### 2. SLUNG-WEIGHTS.

###### Slung-stones.<sup>1</sup>

###### Slung-shot.<sup>1</sup>

\*\* *For cutting.*

##### 3. KNIVES.

###### Straight knives.

Hunters' knives.

26152.	Hunter's knife.	5½-inch blade.	John Russell Cutlery Co., Turner's [Falls, Mass.
26153.	Hunter's knife.	6-inch blade.	"
26154.	Hunter's knife.	7-inch blade.	"
26155.	Hunter's knife.	8-inch blade.	"
26172.	Hunter's knife.	5½-inch blade.	"
26173.	Hunter's knife.	6-inch blade.	"
26174.	Hunter's knife.	6½-inch blade.	"
26175.	Hunter's knife.	8-inch blade.	"
26191.	Hunter's knife.	5-inch blade.	"
26192.	Hunter's knife.	6-inch blade.	"
26193.	Hunter's knife.	7-inch blade.	"
26194.	Hunter's knife.	8-inch blade.	"

<sup>1</sup> Displayed in the Ethnological division.



**Straight knives.**

## Hunters' knives.

26220.	Hunter's knife.	5-inch blade.	John Russell Cutlery Co., Turner's Falls, Mass.
26221.	Hunter's knife.	6-inch blade.	"
26222.	Hunter's knife.	7-inch blade.	"
26223.	Hunter's knife.	8-inch blade.	"
26224.	Hunter's knife.	10-inch blade.	"
26145.	Hunter's knife.	5½-inch blade.	"
26146.	Hunter's knife.	6-inch blade.	"
26147.	Hunter's knife.	7-inch blade.	"
26148.	Hunter's knife.	8-inch blade.	"
26160.	Hunter's knife.	5-inch blade.	"
26161.	Hunter's knife.	6-inch blade.	"
26162.	Hunter's knife.	7-inch blade.	"
26163.	Hunter's knife.	8-inch blade.	"
26164.	Hunter's knife.	9-inch blade.	"
26165.	Hunter's knife.	10-inch blade.	"
26166.	Hunter's knife.	11-inch blade.	"
26167.	Hunter's knife.	12-inch blade.	"
26156.	Hunter's knife.	5-inch blade.	"
26157.	Hunter's knife.	5½-inch blade.	"
26158.	Hunter's knife.	7-inch blade.	"
26202.	Hunter's knife.	5-inch blade.	"
26203.	Hunter's knife.	6-inch blade.	"
26204.	Hunter's knife.	7-inch blade.	"
26205.	Hunter's knife.	8-inch blade.	"
26206.	Hunter's knife.	9-inch blade.	"
26207.	Hunter's knife.	10-inch blade.	"
26208.	Hunter's knife.	12-inch blade.	"

## Dudley hunters' knives.

26197.	Hunter's knife.	5-inch blade.	"
26198.	Hunter's knife.	6-inch blade.	"
26199.	Hunter's knife.	7-inch blade.	"
26200.	Hunter's knife.	9-inch blade.	"

## Hunters' dirk-knives.

26225.	Hunter's knife (metal guard).	5-inch blade.	"
26226.	Hunter's knife (metal guard).	6-inch blade.	"
26227.	Hunter's knife (metal guard).	7-inch blade.	"
26228.	Hunter's knife (metal guard).	8-inch blade.	"
26143.	Hunter's knife (metal guard).	7-inch blade.	"
26168.	Hunter's knife (solid guard).	7-inch blade.	"

## Splitting and ripping knives.

29401.	Double-edged throating and ripping knife.	A. McCurdy, Gloucester, Mass.
29403.	Double-edged throating-knife (old style).	G. B. Foster, Beverly, Mass.
29409.	Throating or ripping knife.	A. McCurdy, Gloucester, Mass.
29411.	Throating or ripping knife.	Capt. E. L. Rowe, Gloucester, Mass.



**Straight knives.****Splitting and ripping knives.**

29416. Double-edged ripping-knife (peculiar to coast of Maine). Wilcox, Crittenden & Co., Middletown, Conn.  
 29402. Mackerel-splitting knife. A. McCurdy, Gloucester, Mass.  
 29408. Mackerel-splitting knife. Capt. Sam. Elwell, Gloucester, Mass.  
 29404. Codfish-splitting knife. A. McCurdy, Gloucester, Mass.  
 29413. Cod or haddock ripping knife (old style). G. P. Foster, Beverly, Mass.  
 29414. Hake or haddock splitting knife. A. McCurdy, Gloucester, Mass.  
 29415. Haddock-ripping knife. " "

**Flaying-knives, aboriginal and recent.<sup>1</sup>**

26169. Flaying-knife.	5-inch blade.	John Russell Cutlery Co.,	Turner's
			[Falls, Mass.]
26170. Flaying-knife.	6-inch blade.	"	"
26171. Flaying-knife.	7-inch blade.	"	"
26179. Flaying-knife.	5-inch blade.	"	"
26180. Flaying-knife.	6-inch blade.	"	"
26181. Flaying-knife.	6½-inch blade.	"	"
26185. Flaying-knife.	5-inch blade.	"	"
26186. Flaying-knife.	6-inch blade.	"	"
26187. Flaying-knife.	7-inch blade.	"	"
26188. Flaying-knife.	5-inch blade.	"	"
26189. Flaying-knife.	6-inch blade.	"	"
26190. Flaying-knife.	7-inch blade.	"	"
26211. Flaying-knife.	5-inch blade.	"	"
26212. Flaying-knife.	6-inch blade.	"	"
26213. Flaying-knife.	6½-inch blade.	"	"

**Blubber-knives, Eskimos.<sup>2</sup>****Boarding-knives used by whalers.**

Used in cutting the blubber into sections from the "blanket piece" or long strip which is peeled from the sides of the whale; for illustration of the manner of use see the model of whaler "cutting in the blubber."

25676. Boarding-knife. W. H. Cook & Co., New Bedford, Mass.  
 "This knife has seen many years of service."—A. R. C.  
 26608. Boarding-knife, with sheath. A. R. Crittenden, Middletown, Conn.

**Whalers' boat-knives.**

Used to cut the harpoon-line when it gets tangled in paying out.

— Boat-knife (model). Capt. L. Howland, New Bedford.

This model in its sheath on the bulkhead of the whale-boat, ready for use, is shown in the model of a whale-boat (No. 24880).

**Heading-knives.**

32689. Halibut-heading knife. Adolph Voss, Gloucester, Mass.

<sup>1</sup> A full series of Eskimo and Indian flaying-knives is displayed in the Ethnological division.

<sup>2</sup> A series of these implements is exhibited in the Ethnological division.



**Straight knives.**

## Finning-knives.

29400. Halibut-finning knife. Alex. McCurdy, Gloucester, Mass.  
 29412. Halibut-finning knife. Capt. E. L. Rowe, Gloucester, Mass.

## Chopping-knives.

29406. Bait-cleaver (used in halibut fishing). Alex. McCurdy, Gloucester, Mass.  
 32665. Cod-bait knife. Gloucester, Mass. U. S. Fish Commission.  
 32664. Bait-cleaver. " "

## Cheek-knives.

29438. Codfish cheek-knife. Alex. McCurdy, Gloucester, Mass.

## Throating-knives.

22669. Cod-throater (single edge). Gloucester, Mass. U. S. Fish Commission.  
 22670. Cod-throater (double edge). " "

## Fish-knives (for general use).

23159. Fish-knife. Heavy. 12-inch blade. John Russell Cutlery Co., Turner's Falls, Mass.  
 23196. Fish-knife. Hook handle. 12-inch blade. John Russell Cutlery Co., Turner's Falls, Mass.

## Scaling-knives.

26210. Saw-blade fish-scaling knife. John Russell Cutlery Co., Turner's Falls, Mass.

## Sailors' and fishermen's sheath-knives.

Sailors' sheath-knives. Wilcox, Crittenden & Co., Middletown, Conn.

29428. Sheath and belt, with "law-abiding" sheath-knife. First quality.  
 29426. Sheath and belt. Second quality.  
 29427. Sheath and belt, with "law-abiding" sheath-knife. Third quality.  
 The "law-abiding" sheath-knife is round at the tip of the blade, which is also thick and dull.

## Hunters' sheath-knives.

The hunting-knives enumerated above, manufactured by the John Russell Cutlery Co., and others like them, are usually provided with sheaths before they are used by hunters.

- 26665. Hunting-knife, sheath, and belt. Forest & Stream Publishing Co. (Property of John A. Nichols, Syracuse, N. Y.)

## Slivering-knives, used by fishermen.

These knives are used to slice the flesh from the sides of the menhaden used for bait. The slices thus prepared are called "slivers," and are salted down in barrels to be used as baits for cod, halibut, and mackerel hooks, or are ground up in the bait-mills, forming "stosh" or "chum," a thick paste which is thrown over the sides of the mackerel-smacks to tole the fish to the surface.



**Straight knives.**

Slivering-knives, used by fishermen.

29407. Slivering-knife. (Pattern first used by Cape Ann fishermen.) Geo. B. Foster, Beverly, Mass.  
 29399. Slivering-knife. (Cape Ann pattern.) Alex. McCurdy.  
 29405. Slivering-knife. (Nantucket pattern.) Samuel Elwell, jr., Gloucester, Mass.  
 25764. Slivering-knife. Samuel Elwell, jr., Gloucester, Mass.  
 32666. Slivering-blade. Gloucester, Mass. U. S. Fish Commission.

**Fitching-knives.**

Used in slicing halibut into steaks or "fitches" in preparation for salting and smoking.

32726. Shore fitching-knife. Gloucester, Mass. U. S. Fish Commission.  
 32690. Bank fitching-knife. Adolph Voss, Gloucester, Mass.  
 29410. Fitching-knife. Gloucester, Mass. A. R. Crittenden.

**Clam and oyster knives.**

26209. Clam-knife. John Russell Cutlery Co., Turner's Falls, Mass.  
 —. Oyster-knife (model). See model of Chesapeake oyster-canoe (No. 25003).

**Net-makers' knives.**

These knives are without handles, and the heel of the short (2 inches long) round-pointed blade is curled so as to fit the finger like a ring.

29439. Net-mending knives (right-hand). Alex. McCurdy, Gloucester, Mass.  
 29440. Net-mending knives (left-hand). Alex. McCurdy, Gloucester, Mass.

**Mackerel-rimmers' fattening-knives or ploughs.**

Used in creasing the sides of lean mackerel (Nos. 2 and 3) to cause them to resemble fat (No. 1) mackerel.

25768. Mackerel-plough. Edwin Blatchford.  
 25769. Mackerel-plough. S. Elwell, jr., Gloucester, Mass.  
 25770. Mackerel-plough. S. Elwell, jr., Gloucester, Mass.  
 25771. Mackerel-plough. S. Elwell, jr., Gloucester, Mass.  
 25773. Mackerel-plough. Edward Davis.  
 25774. Mackerel-plough. Edward Davis.  
 25775. Mackerel-plough. (Used in 1860.) Mrs. Hannah M. Burt.  
 25720. Mackerel-plough. Central Wharf Co., Provincetown, Mass.

**Splitting-knives.**

Used in cleaning fish before salting.

32673. Mackerel-splitting knife. Gloucester, Mass. U. S. Fish Commission.  
 22667. Cod-splitting knife (curved). " "  
 22668. Cod-splitting knife (straight). " "

**Stone and bone knives used by Indians and Eskimos.**

7224. Bone knife. Anderson River Eskimos, Fort Anderson, H. B. T. R. McFarlane.



**Straight knives.**

Stone and bone knives used by Indians and Eskimos.

16115. Bone knife. Magemut Eskimos, Nunivak Islands, Alaska. W. H. Dall.  
 2178. Bone knife. Eskimos.  
 1328. Bone knife. Eskimos.

**Harpoon-knives.**

16348. Harpoon-knife, with sheath. Magemut Eskimos, Nunivak Islands, [Alaska. W. H. Dall.  
 16110. Harpoon-knife, with sheath. " "  
 16105. Harpoon-knife, with sheath. " "  
 16106. Harpoon-knife, with sheath. " "  
 19382. Harpoon-knife, with slate blade. " "

**Honey-knives.**

The thin blade bent at an angle to the handle.

26145. Honey-knife. John Russell Cutlery Co., Turner's Falls, Mass.

**Skin scrapers and parers, used in preparing leather.**

26144. Tanner's knife. 12-inch blade. John Russell Cutlery Co., Turner's [Falls, Mass.  
 26195. Tanner's knife. 14-inch blade. " "

**4. AXES.****Axes, proper.****Head-axes for whalers.**

Used in cutting off head of whale.

25913. Head-axe. E. B. & F. Macy, New Bedford, Mass.

**Whalers' boat-hatchets.**

Used for cutting harpoon-line at the bow, when it becomes tangled in "paying out."

24880. Boat-hatchet. (Model.) Capt. L. Howland, New Bedford, Mass.  
 This implement in its place in the boat is shown in model of whale-boat.

26839. A boat-hatchet may be seen in its proper place in the bow of the large whale-boat.

**Cutting-spades.****Whale-spades.****Cutting-spades.**

Used in peeling the blubber from the carcass of the dead whale; for illustration see model of "whale-ship cutting in the blubber."

25679. Cutting-spade. E. B. & F. Macy, New Bedford, Mass.  
 25008. Cutting-spade. J. H. Thomson, New Bedford, Mass.



## Cutting-spades.

### Throat-spades, flat and round shank.

Used in cutting off the head of the whale.

25925. Throat-spade. E. B. & F. Macy, New Bedford, Mass.

### Wide spades.

Used in "blubber-room" for cutting blubber before mincing.

25629. Wide spade. E. B. & F. Macy, New Bedford, Mass.

### Half-round spades.

For cutting "blanket" piece, to allow blubber-hook to enter.

25927. Half-round spade. E. B. & F. Macy, New Bedford, Mass.

### Head-spades.

Used in cutting off the head of the whale.

25932. Head-spade. E. B. & F. Macy, New Bedford, Mass.

### Blubber-mincing spades.

For mincing blubber before trying out.

25912. Hand mince-knife. E. B. & F. Macy, New Bedford, Mass.

### Chopping-knives.

Used to chop clams for bait.

29489. Clam-chopper. William H. Hesbolt, Provincetown, Mass.

32676. Clam-chopper. Adolph Voss, Gloucester, Mass.

### Bait-mill knives.

Used on the rollers of bait-mincing machines; for mills see section C. 5.

29417. Bait-mill knife. Provincetown pattern. William H. Hesbolt,  
Provincetown, Mass.

25715. Bait-mill knife. M. W. Grant, Wellfleet, Mass.

### Ice-choppers.

Used in chopping ice for packing fish or bait.

32685. Ice-chopper. Adolph Voss, Gloucester, Mass.

### Ice-chisels.

Used in cutting holes in the ice for fishing.

25888. Ice-chisel (nickel-plated). Bradford & Anthony, Boston, Mass.



## 5. THRUSTING SPEARS AND PRODS.

**Fishing-lances.**

## Whale-lances.

Used by whalers to give the death-blow to the whale.

25678. Whale-lance with handle, ready for use. E. B. & F. Macy, New Bedford, Mass.  
25007. Whale-lance with handle, ready for use. J. H. Thomson, New Bedford, Mass.

## Whale-lance, iron.

25611. Whale-lance. (Primitive model) used by New Bedford whalers. W. H. Cook & Co., New Bedford, Mass.

## Seal-lances.

10140. Head of lance (bone and iron). Eskimos of Northeast coast, southwest of King William's Land. Capt. C. F. Hall.  
1117. Seal-lance. Eskimos of Arctic coast, Anderson River, H. B. T. R. McFarlane.

## Fish-lances.

29453. Sword-fish lance. Saml. Elwell, jr., Gloucester, Mass.  
32703. Sword-fish lance. Vinald McCaleb. Gloucester, Mass.  
25232. Sword-fish lance (with screw to fix folding handles). U. S. Fish Commission.  
26519. Lance. Indians of the Northwest coast. J. G. Swan.  
The tip of this lance is made from the horn of the mountain-goat (*Mazama montana*).

**Whaleman's boat-spades** (thick and thin).

Carried in boat to disable the whale by cutting its flukes.

25928. Boat-spade, with handle and warp complete, ready for use. E. B. & F. Macy, New Bedford, Mass.

**Prodding instruments.**

## Snow-probes.

Used by the Eskimos in probing the air-holes in ice and under the snow to detect the presence of seals.

10274. Bone probe. King William's Land. Capt. C. F. Hall.  
10275. Bone probe. " " "  
10276. Bone probe. " " "  
2000. Bone probe. Northeastern Coast. S. F. Baird.  
2179. Bone probe. " " "  
2180. Bone probe. " " "  
12181. Bone probe. " " "

<sup>1</sup>These probes are sometimes supplied with a detachable head.



**Prodding-instruments.**

## Probing-awls.

Used in piercing the base of the brain in killing fish for the table.

29418. Large steel prod, suitable for large fish. A. R. Crittenden, Middletown, Conn.

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## II. IMPLEMENTS FOR SEIZURE OF OBJECT.

\**Scooping-instruments.*

## 6. SCOOPS.

†*For hand-use.*

**Shovels.**

## Clam-shovels.

— . <sup>1</sup>Long-handled shovel. U. S. Fish Commission.  
26716. <sup>1</sup>Short-handled shovel. U. S. Fish Commission.

## Oyster-shovels.

26717. (Model, with Chesapeake oyster-canoe, No. 25003). T. B. Ferguson, Maryland Commissioner of Fisheries.

## Trowels used in taking burrowing shore animals.

— . Collector's trowel (flat). To be supplied.  
— . Collector's trowel (round). “

## Hand-scoops used in collecting mollusks.

— . <sup>1</sup>Spoon-scoop. U. S. Fish Commission.

## Bait-ladles.

32652. “Bait-heaver” (straight). Gloucester, Mass. G. Brown Goode.  
32653. “Bait-heaver” (one-sided). “ “

**Hand-dredges** (used in collecting mollusks).

26718. Tin hand-dredge. U. S. Fish Commission.

**Pile-scrappers.**

26719. Frame of pile-scraper. U. S. Fish Commission.

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<sup>1</sup>It is thought unnecessary to exhibit these familiar implements.



†† *For use with sounding-lines.*<sup>1</sup>

### Armed leads.

Common "deep-sea lead."  
Deep-sea-sounding apparatus.

### Cup-leads.

### Scoop sounding-machine.

\*\* *Grasping-hooks.*

## 7. HOOKED INSTRUMENTS. (Those used with a single motion, that of hooking.)

### Single-pointed hooks.

#### Gaff-hooks.

25495. Salmon-gaff hook and staff. Bradford & Anthony, Boston, Mass.  
2668. Gaff-hook. U. S. Fish Commission.  
29388. Halibut-gaff. M. W. Grant, Wellfleet, Mass.  
32678. Halibut hand-gaff. Gloucester, Mass. G. Brown Goode.  
32683. Halibut deck-gaff. " "  
25935. Haddock hand-gaff. A. McCurdy, Gloucester, Mass.  
29390. Haddock-gaff. M. W. Grant, Wellfleet, Mass.  
25938. Codfish-gaff. Used in George's Bank fisheries. A. McCurdy, Gloucester, Mass.  
25939. Dory cod-gaff. Used in shore fisheries. A. McCurdy, Gloucester, Mass.  
25934. Hand-gaff. Used in halibut fisheries. A. McCurdy, Gloucester, Mass.  
29389. Cod-gaff. M. W. Grant, Wellfleet, Mass.  
26187. Gaff-hook. Indians of Northwest coast. J. G. Swan.  
26680. Gaff-hook. Property of J. H. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Co.  
32716. "Pew." Used in handling fish on wharves and decks. Capt. S. J. Martin, Gloucester, Mass.  
32385. "Pew-gaff." Used in pitching fish from dories to vessels. Gloucester, Mass. G. Brown Goode.  
32730. Fish-fork (three tines, short handle). Gloucester, Mass. G. Brown Goode. Used in pitching fish in a dory, or from hold of vessel.  
32691. Halibut-cutter's hook. Used by the "header" in decapitating halibut. Gloucester, Mass. G. Brown Goode.  
32684. Fish-fork (two tines). Gloucester, Mass. G. Brown Goode.  
32725. "Nape-boner" hook. Used in the preparation of boneless fish. Gloucester, Mass. G. Brown Goode.

#### Boat-hooks.

Arranged with "Accessories of fishing-boats," B. 48.

#### Rabbit and squirrel hooks, used by Indians.

— Squirrel-hooks. Pi-Ute Indians. Southern Utah. J. W. Powell.

#### <sup>2</sup>Clam-hooks, hoes, and picks used in gathering shell-fish.

<sup>1</sup>See exhibit of Navy Department.

<sup>2</sup>It is thought unnecessary to exhibit these familiar implements.



**Single-pointed hooks.**

<sup>1</sup>Forks used in handling salted and dried fish.

Whalemen's hooks.

Blubber-hooks.

25930. Blubber-hook. For hauling small pieces of blubber. E. B. & F. Macy. New Bedford, Mass.

26133. Blubber-hook. Aliut Eskimo. Nunivak Island, Alaska. W. H. Dall.

Blubber forks and pikes.

25615. Blubber-pike. Used for tossing blubber into try-kettle. Humphrey S. Kirby, New Bedford, Mass.

25617. Blubber-pike. From the storeroom of a returned whaler. Humphrey S. Kirby, New Bedford, Mass.

Junk-hooks, etc.

For hauling heavy pieces of blubber.

25616. Gaff-hook. Used to haul blubber across the deck from chopper to try-kettle. Humphrey S. Kirby, New Bedford, Mass.

25916. Junk-hook. E. B. & F. Macy, New Bedford, Mass.

<sup>2</sup>Lance-hooks.

**Many-pointed hooks.**

<sup>2</sup>Can-hooks.

<sup>3</sup>Grappling-irons.

Lip-hooks or grapnels, used by whalers.

25918. Whaler's grapnel. Used for towing whale to ship. E. B. & F. Macy, New Bedford, Mass.

Line-hooks, used by whalers.

25924. Whaler's line-hook for catching line, &c. E. B. & F. Macy, New Bedford, Mass.

Clam-rakes.

29466. Clam-hoe. Provincetown style. Wm. H. Hesbolt, Provincetown, Mass.

29437. Hand-claw. Used for gathering "hen-clams" and "scallops." Wellfleet, Cape Cod, and coast of Maine. M. W. Grant, Wellfleet, Mass.

——. Clam-rake (model). Used in collecting the sea-clam (*Macra solidissima*) on Nantucket Shoals. These clams are salted down and used as bait for cod, halibut, &c. See with model of Nantucket dory (26257).

<sup>1</sup>It is thought unnecessary to exhibit these familiar implements.

<sup>2</sup>Arranged with boat fittings.

<sup>3</sup>Arranged with the anchors.



**Many-pointed hooks.**

## Many-pointed fish-jigs.

29436. Mackerel-gaff. Used when the mackerel swim close in large shoals.  
M. W. Grant, Wellfleet, Mass.
29441. Mackerel-bob. Used when the mackerel are close to the vessel and  
in large schools. Wm. H. Hesbolt, Provincetown, Mass.

## Oulachan rakes or spears.

- Used by Indians of the Northwest coast in the capture of the oulachan or  
candle-fish (*Osmerus pacificus*).
- . Oulachan rake or comb. Flathead Indians. J. G. Swan.

## Squid-jigs.

25848. Squid-jig. George P. Steel, Provincetown, Mass.
25714. Squid-jig. " " "
25776. Squid-jig. Gloucester style. A. R. Crittenden, Middletown, Conn.
29443. Squid-jig. Over fifty years old. Lemuel Cook, 2d, Provincetown,  
Mass.
32721. Squid-jig. Capt. R. H. Hurlbert, Gloucester, Mass.
32722. Squid-jig. " " "
25683. Squid-line and jig. Used in catching squid for bait. Bradford &  
Anthony, Boston, Mass.
29447. Molds used in forming squid-jigs. John B. Parsons, Rockport, Mass.

**Twisting-rods** (used in drawing small mammals from their burrows).

- . Twisting-rod. Virginia.

8. BARBED IMPLEMENTS. (Those used with two motions, the first that  
of thrusting.)**Spears with fixed heads.**

## Barbed spears (with single point).

25594. Crab-spear, used about Newport, R. I. J. M. K. Southwick, New-  
port, R. I.
25595. Flounder-spear. J. M. K. Southwick, Newport, R. I.
- . "Conch" harpoon. Used by Bahamians and fishermen of Key West  
in the capture of large fish. Dr. J. W. Velie, Chicago, Ill.

## Eel-spears.

- . Eel-spear with six prongs for winter fishing. Lent by Bradford & Au-  
[thony, Boston, Mass.
25558. Eel-spear with ten prongs for winter fishing. "
25557. Eel-spear for summer fishing. "
25556. Nine fish-spears. "
25224. Eel-spear, used in southern New England. U. S. Fish Commission.
25647. New Bedford eel-spear. H. S. Kirby, New Bedford, Mass.
25606. Eel-spear, Boston pattern. Used on Cape Cod. J. M. K. South-  
wick, Newport, R. I.



**Spears with fixed heads.**

## Aboriginal fish-spears.

7420. Head of fish-spear. Eskimos. Fort Anderson, Arctic coast. R. McFarlane.
2675. Heads of fish-darts. Eskimos. Mackenzie's River district. R. McFarlane.
7514. Head of fish-spear, made of elk-horn. Eskimos. Northwest coast. Geo. Gibbs.
2322. Head of salmon-spear. Indians. Fort Crook, Oreg. Lieut. John Feimer, U. S. A.
2628. Fish-dart heads. Indians. Columbia River. U. S. Exploring Expedition. Capt. C. Wilkes, U. S. N.
1439. Lance-head of bone. Indians. New Mexico. Lieut. A. W. Whipple, U. S. A.
18933. Fish-spears. Sitka Indians. Sitka. J. G. Swan.
11429. Salmon-spears. Passamaquoddy Indians. Eastport, Me. E. Palmer.
10283. Salmon-spear. Eskimos. Igloolik. Capt. C. F. Hall.
2543. Fish-spear. Tschutschi Indians. South Pacific Exploring Expedition. Capt. John Rodgers, U. S. N.
23518. Three-pronged spear. Northwest coast. J. G. Swan.

## Aboriginal bird and fish spears.

19517. Bird-spear. Eskimos. Greenland. Geo. Y. Nickerson.
10267. Bird-spear with throwing-stick. Arctic America. Smithsonian Institution.
15950. Fish-spear. Magemut Eskimos. Nunivak, Alaska. W. H. Dall.
11358. Fish or bird spear. Eskimos. Bristol Bay, Alaska. Vincent Colyer.
- 15689-90-91-93-94-95-96. Bird-spears. Eskimos. Nunivak Islands, Alaska, W. H. Dall.
- 7973-7997. Fish and bird spears. Mushegay Indians. Alaska. Smithsonian Institution.

**Spears with detachable heads.**

## Lily-irons.

25230. Sword-fish lily-iron. Capt. John B. Smith. U. S. Fish Commission.
25645. Sword-fish dart and socket, peculiar to New Bedford. A. R. Crittenden, Middletown, Conn.
32714. Sword-fish lily-iron. Adolph Voss, Gloucester, Mass.
32715. Sword-fish lily-iron. " "
25208. Swordfish-dart head. Wilcox, Crittenden & Co., Middletown, Conn.
- , "Turtle-peg" harpoon. Key West, Fla. Dr. J. W. Velie, Chicago, Ill.

## Eskimo harpoons of stone, bone, and iron.

14255. Iron harpoon-head, with line of walrus hide. Eskimos. Smith Sound. Capt. C. F. Hall.
10120. Harpoon-head, brass and iron. Eskimos. Victoria Harbor. Capt. C. F. Hall.
9838. Harpoon-heads of bone and iron. Eskimos. Northeast coast. S. F. Baird.



**Spears with detachable heads.**

Eskimo harpoons of stone, bone, and iron.

19522. Harpoon-head of stone and bone. Eskimos. Greenland. Geo. Y. Nickerson.
10136. Head of walrus-harpoon. Eskimos. Igloolik. Capt. C. F. Hall.
10400. Head of seal-harpoon. Eskimos. Igloolik. Capt. C. F. Hall.
10407. Bone harpoon-head. Eskimos. King William's Sound. Capt. C. F. Hall.
10404. Part of ancient InnuIt harpoon-head. Repulse Bay. Capt. C. F. Hall.
10273. Handle of whaling-harpoon made of bone and wood. Eskimos. Greenland. Smithsonian Institution.
19519. Handle of whaling-harpoon made of wood and bone. Eskimos. Greenland. Geo. Y. Nickerson.
10265. Whaling-harpoon. Eskimos. Northwest coast. Smithsonian Institution.
19518. Whaling-harpoon of recent manufacture, with head of bone and iron, handle of wood and iron, and seal-skin line. Eskimos. Greenland. Geo. Y. Nickerson.
565. Harpoon-head of bone and iron with walrus-hide line. Eskimos. Port Foulke. Dr. I. I. Hayes.
2186. Seal-harpoon head of bone and iron. Eskimos. Anderson River. R. McFarlane.
13140. Walrus-harpoon head of bone and iron, hide line. InnuIt Eskimos. Greenland. S. F. Baird.
19376. Bone harpoon-head with hide line. Eskimos. Alaska. Rev. James Curley.
11618. Seal-harpoon head of bone. Eskimos. Nunivak Islands, Alaska. W. H. Dall.
15631. Miniature model of seal-harpoon. Eskimos. Alaska. H. W. Elliott.
1678. Miniature model of seal-harpoon. Eskimos. Alaska. W. H. Dall.
- 16120-21-23-25, 5606-7621. Seal-harpoon heads of bone and iron. Eskimos. Nunivak Islands, Alaska. W. H. Dall.
15619. Harpoon-head of bone. Eskimos. Alaska. H. W. Elliott.
2674. Seal-harpoon heads of bone. Anderson River Eskimos. Fort Anderson. R. McFarlane.
- 2092, 2250, 2817, 3975, 5815, 7422, 7440. Seal-harpoon heads of bone and iron. Anderson River Eskimos. Mackenzie's River district. R. McFarlane.
- , Indian harpoons of shell and iron. Whaling-harpoon, used by Makah Indians of Vancouver's Island and vicinity.
4131. Four models of whaling-harpoons, lines and throuts. Makah Indians. Neah Bay, Wash. J. G. Swan.
1869. Head of whaling-harpoon, with line. Makah Indians. Cape Flattery, Wash. Geo. Suckley.
- This harpoon-head is made from the shell of a large species of *Mytilus*, and illustrates the methods of manufacture employed by Indians of the Northwest coast previous to the introduction of metal by the white man.
- 20896-7. Head of whaling-harpoon and line. Makah Indians. Sitka, Alaska. J. G. Swan.
- This harpoon-head is constructed of sheet-iron and shows the method now employed in the manufacture of the weapons. The rope and covers are made from the bark of *Thuja gigantea*.
828. Head of whaling-harpoon with line. Makah Indians. Neah Bay, Wash. Ter. J. G. Swan.



**Spears with detachable heads.**

Eskimo harpoons of stone, bone, and iron.

1868. Head of whaling-harpoon with line. Makah Indians. Neah Bay, Wash. Ter. J. G. Swan.  
 26875-26825. Handles of whaling-harpoons. Makah Indians. J. G. Swan.  
 2530. Harpoon-darts. Eskimos. Alaska. North Pacific Exploring Expedition. Capt. John Rodgers.  
 16675. Harpoon-dart. Kotzebue Sound. W. H. Dall.  
 5775-6-7-9-80. Harpoon-darts. Sitka, Alaska. W. H. Howard. U. S. R. M.

**Harpoon-spears.**

6564. Head of barbed fish-dart, made of native copper. Eskimos. Sitka, Alaska. Dr. T. T. Minor.  
 9083. Head of barbed fish-dart, made of native copper. Alaska. Lieut. F. W. Ring, U. S. N.  
 20653. Head of barbed fish-dart of native copper with line of twisted sinew. Alaska. Smithsonian Institution.  
 21413. Fish-spear with detachable barb. Hoochuon Indians. South Eel River, California. Stephen Powers.  
 Double-pronged spears with detachable heads. McCloud River Indians, Shasta Co., Cal. Livingston Stone. These spears are used in the capture of the *Salmo quinnat*. The handles are thirty feet in length. The barbs are made from the splint bones of deer. See No. 13743, below.  
 19046. Fish-spear with detachable barbs. Cooyunu Pi-Ute Indians. Pyramid Lake, Nevada. Stephen Powers.  
 23522. Two-pronged spear with detachable barbs. Indians of Northwest coast. J. G. Swan.  
 26826. Handle of spear similar to 23522, but longer. J. G. Swan.  
 23520. Spear with many-barbed detachable head and kelp line. Indians of Northwest coast. J. G. Swan.  
 13743. Points for salmon-spear made of the splint bones of the deer. McCloud River Indians. Shasta Co., Cal. Livingston Stone.  
 650. Harpoon-arrows with iron tips. Indians. Cape Flattery, Wash. Ter. Geo. Gibbs.  
 21308. Wooden barbs for fish-harpoon. Indians. Hoopah Valley, Cal. Stephen Powers.  
 2249. Head of fish-harpoon. Eskimos. Anderson River. R. McFarlane.  
 11356. Harpoon-dart with bladder-float. Nashegay Indians. Alaska. Dr. T. T. Minor.

**9. TONGS, &C.**

† *For hand-use.*

**Tongs (with two handles).****Oyster-tongs and oyster-rakes.**

26110. Oyster-tongs. S. Salisbury, Providence, R. I.  
 26109. Oyster-tongs. " "  
 25205. Oyster-tongs. Wilcox, Crittenden & Co., Middletown, Conn.  
 29111. Oyster-nippers. S. Salisbury, Providence, R. I.



**“Nippers”** (with cord and handle).

Snake-tongs.  
Sponge-tongs.  
Coral-tongs.

†† *For use with sounding-lines.*

**“Clamms”** for deep-sea soundings (forceps closed by a weight).<sup>1</sup>

(Ross' “deep-sea clamms.”)  
(Bull-dog sounding-machine.)

\*\*\* *Grasping-lines.*

## 10. NOOSES.

† *Stationary nooses.*

**Jerk-snares.**

Bird-snares.  
Fish-snares of wire, gut, hair, &c.

†† *Thrown nooses.*

**Lariats and lassos.**

11344. Lariat of hide. Apache Indians. General M. C. Meigs, U. S. A.  
8534. Lariat of hide. Sioux Indians. Nebraska. Dr. S. M. Horton, U. S. A.  
1912. Lariat of hide. Sioux Indians. Upper Missouri River. Lieut. G. K. Warren.  
6920. Lariat of hide. Comanche Indians. Fort Cobb, Ind. T. E. Palmer.  
6921. Lariat of hide. Comanche Indians. Llano Estacado, Texas. E. Palmer.  
5559. Lariat of hide. Apache Indians. E. Palmer.  
7492. Lariat of moose-skin. Mackenzie River Indians. Fort Anderson. R. McFarlane.  
11206. Lariat of rope. Pi-Ute Indians. Southern Utah. Maj. J. W. Powell.  
5558. Lariat of buffalo-hair. Apache Indians. E. Palmer.  
7317. Lariat of buffalo-hair. Apache Indians. Maj. W. H. Mills, U. S. A.  
9034. Lariat of buffalo-hair. Nez Percé Indians. Idaho. Dr. E. Storrer.  
6922. Lariat of buffalo-hair. Comanche Indians. Fort Cobb, Ind. Ter. E. Palmer.

## 11. LOADED LINES. (Bolas.)

**Bird-slings** (used by Eskimos).

19507. Bird-sling. Greenland. J. H. Clark. Smithsonian Institution.  
9831. Bird-sling. Greenland. S. F. Baird. “ “  
7444. Bird-sling. McKenzie's River. Fort Anderson, H. B. T. R. McFarlane.  
9831. Bird-sling. Greenland. S. F. Baird.  
7537. Bird-sling. Arctic coast. Fort Anderson, H. B. T. B. R. Ross.

<sup>1</sup>See exhibit of Navy Department.



\*\*\*\**Entangling-lines.*

## 12. TANGLES.

The tangles are employed by naturalists for the purpose of gathering small spiny animals, such as sea-urchins and star-fishes, from the bottom at considerable depths. They adhere to the fibers of the spun-yarn in great numbers. It has been thought that this instrument might advantageously be employed in freeing oyster-beds from their worst enemies, the star-fish.

**Swab-tangles.**

Swab-tangles.

26844. Swab-tangle. U. S. Fish Commission.

(Dredge-tangles, used by English collectors.)

**Harrow-tangles.**

Harrow-tangles.

26845. Models of harrow-tangles. U. S. Fish Commission. Formerly used by the Fish Commission, now replaced by the wheel-tangles.

**Wheel-tangles.**

Wheel-tangles.

26846. Model of wheel-tangle. U. S. Fish Commission.

26848. Wheel-tangles. U. S. Fish Commission.

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### III. MISSILES.

\**Simple missiles (those propelled by the unaided arm).*

## 13. HURLED WEIGHTS.

**Stones and disks** (thrown by the hand).

**Weights** (dropped from an elevation, dead-falls, not automatic).

## 14. HURLED STICKS.

**Straight sticks.**

Clubs used as missiles.

**Curved sticks.**

Throw-sticks, used by the Moqui Indians of New Mexico in hunting rabbits.

9543-4. Throw-sticks. Used in rabbit-hunting by Moqui Indians. New Mexico. Dr. Edward Palmer.



## 15. HURLED SPEARS.

**Darts and lances.**

See under "Lances and spears," above enumerated, many of which may be used as missiles.

\*\* *Centrifugal missiles. (Propelling power augmented by an artificial increase of the length of the arm.)*

## 16. SLINGS AND SPEARS THROWN BY STRAPS.

**Slings.**

9532. Sling. Navajo Indians. Smithsonian Institution.  
17234. Sling. Indians. " "

**Spears (with straps).**

## 17. MISSILES PROPELLED BY "THROWING-STICKS."

**Spears (with throwing-sticks, used by Eskimos).**

See above under "Bird and fish spears," particularly No. 10267, a spear with throwing-stick attached.

7899. Throwing-stick. Eskimos. Aleutian Islands. Dr. T. T. Minor.  
7933. Throwing-stick. Eskimos. Kodiak. "  
16076. Throwing-stick. Eskimos. Unalashka. W. H. Dall.  
2533. Throwing-stick. Eskimos. Alaska. North Pacific Exploring Expedition. Capt. John Rodgers.  
11346-47. Throwing-sticks. Yukon River, Alaska. Vincent Colyer.  
15643. 1642-16243. Throwing-sticks. Eskimos. Nunivak Islands. W. H. Dall.  
2267. Throwing-stick. Eskimos. Smithsonian Institution.  
5774. Throwing-stick. Eskimos. Sitka. W. A. Howard, U. S. R. M.  
20771. Throwing-stick. Eskimos. Sitka. J. G. Swan.

\*\*\* *Missiles propelled by a spring.—(Spring consisting of bent rod.)*

## 18. BOWS AND ARROWS.

**Bows.**

Simple bows.

(Cross-bows.)

(Ballistas.)

These articles are arranged with the Ethnological series, as are also the arrows, with the exception of a few forms peculiarly adapted to hunting.

**Arrows.**

Hunting-arrows.

11350-54. Bird-arrows. Eskimos. Bristol Bay, Alaska. Vincent Colyer.  
16410-11-12. Bird-arrows. Eskimos. Nunivak Islands, Alaska. W. H. Dall.



**Arrows.**

## Hunting-arrows.

- 8827-28-29-30. Bird-arrows. Eskimos. Alaska? Smithsonian Institution.  
 5602. Bird-arrows. Yukon River, Alaska. W. H. Dall.  
 15654. Hunting-arrows. Kodiak Indians. Alaska. W. H. Dall.  
 16413-14-15. Hunting-arrows with heads of bone and iron. Eskimos. Nunivak Islands, Alaska. W. H. Dall.  
 —. Hunting-arrows with bone heads. Eskimos. Nunivak Islands, Alaska. Vincent Colyer.

## Harpoon-arrows, used in fishing.

- 11348-52. Harpoon-arrows. Eskimos. Bristol Bay, Alaska. Vincent Colyer.  
 15677-15681-82. Harpoon-arrows. Eskimos. Nunivak Islands, Alaska. W. H. Dall.  
 19379. Harpoon-arrow. Eskimos. Alaska. Rev. J. Curley.  
 8005-6-9. Harpoon-arrows. Eskimos. Nushegay Indians. Dr. T. T. Minor.

**Accessories of bows and arrows.**

Holders.\*

Quivers.\*

Arrow-head pouches.\*

**Implements of manufacture.**

Flint-chipping apparatus.\*

Arrow-head sharpeners.\*

Shaft-gauges.\*

Cord-twisting apparatus.\*

Shaft-polishers.\*

Glue-sticks, used in fastening head of arrow.\*

Arranged with the Ethnological series.

‡‡ *Spring consisting of elastic cord.*

## 19. INDIA-RUBBER SLINGS.

**Pea-shooters** (used in killing birds).

‡‡‡ *Spring consisting of metallic helix.*

## 20. SPRING-GUNS.

**Spring-guns.**

\*\*\*\* *Missiles propelled by the compression of air or water.*

## 21. AIR-GUNS.

**Blow-guns** (missile propelled by the breath).

Blow-guns carrying arrows.

Blow-guns carrying balls.



**Piston air-guns.****Reservoir air-guns.**

## Air-guns.

29535. Bedford Eureka air-pistol, with darts, slugs, and gun-rest. (Patented Dec. 21, 1875.) Eureka Manufacturing Company, Boston, Mass.

## Air-gun canes.

## 22. WATER-GUNS.

**Syringe-guns.**

## Humming-bird guns.

\*\*\*\* *Fire-arms.*

## 23. GUNS AND PISTOLS.

**Muzzle-loading arms.**

26714. Flint-lock gun (single barrel) old fashion. Smithsonian Institution.

809. Single-barrel shot (?) gun.

Given by Lord Melville to Sir John Franklin, who used it on his unfortunate expeditions in 1820, 1821, and 1822, then given by Sir John to his interpreter, St. Germain, who sold it to Chief Factor Smith, of the Hudson Bay Co., who gave it to his son-in-law, Chief Factor McPherson, from whom it was obtained by B. R. Ross, of the Hudson Bay Co.

**Breech-loading arms.**

25894. Six-shooting shot-gun. Colt's Fire-Arms Manufacturing Company, Hartford, Conn.
25895. Double-barreled breech-loading fowling-piece. E. Remington & Sons, Ilion, N. Y.
25247. Double-barreled breech-loading fowling-piece. Damascus steel, 12 gauge. Parker Bros., Meriden, Conn.
25250. Single-barreled breech-loading shot-gun. (Patented May 26, 1874. Phoenix calibre 12.) Whitney Arms Company, Whitneyville, Conn.
26574. Breech-loading gun. Clark & Sneider, Baltimore, Md.
26573. Breech-loading gun. " " "
29533. The Sneider patent double-barrel breech-loading shot-gun. Clark & Sneider, Baltimore, Md.
29534. The Sneider double-barrel breech-loading shot-gun; solid tip grip. (Patented Dec. 22, 1868; April 7, 1874.) Clark & Sneider, Baltimore, Md.
25896. Creedmoor rifle. E. Remington & Sons, Ilion, N. Y.
- . Mid-range rifle. Peabody & Martin pattern (44 cal., 100 grs.), made by Providence Tool Co. Schuyler, Waltham & Graham, New York.
25890. Sporting-rifle. King's improvement. (Patented March 29, 1866; October 16, 1860. Model, 1873. Calibre .44.) Winchester Repeating Arms, New Haven, Conn.
22202. Sharpe's rifle. (Patented April 1, 1866.) Manufacturers.
- 29289-311. Maynard's rifle with appurtenances. (Pistol grip, vernier rear-sight. Front wind-gauge sight and spirit-level; 32 inches, .4 calibre.) Massachusetts Arms Company, Chicopee Falls, Mass.



**Breech-loading arms.**

29299. Shot-barrel for Maynard's rifle; 32 inches, .64 calibre. Massachusetts Arms Company, Chicopee Falls, Mass.
25873. Six-shooting rifle; 44-inch calibre. Colt's Fire-Arms Manufacturing Company, Hartford, Conn.
25889. Carbine. King's improvement. (Patented March 29, 1866; October 16, 1860. Model 1873. Calibre, .44.) Winchester Repeating Arms, New Haven, Conn.
25248. Breech-loading sporting-rifle. (Patented October 17, 1866. Reissued June 25, 1872; Dec. 26, 1865. Reissued Oct. 1, 1867; May 15, 1866; July 16, 1872.) Whitney Arms Company, Whitneyville, Conn.
25249. Breech-loading sporting-rifle. Phoenix calibre, 44. Whitney Arms Company, Whitneyville, Conn.
25892. Six-shooting revolver. 45 calibre. (Patented Sept. 19, 1871; July 2, 1872.) Colt's Fire-Arms Manufacturing Company, Hartford, Conn.

**Whaling-guns.**

24986. C. C. Brand's improved whaling-gun. Patented June 22, 1852. For use with C. C. Brand's improved bomb-lance. 24987. Powder-flask with charger. 24988. Wad-cutter. 24989. Wad-cutter (inside). 24992. Prepared wads. 24990, 24991. Screw-drivers. C. C. Brand, Norwich, Conn.
- 24993-97. C. C. Brand's improved bomb-lance. Patented June 22, 1859. For use with C. C. Brand's improved whaling-gun. 24997. Exploded lance. 24998. Lance-hook (for drawing charge). C. C. Brand, Norwich, Conn.
25251. E. Pierce's harpoon-gun. Patented 1865. U. S. Fish Commission.
26897. Cunningham & Hogan's breech-loading bomb-gun, with explosive lances. William Lewis, New Bedford, Mass.

## 24. (ACCESSORY.) AMMUNITION AND ITS PREPARATION.

**Explosives.**

Gunpowder.

Gun-cotton.

Percussion powder:

Caps.

Needle percussion.

Primers.

Wood powder.

Dynamite or giant-powder.

Nitroglycerine.

Dualine.

Lithofracteur.

Colonia powder.

Other explosives.

For obvious reasons this series could not be exhibited.



**Missiles.**

Bullets.

(Accessory.) Bullet-molds.

29300. Pair of molds for conical and cylindrical bullets. Massachusetts Arms Company, Chicopee Falls, Mass.

Shot.

— Series of samples of shot, sizes from No. 000 to No. 12. Thomas Sparks, Philadelphia, Pa.

Explosive bullets, shells, &c.:

Bomb-lance.

**Wadding.**

Bulk wadding.

Prepared wads.

(Accessory.) Wad-cutters.

The articles of this class may be seen in connection with the ammunition series.

**Ammunition-measures.**

Measures.

Shot-measures.

Powder-measures.

} Attached to pouches and separate.

16190. Powder-charger. Nunivak Islands, Alaska. W. H. Dall.

2689. Gun-charger. Indians of Northwest coast. Captain Wilkes, U. S. N. U. S. Exploring Expedition.

Weighing scales.

**Prepared ammunition.**

Ball, shot, and wire cartridges.

25891. Card of rim-fire cartridges. Winchester Repeating Arms, New Haven, Conn.

29304. Ten metallic cartridge-shells, .4, for rifle. Massachusetts Arms Company, Chicopee Falls, Mass.

29305. Ten metallic cartridge-shells, .64, for shot-guns. Massachusetts Arms Company, Chicopee Falls, Mass.

**Methods of preparing cartridges.**

Loaders, crimpers, and cappers.

29303. Metallic loader for rifle-cartridge. Massachusetts Arms Company, Chicopee Falls, Mass.



**Methods of preparing cartridges.**

Loaders, crimpers, and cappers.

29302. Rosewood loader for shot-cartridge. Massachusetts Arms Company, Chicopee Falls, Mass.  
 29308. Two rosewood loading-blocks. Massachusetts Arms Company, Chicopee Falls, Mass.  
 25897. Cartridge-loading machine. E. Remington & Sons, Ilion, N. Y.  
 29306. Cartridge-capper. Massachusetts Arms Company, Chicopee Falls, Mass.

**25. ACCESSORIES OF LOADING, CLEANING, AND REPAIRING, SIGHTING, AND TESTING FIRE-ARMS.****Instruments for cleaning, loading, &c.**

Rammers.

Swabs.

Charge-drawers—"worms"—and other loading tools.

These may be seen attached to the various wrappers.

29307. Wrench and cap-picker. Massachusetts Arms Company, Chicopee Falls, Mass.  
 29311. Rod and tip for cloth, plain. Massachusetts Arms Company, Chicopee Falls, Mass.  
 29310. Jointed rod and brush. Massachusetts Arms Company, Chicopee Falls, Mass.  
 29309. Screw-driver. Massachusetts Arms Company, Chicopee Falls, Mass.  
 7525. Gun-screw-driver. Apache Indians. Arizona. E. Palmer.  
 26695. Loading-tools. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.  
 26696. Closer. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.  
 29251. Oil-bottle, nickel (No. 1). Edwin W. Judge, New Haven, Conn.  
 29252. Oil-bottle, nickel (No. 2). " "  
 26698. Oil-can. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.

**Sights, &c.**

Muzzle-sights.  
 Slit-sights.  
 Globe-sights.  
 Peep-sights.  
 Breech-sights.  
 Plain-sights.  
 Graduating-sights.  
 Telescope-sights.  
 Levels, attached to guns.  
 Wind-gauges.

These may be seen attached to the guns.



**Recoil-checks.**

25700. William D. Miller's patent recoil-check for shot-guns and rifles. (Patented Nov. 2, 1875, No. 52.) A. J. Norman, New York. Advantages claimed for this arrangement are that it repels and neutralizes the recoil, permits steadier aim, and insures increased range and greater penetration.

## 26. FOR CARRYING ARMS AND AMMUNITION.

**Ammunition-holders.**

## Powder-horns:

Horns.

Flasks.

Canisters.

1910. Powder-horn. Sioux Indians. Upper Missouri River. Lieut. G. K. Warren, U. S. A.
1472. Powder-horn. Comanche Indians. General D. N. Couch, U. S. A.
16309. Powder-horn. Sitka, Alaska. W. H. Dall.
1909. Powder-horn and pouch. (Containing bullets, gun-flints, and arrow-points.) Sioux Indians. Upper Missouri River. Lieut. G. K. Warren, U. S. A.
5520. Powder-horn. Papago and Apache Indians. E. Palmer.
21672. Powder-horn and pouch. Yankton Sioux. Dakota. Army Medical Museum. Dr. J. T. Boughter.
26706. Cartridge-box. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.
26703. Cartridge-flask. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.
7313. Powder-flask. Apache Indians. Major Mills, U. S. A.
13035. Powder-flask. Lieut Eskimos. Ounalashka. W. H. Dall.
16099. Powder-flask. Magemut Eskimos. Nunivak Islands, Alaska. W. H. Dall.
9290. Powder-flask. Alaska. Dr. A. H. Hoff, U. S. A.
5184. Powder-flask. Porterre Indians. Dr. J. T. Rothrock, U. S. A.
16292. Powder-flask. Kodiak Eskimos. Chirikoff. W. H. Dall.

**Shot and bullet holders.**

## Pouches.

- Shot-pouch. Found in old house, Saint Regis, N. Y. R. B. Hough.
20673. Shot-pouch. Indians of the Northwest coast. Fort Simpson, B. C. J. G. Swan.
9641. Bullet-pouch. Navajo Indians. E. Palmer.
11077. Bullet-pouch. Navajo Indians. Northwestern New Mexico. Vincent Colyer.
2112. Bullet-pouch. Indians of Upper Missouri. War Department, U. S. A.
6199. Bullet-pouch and belt. Delaware Indians. Arizona. E. Palmer.
2470. Bullet-pouch and belt. Indians of Missouri Valley. War Department, U. S. A.
5432. Bullet-pouch and belt. J. Varden.
26699. Ball-box. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.
1935. Bullet-pouch and belt. Indian.



**Shot and bullet holders.**

## Cap-holders.

5525. Cap-case. Apache Indians. Arizona. E. Palmer.  
 26697. Cap-box. Property of J. A. Nichols, Syracuse, N. Y. Contributed  
 by Forest & Stream Publishing Company.

Pouches.

Boxes.

Cap-straps, used by Indians.

## Cartridge-holders:

Pouches.

Boxes.

Belts.

Vests.

**Weapon-holders.**

## Slings for arms:

Shoulder-slings.

Saddle-slings.

Holsters.

## Belts:

Pistol-belts.

## Racks and cases:

Gun-racks.

Gun-cases.

8546. Gun-case. Indians. Ogalalla, Nebr. Dr. S. M. Horton, U. S. A.  
 14849. Gun-case. Indian. Colorado. Maj. J. W. Powell.  
 26705. Gun-case. Property of J. A. Nichols, Syracuse, N. Y. Contributed  
 by Forest and Stream Publishing Company.  
 26704. Gun-case. Property of J. A. Nichols, Syracuse, N. Y. Contributed  
 by Forest and Stream Publishing Company.

**IV. BAITED HOOKS. ANGLING-TACKLE.**

## 27. HOOKS WITH MOVABLE LINES.

**Tackle for surface-fishing.**

Fly-fishing tackle.

Salmon-tackle.

Trout-tackle.

Black-bass tackle.

Shad-tackle.



**Tackle for surface-fishing.**

## Trolling-tackle:

- Trolling-tackle.
- Whiffing-tackle.
- Drailing-tackle.
- Gangs of hooks for minnow-bait.

The parts of these gears may be seen in their proper places, with hooks, lines, &c.

26683. Minnow-gang. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest and Stream Publishing Company.

## Surf-tackle for throwing and hauling.

- Striped-bass tackle.
- Red-fish or bass tackle.
- Blue-fish tackle.
- Tide-drailing tackle.
- Pasque and Cuttyhunk bass-tackle.

- 24808-9. Blue-fish line. Rigged with eel-skin squids. J. M. K. Southwick, Newport, R. I.

- 24802-7. Blue-fish lines. Rigged with cloth squid. Block Island. J. M. K. Southwick, Newport, R. I.

**Tackle for fishing below the surface.**

## Short hand-gear.

25684. Mackerel-lines and cleats. Bradford & Anthony, Boston, Mass.
25940. Mackerel hook and line. A. McCurdy.
29293. "Otter," with line and flies attached. Used in lake and river fishing. William Morris, Lake City, Minn.
19047. Throw-line with minnow-hooks. Cooyuwee Pi-Utes. Pyramid Lake, Nevada. Stephen Powers.

## Deep-sea gear.

25786. Hand-line gear for halibut and cod. Used in George's Banks fisheries. Alexander McCurdy, East Gloucester, Mass.
25687. Gear, used by American fishermen on George's Banks. Bradford & Anthony, Boston, Mass.
29471. Hand-line gear. Used in George's Banks cod and halibut fisheries. A. McCurdy, East Gloucester, Mass.
29483. Cod-fishing gear. Used from 1812-1830. Lemuel Cook, 2d, Provincetown, Mass.
25686. Cod hand-line and gear. Used chiefly on Western and Grand Banks of Newfoundland. Bradford & Anthony, Boston, Mass.
25685. Pollock line and gear. Bradford & Anthony, Boston, Mass.
- 24810-11. Rigged tautog-lines. J. M. K. Southwick, Newport, R. I.
25665. Lines. Rigged for pond-fishing. Wm. M. Young, Philadelphia, Pa.
- .1140. Halibut-hook, with kelp line. Makah Indians. Puget Sound, W. T. J. G. Swan.



**Tackle for fishing below the surface.**

Deep-sea gear:

Flounder-gear.

Shark-gear.

Other bottom-gear.

Bobs:

Eel-bobs.

## 28. HOOKS, WITH STATIONARY LINES.—SET TACKLE.

**Surface lines.**

Spilliards, or floating-trawl lines.

**Bottom-set lines.**

Trawl-lines, or bull-tows.

25688. Model of codfish-trawl, used by American fishermen on Western and Grand Banks of Newfoundland. Buoys, scale of one-sixth; anchors, scale of one-fifteenth. Bradford & Anthony, Boston, Mass.

29469. Section (one-fifth) of trawl-line. Used in George's Banks codfisheries. A. R. Crittenden, Middletown, Conn.

6560. Trawl-line and hooks. Indians of Vancouver's Island. Dr. T. T. Minor.

32705. One section or "skate" of a halibut trawl-line with (No. 32706) inner buoy with flag, (No. 32707) outer buoy with "black-ball," (No. 32708) buoy-line, and (No. 32709) anchor. Capt. Jos. W. Collins and Philip Merchant, Gloucester, Mass.

**Set-traps.**

25562. Pickerel-traps. With lines and flags for fishing through the ice. Bradford & Anthony, Boston, Mass.

25563. Set of implements for smelt-fishing through the ice.

25667. Fishing-bows. W. M. Young, Philadelphia, Pa.

## 29. (ACCESSORY.) PARTS AND ACCESSORIES OF ANGLING-APPARATUS AND OF HARPOON AND SEINE LINES.

**Hooks** (including a full series of unmounted hooks, of recent and aboriginal manufacture).

**Plain hooks.**

25682. The ten processes through which American hand-made fish-hooks pass from the wire to the finished hook. Made entirely by hand-labor in the factory of J. W. Court, Brooklyn, N. Y. Bradford & Anthony, Boston, Mass.

25524. Double-refined, cast-steel, tapered point; Virginia hooks, flatted, Nos. 10 to 1 and 1-0 to 3-0. American Needle and Fish-Hook Company, New Haven, Conn.

25535. Superfine cast-steel blackfish-hooks, japanned, flatted, Nos. 1 to 8. American Needle and Fish-Hook Company, New Haven, Conn.



**Hooks** (including a full series of unmounted hooks, of recent and aboriginal manufacture).

## Plain hooks.

25536. Eel-hooks, No. 6. American Needle and Fish-Hook Company, New Haven, Conn.
25640. Halibut-hooks, ringed; Nos. 1 to 3. American Needle and Fish-Hook Company, New Haven, Conn.
25528. Cast-steel Kirby sea fish-hooks, flatted; Nos. 1 to 12. American Needle and Fish-Hook Company, New Haven, Conn.
25530. Cast-steel Kirby sea fish-hooks, ringed; Nos. 1 to 12.
25529. Superior cast-steel Kirby sea fish-hooks, galvanized, flatted; Nos. 1 to 8. American Needle and Fish-Hook Company, New Haven, Conn.
25522. Double-refined cast-steel Kirby river and trout fish-hooks, ringed; Nos. 1 to 12 and 1-00 to 10-0. American Needle and Fish-Hook Company, New Haven, Conn.
25523. Kirby river and trout fish-hooks, flatted, extra superfine; Nos. 1 to 12 and 1-0 to 10-0. American Needle and Fish-Hook Company, New Haven, Conn.
25519. Superfine spring steel Kirby salmon, flatted; Nos. 12 to 3-0. American Needle and Fish-Hook Company, New Haven, Conn.
25520. Carlisle trout-hooks, flatted; Nos. 12-20. American Needle and Fish-Hook Company, New Haven, Conn.
25521. Carlisle trout-hooks, ringed; Nos. 8 to 3-0. American Needle and Fish-Hook Company, New Haven, Conn.
25516. Superfine cast-steel Limerick salmon, flatted; Nos. 1-0 to 12 and 2-0 to 10-0. American Needle and Fish-Hook Company, New Haven, Conn.
25517. Superfine cast-steel Limerick salmon, ringed; Nos. 1-0 to 9 and 2-0 to 10-0. American Needle and Fish-Hook Company, New Haven, Conn.
25514. Double-refined cast-steel Limerick river and trout fish-hooks (spear-points, flatted); Nos. 1-0 to 12 and 2-0 to 10-0. American Needle and Fish-Hook Company, New Haven, Conn.
25515. Double-refined cast-steel Limerick river and trout fish-hooks (spear-head points, flatted, shanks ringed); Nos. 1-0 to 12 and 2-0 to 10-0. American Needle and Fish-Hook Company, New Haven, Conn.
25518. Extra spring-steel Aberdeen trout-hooks, flatted; Nos. 8 to 4-0. American Needle and Fish-Hook Company, New Haven, Conn.
25525. Superfine spring-steel Kinsey trout-hooks, flatted; Nos. 6 to 16. American Needle and Fish-Hook Company, New Haven, Conn.
25591. Superfine steel Kinsey trout-hooks, ringed; Nos. 10 to 16. American Needle and Fish-Hook Company, New Haven, Conn.
25534. Cast-steel drop-point mackerel-hooks, large and small wire, flatted; Nos. 1 A to 5 A, and 2 B to 4 B. American Needle and Fish-Hook Company, New Haven, Conn.
25527. Superfine cast-steel J. P. cod-hooks, ringed; Nos. 1 to 8. American Needle and Fish-Hook Company, New Haven, Conn.
25526. Superfine cast-steel J. P. cod-hooks, flatted; Nos. 1 to 8. American Needle and Fish-Hook Company, New Haven, Conn.
25532. Central-draught codfish-hooks, eyed; Nos. 10 to 17. American Needle and Fish-Hook Company, New Haven, Conn.
25533. Double-refined cast-steel, original, central-draught cod or mackerel hooks, ringed; Nos. 12 to 20. American Needle and Fish-Hook Company, New Haven, Conn.



**Hooks** (including a full series of unmounted hooks, of recent and aboriginal manufacture).

## Plain hooks.

25531. Double-refined cast-steel, original, central-draught cod or mackerel hooks, flatted. American Needle and Fish-Hook Company, New Haven, Conn.
25601. Cod-hooks. Used when fish rise to the surface. J. M. K. Southwick, Newport, R. I.
25538. Shark-hooks. Bradford & Anthony, Boston, Mass.
29465. Shark-hooks. M. W. Grant, Wellfleet, Mass.
25648. Shark-hook. (Extraordinary.) A. R. Crittenden, Middletown, Conn.
29464. Ground-shark hook. Style used forty years ago. Elisha Cook, Provincetown, Mass.
25602. Dog-fish hook with chain. Used at Newport, R. I. J. M. K. Southwick, Newport, R. I.
25641. Dog-fish hooks, ringed. American Needle and Fish-Hook Company, New Haven, Conn.
29467. Horse-mackerel hook. John Thomas, Belfast, Me.
29505. Hooks, probably lost by a French fishing-vessel. Found on St. George's Banks on a piece of trawl; fished up by Geo. H. Lewis, Provincetown, Mass.
32732. French cod-hooks; taken from codfish on Jeffries Ledge. Capt. James Tarr, Gloucester, Mass.
32731. French cod-hook; taken from codfish in Salvages' Shoals, Cape Ann, in 1856. Capt. James Tarr, Gloucester, Mass.
20654. Wooden fish-hooks. Indians of Northwest coast. Bella Bella, B. C. J. G. Swan.
- Fish-hooks. Indians of Northwest coast of America. Straits of Fuca, Puget Sound. U. S. Exploring Expedition.
1051. Fish-hooks. Puget Sound. George Gibbs.
9765. Fish-hook. Wallapai Indians. E. Palmer.
5583. Fish-hook of wood and bone. Gens des Fous Indians. Yukon River, Alaska. W. H. Dall.
9807. Fish-hook and line. Chilkah Indians. Alaska. Lieut. F. W. Ring, U. S. A.
5590. Fish-hooks and sinkers. Premorska Indians. St. Michael's, Alaska. W. H. Dall.
19064. Fish-hooks. Cooyuwee Pi-Ute Indians. Pyramid Lake, Nev. Stephen Powers.
20651. Fish-hook. Bella Bella, B. C. J. G. Swan. Indian make.
9270. Halibut-hook. Alaska. Dr. Hoff, U. S. A. " "
- Halibut-hook. Sitka, Alaska. J. G. Swan. " "
- 9103-4. Halibut-hooks. Alaska. Lieut. F. W. Ring, U. S. A. " "
1141. Butt-end of hemlock limb for making halibut-hook. Makah Indians. Puget Sound, W. T. J. G. Swan.
16346. Halibut-hooks. Yakutat Eskimo. W. H. Dall.
2630. Fish-hook. Northwest coast of America. Capt. Chas. Wilkes, U. S. N. U. S. Exploring Expedition.
1324. Hooks and lines. Eskimo. Anderson River. C. P. Gaudet.
1989. Fish-hook. Arctic America. B. R. Ross.
5118. Fish-hook. Anderson River Eskimos. Mackenzie's River district. R. Kennicott.
5116. Fish-hook. Fort Anderson Eskimos. Mackenzie's River district. R. MacFarlane.
26822. Fish-line of kelp (*Nereocystis*), fish-hook, and bladder buoy. Makah Indians. Neah Bay. J. G. Swan.



**Hooks** (including a full series of unmounted hooks, of recent and aboriginal manufacture).

## Plain hooks.

9807. Fishing line and hook. Chilkat Indians. Alaska. Lieut. F. W. Ring, U. S. A.
15630. Bone fish-hook with whalebone snood. Alaska. H. W. Elliott.
16315. Fish-hook. Sitka. W. H. Dall.
652. Halibut-hooks. Indians of Northwest coast of America. George Gibbs.
20656. Halibut-hooks. Indians of Fort Simpson, B. C. J. G. Swan.
15635. Fish-hooks. Eskimos. Poonook, Alaska. H. W. Elliott.
10142. Fish-hooks. Eskimos. Victoria Harbor. Capt. C. F. Hall.
14280. Fish-hooks. Neah Bay, W. T. James G. Swan.
16116. Bone hook. Magemut Eskimos. Nunivak, Alaska. W. H. Dall.
16311. Fish-hooks. Nunivak Islands, Alaska. W. H. Dall.
1051. Fish-hooks. Capt. Chas. Wilkes, U. S. N. U. S. Exploring Expedition.
10219. Codfish-hook. Eskimos. Coast of Greenland. Capt. C. F. Hall.
- 2191-92. Fish-hooks of stone, bone, and iron. Fort Anderson Eskimos. Mackenzie's River district. R. Kennicott.
- 2093, 2248. Fish-hooks of bone and iron. Anderson River Eskimos. R. MacFarlane.
- 16311-12. Bone hooks and line spreaders. Thlinket Eskimos. Sitka, Alaska. W. H. Dall.
- 5118-7441. Hooks of bone and iron. Mackenzie's River Eskimos. R. MacFarlane.
32660. Smelt-spreader and hooks. Gloucester, Mass. G. Brown Goode.

## Jigs and drails.

29448. Bass and bluefish drail. Elisha Cook, Provincetown, Mass.
29425. Bluefish-drail. Provincetown style. Lemuel Cook, 2d, Provincetown, Mass.
25555. Bluefish-drails. Bradford & Anthony, Boston, Mass.
29485. Bluefish-drail. Used in Wellfleet, Mass., about 1830. Newell B. Rich, Wellfleet, Mass.
25555. Bluefish-drails. Bradford & Anthony, Boston, Mass.
- . Bluefish-hooks. Collected by A. R. Crittenden, Middletown, Conn.
25550. Bluefish-drail. Bradford & Anthony, Boston, Mass.
25771. Bluefish-drails. (Made in the form of a squid and very killing.) Peculiar to Provincetown, Mass. Coleman Cook, Provincetown, Mass.
25553. Bluefish-drail. Wm. H. Young, Brooklyn, N. Y.
25669. Bluefish-drail. Peculiar to Hyannis, Mass. Freeman Hallett, Hyannis, Mass.
25671. Bluefish-drail. Peculiar to Chatham, Mass. Sanford Freeman, Norwichport, Mass.
- 25671 (?) Bluefish-drail. J. H. Bartlett & Sons, New Bedford, Mass.
25537. Series of hollow bone bluefish-squids. Nos. 1 to 3. American Needle and Fish-Hook Company, New Haven, Conn.
25668. Bluefish-drail. Peculiar to Harwichport, Mass. Sanford Freeman, Norwich, Mass.
25708. Bluefish-drail. Central Wharf Company, Provincetown, Mass.
25598. Bluefish-drail. J. M. K. Southwick, Newport, R. I.
25670. Bluefish-drail. Made at sea from jaw-bone of sperm-whale (*Physeter macrocephalus*). J. H. Bartlett & Son, New Bedford, Mass.



**Hooks** (including a full series of unmounted hooks, of recent and aboriginal manufacture).**Jigs and drails.**

25669. Bluefish-drail. Peculiar to Hyannis, Mass. Freeman Hallett, Hyannis, Mass. When used, covered with an eel-skin.
25600. Weak-fish jigs. Used in Newport, R. I. J. M. K. Southwick, Newport, R. I.
9078. Metallic squid. Indians. Alaska. Lieut. F. W. Ring, U. S. A.
32657. Cahoon's improved trolling-hooks. (Patented March 24, 1874.) Thomas J. Gifford & Co., New Bedford, Mass.
12496. Mackerel-jigs. Cape Ann. J. P. Nason, Rockport, Mass.
32658. Mackerel-jig. Gloucester, Mass. G. Brown Goode.
29479. Mackerel-jig. John B. Parsons, Rockport, Mass.
32734. Mackerel-jigs. Used thirty years ago. A. McCurdy, Gloucester, Mass.
25599. Mackerel-jigs. J. M. K. Southwick, Newport, R. I.
25941. Mackerel-jigs. Used about the year 1840. Capt. Edward L. Rowe, Gloucester, Mass.
12495. Soapstone "jig" molds, No. 1. (Patented March 15, 1870.) Cape Ann. J. P. Nason, Rockport, Mass.
25780. Soapstone mackerel-jig mold. Capt. E. L. Rowe, Gloucester, Mass.
- 25781-2. Wooden, lead-lined, mackerel-jig molds. "
25721. Mackerel-jig mold. (Patented March 15, 1870; J. P. Nason, No. 2.) Central Wharf Company, Provincetown, Mass.
32656. Mackerel-jig mold. Gloucester, Mass. G. Brown Goode.
32654. Mackerel-jig ladle. " "
32661. Mackerel-jig rasp. " "
32662. Mackerel-jig file. " "
32663. Pewter for use in manufacture of jigs. Gloucester, Mass. G. Brown Goode.
29461. Codfish "trip" and "fly-jig." Styles used fifty years ago. Lemuel Cook, 2d, Provincetown, Mass.
25601. Codfish jig-hook. Used when the fish rise from the bottom. Massachusetts. A. R. Crittenden, Middletown, Conn.

**Spoon-baits, plain and fluted.**

25550. Fluted spoons for pickerel, bass, and trout. Manufactured by G. M. Skinner, Gananoque, Ontario. Patented United States and Canada, 1874. Bradford & Anthony, Boston, Mass.
25550. Trolling-spoons. For bass and pickerel. Bradford & Anthony, Boston, Mass.
25555. Bluefish-spoons. Bradford & Anthony, Boston, Mass.
25550. Spinners. For pickerel, trout, and bass fishing. Bradford & Anthony, Boston, Mass.
25549. Spoon-baits. For bass, pickerel, pike, and trout fishing (nickel-plated). John H. Mann, Syracuse, N. Y.
25551. Spoon-baits. For bass, pike, pickerel, and trout (silver-plated). J. T. Buel, Whitehall, N. Y.
25552. Spoon-baits. For pike, pickerel, bass, trout, and bluefish. Wm. H. James, Brooklyn, N. Y.
25553. Spoon-baits. For pike, bass, pickerel, and trout fishing. Wm. H. James, Brooklyn, N. Y.
26793. Series of fluted trolling-spoons. D. M. Skinner, Gananoque, Ontario, Canada.
26685. Spoon-hooks. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.



**Hooks** (including a full series of unmounted hooks, of recent and aboriginal manufacture).

## Spoon-baits, plain and fluted.

26690. Trout-spoon. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest and Stream Publishing Company.  
 25554. Spoon-baits. For pike, pickerel, bass, and trout. W. D. Chapman & Son, Theresa, N. Y.  
 25666. Pearl minnows. W. M. Young, Philadelphia, Pa.  
 25550. MacHarg's pearl spoons. For pickerel, trout, and bass. Bradford & Anthony, Boston, Mass.

## Artificial flies on hooks.

32735. Bass-flies. Sara J. McBride, Mumford, N. Y.  
 32736. Trout-flies. " "  
 26105. Salmon-flies. " "

## 32737. Artificial flies for salmon, trout, and bass. Bradford &amp; Anthony, Boston, Mass.

NOTE.—For convenience this entire collection is provisionally entered under a single catalogue number.

- a. Peacock, with water-color sketch of original.  
 b. March Brown, with water-color sketch of original.

Body—Fur of the fox-squirrel's face ribbed over with olive silk. Tail—Two strands of brown feather of the wild mallard. Wings—From the side feather of the shoveller duck approaching the tail; the light yeast-colored feather is the best, and if nicely tied must be an excellent fly. Legs—A grizzled cock's hackle, wound twice or thrice at the shoulder. For Pennsylvania, hooks Nos. 6 to 8; for New York, hooks Nos. 5 and 6; New England, hooks Nos. 4 and 5.

- c. Great Red Spinner, with water-color sketch of original.  
 d. Water-cricket, with water-color sketch of original.  
 e. Great Dark Drone, with water-color sketch of original.  
 f. Cow-dung.

Body—Yellow mohair mixed with a little dingy brown fur from the bear. Wings—From the quill-feather of the curlew or whimbrel. Legs—Of a ginger-colored cock's hackle. For Pennsylvania, hooks Nos. 8 to 10; for New York, hook No. 8; for New England, hook No. 6.

- g. Red Fly, with water-color sketch of original.

Body—The red part of squirrel's fur mixed with an equal quantity of claret mohair. Wings—The softest quill-feather of the pea-hen's wing. Legs—Claret-colored hackle; clip some of the upper fibers off that the wings may lie flat. For Pennsylvania, hook No. 6; for New York, hook No. 4; for New England, hook No. 3.

- h. Blue Dun, with water-color sketch of original.

Body—Fur of a gray squirrel spun very thinly on fine yellow silk. Tail—Two fibers of a dun hackle. Wings—From a quill-feather of the blue-jay. Legs—Two or three turns of a ginger-dun hackle at the shoulder helps to keep the wings upright. For Pennsylvania, hook No. 6; for New York, hook No. 5; for New England, hook No. 4.



**Hooks** (including a full series of unmounted hooks, of recent and aboriginal manufacture).

32737. Artificial flies for salmon, trout, and bass—Continued.

*i.* Red Spinner, with water-color sketch of original.

Body—Bright brown silk ribbed, with fine gold twist. Tail—Two fibers of red cock's hackle. Wings—Upright from a mottled gray feather of the mallard stained a pale blue, the brighter in color the better. Legs—Plain red cock's hackle. For Pennsylvania, hook No. 6; for New York, hook No. 5; for New England, hook No. 4.

*j.* Nicholson.

*k.* Black Dog.

*l.* Atkinson.

*m.* Policeman.

*n.* Claret Wasp.

*o.* Blue Wasp.

*p.* Wren-tail, with water-color sketch of original.

Body—Ginger-colored fur ribbed with gold twist. Wings—Feathers from a wren's tail; if these cannot be procured a small scapular feather of the woodcock makes a good imitation, and may be hackled with the same kind of feather. For Pennsylvania, hook No. 10; for New York, hook No. 8; for New England, hook No. 6.

*q.* Red Ant, with water-color sketch of original.

Body—Peacock's herl tied with red-brown silk. Wings—From the quill-feather of the blue-jay. Legs—A small red cock's hackle.

*r.* Silver Horns, with water-color sketch of original.

*s.* Golden-dun Midge, with water-color sketch of original.

*t.* Sand-fly, with water-color sketch of original.

Body—Of the sandy-colored fur from the rabbit's neck or from the fox-squirrel spun on silk of the same color. Wings—From the whimbrel wing made full. Legs—From a light-ginger feather from the neck of a hen. For Pennsylvania, hooks Nos. 6 to 8; for New York, hooks Nos. 5 and 6; for New England, hooks Nos. 4 and 5.

*u.* Stone-fly, with water-color sketch of original.

Body—Fur of the gray squirrel, when it is shortest is best, mixed with a little yellow mohair, leaving yellow about the tail. Tail—A strand or two of brown mottled feathers, say of mallard. Wings—From the soft inside feather of the pea-hen's wing. Legs—Blue-dun cock's hackle. For Pennsylvania, hooks Nos. 6 to 8; for New York, hooks Nos. 5 and 6; for New England, hooks Nos. 4 and 5.

*v.* Gravel-bed, with water-color sketch of original.

Body—Dark dun or lead-colored silk floss dressed very fine. Wings—From a covert-feather of the woodcock's wing. Legs—A black cock's hackle, rather long, wound twice only round the body. For Pennsylvania, hooks Nos. 8 to 10; for New York, hooks Nos. 6 to 8; for New England, hooks Nos. 5 and 6.



**Hooks** (including a full series of unmounted hooks, of recent and aboriginal manufacture).

32737. Artificial flies for salmon, trout, and bass—Continued.

*w.* Grannum, with water-color sketch of original.

Body—Fur of a rabbit's face with a little fine green mohair worked in at the tail. Wings—From the inside wing-feather of a grouse. Legs—A pale ginger hen's hackle. For Pennsylvania, hooks Nos. 8 to 10; for New York, hooks Nos. 6 to 8; for New England, hooks Nos. 5 and 6.

*x.* Yellow Dun, with water-color sketch of original.

Body—Yellow mohair mixed with a little pale blue from a mouse or yellow floss silk with the least blue rabbit fur spun upon it. Wings—Upright, from the inside wing-feather of a mallard or summer duck. For Pennsylvania, hook No. 10; for New York, hook No. 8; for New England, hooks Nos. 5 and 6.

*y.* Iron-blue Dun, with water-color sketch of original.

*z.* Hawthorn, with water-color sketch of original.

Body—Black ostrich's herl. Wings—From the quill-feather of the English snipe. Legs—A black cock's hackle. For Pennsylvania, hooks Nos. 8 to 10; for New York, hooks Nos. 6 to 8; for New England, hooks Nos. 5 and 6.

*aa.* Jenny Spinner, with water-color sketch of original.

*ab.* Dennison.

Body—Green floss silk ribbed with silver twist. Tail—Orange-tipped fibres of tippet, wood-duck, ibis, and green parrot. Legs—A golden yellow hackle. Wings—Of the following kinds: wood-duck, tippet, brown mallard, bustard, green parrot, blue and yellow macaw, with a few strands of red macaw; black ostrich head. Hooks Nos. 1, 2, and 3.

*ac.* Deacon.

Body—Bright yellow seal's fur ribbed with silver tinsel backed with gold twist. Tail—Sprigs of gray mallard and ibis. Legs—Bright yellow hackle. Wings—Strips of gray mallard dressed full; black ostrich head. Hooks Nos. 2 and 3.

*ad.* Montreal.

Body—Claret mohair ribbed with gold tinsel. Tail—Three of four fibres of scarlet ibis. Legs—Claret hackle. Wings—Brown turkey. Hooks Nos. 1, 2, and 3.

*ae.* Rangely.

Body—Dark claret mohair ribbed with gold tinsel. Tail—Fibres of wood-duck and ibis. Legs—Dark claret hackle. Wing—Strips of wood-duck mixed with sprigs of scarlet ibis. Hooks Nos. 1, 2, and 3.

*af.* Tinselled Ibis.

Body—Silver tinsel ribbed with gold twist. Tail—A slip of wood-duck mixed with ibis. Legs—A covert wing-feather of the ibis. Wings—Strips from the large covert-feather of the ibis (the wing may be varied, adding a slip of wood-duck on each side); black ostrich head. Hooks Nos. 1, 2, and 3.



**Hooks** (including a full series of unmounted hooks, of recent and aboriginal manufacture).

## 32737. Artificial flies for salmon, trout, and bass—Continued.

*ag.* Lake George.

Body—Gold twist ribbed with silver twist. Tail—A small China topping. Legs—A bright orange hackle with a shoulder of bright claret. Wings—Two tippet feathers mixed with argus pheasant, brown mallard; black ostrich head. Hooks Nos. 1, 2, and 3.

*ah.* Chateaugay.

Body—Lemon-yellow floss ribbed with gold twist. Tail—A few fibres of brown mallard. Legs—A ginger-colored cock's hackle. Wings—Strips of shoveller duck mixed with fibres of argus pheasant.

*ai.* Yellow Drake.

Body—Yellow mohair ribbed with silver twist. Tail—Three fibres of yellow macaw. Legs—Yellow hackle with two turns of ibis on shoulder. Wings—Strips of gray mallard; black ostrich head. Hook No. 3.

*aj.* Richardson.

Body—A light-blue floss silk ribbed with silver twist. Tail—Three strands of brown mallard. Legs—Black cock's hackle. Wings—Strips of English blue-jay mixed with brown mallard. Hooks Nos. 3 and 4.

*ak.* Anthony.*al.* Snow-fly.*am.* Captain.*an.* Combination.

Body—First half, yellow seal's fur; second half, red-claret seal ribbed with silver tinsel (the fur to be picked out). Tail—A few fibres of gray mallard mixed with ibis. Legs—A natural red hackle dipped in yellow dye. Wings—A piece of the same kind of hackle with pale ibis strips. On each side a piece of gray mallard sufficiently large to make the wing full; black ostrich head. Hooks Nos. 1, 2, and 3.

*ao.* Silver Doctor.

Body—Silver tinsel ribbed with gold twist. Tail—China pheasant topping. Legs—A pale-blue hackle with a small teal or guinea-hen at the shoulder. Wings—Mixed fibres of wood-duck, brown mallard, guinea-hen, green parrot, blue macaw, teal, and bustard; black ostrich head. Hooks Nos. 2 and 3.

*ap.* Prouty.

Body—First joint, silver twist; second, black ostrich with three turns of the twist over it. Tail—Orange floss with a turn or two of twist, a topping mixed with fibres of English blue-jay. Legs—A yellow dyed list hackle wound over the ostrich. Wings—Strips of white swan dyed yellow. One each side a rib of teal-feather, red macaw feelers; black ostrich head. Hooks Nos. 2 and 3.

*aq.* Black Cricket.*ar.* Grasshopper.



**Hooks** (including a full series of unmounted hooks, of recent and aboriginal manufacture).

## 32737. Artificial flies for salmon, trout, and bass—Continued.

*as.* Great Blow.*at.* Cadis.*au.* Murray.

Black silk floss ribbed with silver twist. Tail—A small feather from the neck of the scarlet ibis. Legs—A golden yellow hackle. Wings—Dark mottled turkey; black ostrich head. Hooks Nos. 1 and 2.

*av.* Round Lake.*aw.* Nameless.

Body—Brown ostrich herl, ribbed with gold twist, tag orange floss. Tail—Two or three short sprigs of yellow macaw. Legs—A small sooty orange hackle, wound from tag to shoulder. Wings—Alternate strips of brown peacock-wing feather and shoveller duck, with a sprig or two of wood-duck; peacock herl head. Hooks Nos. 1, 2, and 3.

*ax.* Racquette.

Is made in two joints of black orange mohair with gold tinsel. Legs—A dyed black hackle wound from tail to head. Tail—Bright yellow toucan. Wings—A mixture of gold pheasant tail, argus, and teal. Hooks Nos. 1, 2, and 3.

*ay.* Priest.*az.* Francis Sykes.*ba.* Duke.*bb.* Dhoon.*bc.* Dustin.*bd.* Lascelles.*be.* Snitching Sandy.*bf.* Prouty.*bg.* Grace.*bh.* Powells.*bi.* Hawthorne.*bj.* Edmonson.*bk.* Witcher.*bl.* Carshalton.*bm.* Professor.

Body—Yellow mohair or silk floss ribbed with silver twist or tinsel. Tail—Two or three strands of scarlet ibis-wing feathers. Wings—From the gray.

*bn.* Coughton.*bo.* Alder.*bp.* Chantry.*bq.* Kingdom.*br.* Hoflan Fancy.*bs.* Coachman.

Body—Peacock's herl. Wings—From a white hen's wing-feather, or a pigeon-wing feather will answer the purpose. Legs—A red cock's hackle wound twice or thrice at the shoulder. For Pennsylvania, hooks Nos. 8 to 10; for New York, hooks Nos. 5 and 6; for New England, hooks Nos. 4 and 5.



**Hooks** (including a full series of unmounted hooks, of recent and aboriginal manufacture).

32737. Artificial flies for salmon, trout, and bass—Continued.

*bt.* Willow.

*bu.* Prouty.

*bv.* Notion.

Body—First half gold twist, remainder brown mohair, with three turns of the twist over it. Tail—A topping mixed with blue kingfisher. Legs—Brown hackle. Wings—Two tippet feathers mixed with argus pheasant, brown mallard, teal, China pheasant-tail feathers, blue and yellow macaw, with a blue kingfisher on each side of the wing; black ostrich head. Hooks Nos. 2 and 3.

*bw.* Louise.

Body—Brown mohair ribbed with gold twist. Tail—China feather topping. Legs—Reddish brown hackle, blue-jay on shoulder. Wings—Pheasant tippet feather and tail mixed with sprigs of green parrot, blue macaw, and kingfisher. Head—Orange mohair. Hooks Nos. 1 and 2.

*bx.* Round Lake.

Body—Orange and red claret merging into each other, silver tinselled. Tail—Sprigs of gold pheasant tippet, blue macaw, and green parrakeet. Legs—A claret hackle with a turn or two of orange on the shoulder. Wings—Two strips of brown turkey, with a small jungle-cock's feather on each side. Hooks Nos. 1, 2, and 3.

*by.* Nicholson.

*bz.* Our Pattern.

*ca.* Saranac.

Body—Claret floss silk ribbed with gold tinsel, backed with silver twist. Tail—China pheasant crest-feather. Legs—A claret hackle. Wings—Two China pheasant tippet feathers on either side, a strip or two of brown mallard and argus pheasant; black ostrich head. Hooks Nos. 1-0, 2, and 3.

*cb.* Long Tom of Long Lake.

Body—Gray squirrel mixed with a little green mohair ribbed with silver tinsel. Tail—China pheasant crest-feather. Legs—A blue dun cock's hackle; at shoulder two or three turns of bright claret hackle. Wings—Strips of brown mallard mixed with strands of summer duck, peacock-wing, and upper coverts of the wild turkey, red macaw feelers; black plush head. Hooks Nos. 1, 2, and 3.

*cc.* St. Regis.

Body—Cinnamon mohair ribbed with double gold twist. Tail—A strip of China pheasant tippet mixed with a few strands of bustard. Legs—A chestnut hackle with three turns or so of orange-dyed guinea-hen, small and short in the fibres. Wings—Strips of brown mallard, brown turkey, English pheasant tail, and China tippet; black ostrich head. Hooks Nos. 1 and 2.



**Hooks** (including a full series of unmounted hooks, of recent and aboriginal manufacture).

32737. Artificial flies for salmon, trout, and bass—Continued.

*cd.* No. 8.

Body—Three or four turns of mohair, rest of black mohair ribbed with silver tinsel and backed with gold twist. Tail—A small topping. Legs—A dyed black hackle and a shoulder of red claret. Wings—Mixed fibres of mallard, guinea-hen tail-feather over wing, two strips of dark turkey tipped with white. Hooks Nos. 2 and 3.

*ce.* Highlander.

*cf.* Lady of Mertoun.

Body—Water-rats fur ribbed with silver twist. Tail—A tip of common ostrich or mohair and a gold pheasant topping. Legs—Two or three turns of a small red hackle finished off with a black hackle. Wings—Strips of dark gray mallard. Head—Crimson ostrich or mohair. Hooks Nos. 1-0, 1, and 2.

*cg.* Topyy.

Body—Black mohair ribbed with silver tinsel. Tail—A topping tip crimson. Legs—A turn or two of red hackle, the rest black hackle. Wings—Black or brown turkey tipped with white. Head—Crimson. Hooks Nos. 1-0, 1, and 2.

*ch.* Sapper.

Body—Orange mohair ribbed with gold tinsel. Tail—Fibres of green parrot, guinea-hen, tippet feather, and ibis. Legs—Orange hackle, shoulder a dyed black hackle. Wings—Strips of peacock-wing feather, brown mallard, green parrot, guinea-hen, gold pheasant tail, blue macaw feelers; black ostrich head. Hooks Nos. 1-0 and 1.

*ci.* Stephens.

Body—Brick-colored, silk ribbed with gold twist and blue tip. Tail—Gold pheasant topping. Legs—Hackle, same color as body. Wings—Gold pheasant tippet and slight mixture of mallard; black ostrich head. Hooks No. 1.

*ej.* Jock Scott.

Body—In two joints, gold-colored floss the lowest, and black floss the upper; from the joint are tied two short toucan points, and over the butts of them at the joints two turns of black ostrich. Tail—One gold pheasant topping and one Indian crow feather. Legs—Black hackle over the black joint and speckled guinea-hen at the shoulder. Wings—A white tip turkey, slip in the middle fibres of bustard, teal, brown mallard, yellow, red, and green parrot, one topping over all; blue macaw feelers. A kingfisher on either cheek; black ostrich head. Hooks Nos. 1-0, 1, and 2.

*ck.* Whitcher.

Body—Black mohair ribbed with silver, tip yellow silk. Tail—Gold pheasant topping. Legs—Black hackle. Wings—A mixture of mallard and hooded merganser; black ostrich head. Hooks Nos. 1 and 2.



**Hooks** (including a full series of unmounted hooks, of recent and aboriginal manufacture).

## 32737. Artificial flies for salmon, trout, and bass—Continued.

*cl.* Nicholson.

Body—Blood-red mohair ribbed with gold tinsel. Tail—Sprigs of mallard and pheasant tippet feather. Legs—A blood-red and a dark-blue hackle wound on together. Wings—Brown mallard and blue macaw feelers; black ostrich head. Hooks Nos. 1 and 2.

*cm.* Caribou.

Body—Tip gold tinsel, tag golden-yellow silk, next a black silk joint, the rest of gray caribou. Legs—Gray hackle with a claret on the shoulder. Tail—Gold pheasant topping. Wings—Turkey and mallard with sprigs of macaw and pheasant tippet feather; black ostrich head. Hooks Nos. 1-0, and 1.

*cn.* Moose.

Body—Yellow floss ribbed with silver tinsel. Tail—A China pheasant topping. Legs—A yellow hackle; shoulder hackle a guinea-hen. Wings—Two tippet feathers of the China pheasant with fibres of mallard wood-duck on each side; black ostrich head. Hooks Nos. 1, 2, and 3.

*co.* Moosehead.

Body—Deep claret mohair ribbed with gold twist. Tail—A topping. Legs—A claret hackle with three turns of orange hackle at the shoulder. Wings—Strips of brown mallard and tippet feather with red macaw feelers; black ostrich head. Hooks Nos. 1, 2, and 3.

*cp.* Fiery-brown.

Body—Fiery brown mohair ribbed with gold tinsel. Tail—A small topping mixed with wood-duck. Legs—A brown-red hackle. Wings—Brown mallard with a little wood-duck and golden pheasant neck-feather mixed; black head. Hooks Nos. 1, 2, and 3.

*cq.* Parson.*cr.* Gold Wing.*cs.* Gold Mallard.*ct.* Kircudbrightshire.*cu.* Eagle.*cv.* Tartan.*cw.* Last Fly.*cx.* Atkinson.*cy.* Strachan.*cz.* Parson.

Body—Black mohair tipped with orange and ribbed with silver twist. Tail—A small topping. Legs—A black hackle. Wings—Brown turkey-tail; black head. Hooks Nos. 2 and 3.

*da.* Ross.

Body—Cinnamon-colored floss ribbed with gold twist. Tail—Sprigs of green parrot. Legs—A furnace hackle. Wings—Brown mallard mixed with peacock herl; black ostrich head. Hooks Nos. 1-0 and 1.



**Hooks** (including a full series of unmounted hooks, of recent and aboriginal manufacture).

## 32737. Artificial flies for salmon, trout, and bass—Continued.

- db.* Forsyth.
- dc.* Chamberlin.
- dd.* Green.
- de.* Witcher.
- df.* Langrin.
- dg.* Emmet.
- dh.* Captain.
- di.* Major.
- dj.* Darling.
- dk.* Durham Ranger.
- dl.* Goldfinch.
- dm.* Britannia.
- dn.* Popham.
- do.* White Tip.
- dp.* White Wing.
- dq.* Drake Wing.
- dr.* Dun Wing.
- ds.* Black and Yellow.
- dt.* Blue Doctor.
- du.* Kate.
- dv.* Ruggles.
- dw.* Little yellow May Dun, with water-color sketch of original.
- dx.* Oak Fly, with water-color sketch of original.

Body—Orange floss silk ribbed with ash-colored silk thread or a little floss, the ash-color to be shown well at the tail and shoulders. Wings—From a scapular feather of the woodcock. Legs—A furnace hackle or red cock's hackle with a black list up the middle. For Pennsylvania, hooks Nos. 8 to 10; for New York, hooks Nos. 6 to 8; for New England, hooks Nos. 5 and 6.

- dy.* Black Gnat, with water-color sketch of original.

Body—Black ostrich herl. Wings—From the quill-feather of the rice-bird or grackle. Legs—Black hackle. For Pennsylvania, hooks Nos. 10 to 12; for New York, hooks Nos. 8 to 10; for New England, hook No. 8.

- dz.* Fern Fly, with water-color sketch of original.

Body—Orange floss silk. Wings—From the quill-feather of the summer-duck wing; the smaller-sized hooks can be dressed from the wing-feather of the blue-jay. Legs—A red cock's hackle. For Pennsylvania, hooks Nos. 8 to 10; for New York, hooks Nos. 6 to 8; for New England, hooks Nos. 5 and 6.

- ea.* Yellow Sally, with water-color sketch of original.

Body—Any yellowish fur ribbed with yellow or apple-green silk. Wings—From a wing-feather of a white hen or white pigeon stained pale yellow. Legs—A white cock's hackle stained in the same dye. For Pennsylvania, hooks Nos. 6 to 8; for New York, hooks Nos. 5 and 6; for New England, hooks Nos. 4 and 5.



**Hooks** (including a full series of unmounted hooks, of recent and aboriginal manufacture).

## 32737. Artificial flies for salmon, trout, and bass—Continued.

*eb.* Alder Fly, with water-color sketch of original.

Body—Peacock's herl. Wings—From a feather of a brown hen's wing. Legs—A red cock's hackle or a black cock's hackle will answer tolerably well. For Pennsylvania, hooks Nos. 8 to 10; for New York, hooks Nos. 5 and 6; for New England, hooks Nos. 4 and 5.

*ec.* Sky Blue, with water-color sketch of original.

*ed.* Little dark Spinner, with water-color sketch of original.

*ee.* Turkey Brown, with water-color sketch of original.

*ef.* Magalloway.

Body—Half black ostrich and half brown mohair ribbed with gold twist. Tail—Short fibers of yellow macaw. Legs—A furnace hackle of the shoulder. Wings—Strips of brown quill-feathers of the peacock; black ostrich head. Hook No. 3.

*eg.* Bemis Stream.

Body—Chestnut mohair ribbed with gold tinsel. Tail—China pheasant topping. Legs—A chestnut hackle. Wings—Strips of brown peacock mixed with bustard. Hooks Nos. 1 and 2.

*eh.* Mooselocmaguntick.

Body—About equal parts mixed of gray squirrel's fur and pea-green mohair ribbed with gold twist. Tail—Four strands of argus feathers. Legs—A brown bittern hackle. Wings—Gray speckled turkey, white tipped (dye yellow), with a strip of argus feather on each side; green ostrich head. Hook No. 1.

*ei.* Molechunkemunk.

Body—Orange floss silk ribbed with gold tinsel, backed with silver twist. Tail—China pheasant topping. Legs—A furnace hackle. Wings—Brown mallard; black ostrich head.

*ej.* Willow Finch.

Body—Yellow seal's fur ribbed with silver twist. Tail—Sprigs of tippet feathers mixed with yellow macaw. Legs—A yellow hackle, at the shoulder a small guinea-hen stained yellow. Wings—Strips of swan feather dyed yellow with a spray of guinea-hen (tail-feather) dyed yellow; black ostrich head. Hooks Nos. 1, 2, and 3.

*ek.* Oquassac.

Body—Red claret mohair ribbed with pink floss. Tail—Yellow tag with pieces of argus and tippet feathers. Legs—A claret hackle. Wings—Strips from the quill-feather of the argus pheasant; black ostrich head. Hooks Nos. 1-0 and 1.

*el.* Welokennebago.

Body—Red pig's hair ribbed with broad gold tinsel, backed with silver twist. Tail—A mixture of black turkey tipped with white and scarlet ibis. Legs—Scarlet hackle. Wings—Fibers of red macaw mixed with strips of black and brown turkey tipped with white; black ostrich head.



**Hooks** (including a full series of unmounted hooks, of recent and aboriginal manufacture).

## 32737. Artificial flies for trout, salmon, and bass—Continued.

*em.* Capsuptuc.

Body—Silver tinsel ribbed with gold twist. Tail—Fibers of China pheasant tail mixed with guinea-hen and red macaw. Legs—A brilliant scarlet hackle. Wings—Mixed and to be made full. Two strips of brown turkey tipped with white-brown mallard, China pheasant tail and guinea-hen; black ostrich head. Hooks Nos. 1-0, 1, and 2.

*en.* Orange Grouse.

*eo.* Thunder and Lightning.

*ep.* Lough Gill.

*eq.* Lillie.

*er.* Black Ant.

*es.* Blue Blow.

*et.* Mare.

*eu.* Hare's Ear.

*ev.* Ibis.

*ew.* Seth Green.

*ex.* Red Creeper.

*ey.* Turkey Brown.

*ez.* Queen of the Waters.

*fa.* Governor.

*fb.* White Miller.

*fc.* Lion.

*fd.* Water-witch.

*fe.* Atkinson.

*ff.* Our Own Pattern.

*fg.* Green Drake, with water-color sketch of original.

Body—Pale straw-colored floss silk ribbed with brown silk thread or floss; the extremities are of brown peacock's herl. Tail—Three rabbit's whiskers. Wings—Made from a mottled feather of mallard stained a pale yellowish-green. Legs—A grizzled cock's hackle stained a yellowish-green in the same dye. For Pennsylvania, hooks Nos. 6 to 8; for New York, hooks Nos. 4 to 6; for New England, hooks Nos. 3 and 4.

*fh.* Gray Drake, with water-color sketch of original.

Body—The middle part of white floss silk ribbed with silver twist; the extremities of brown peacock's herl. Tail—Three rabbit's whiskers. Wings—Made from a gray mottled feather of the mallard. Size of hooks same as green drake.

*fi.* Orange Dun, with water-color sketch of original.

This fly is equally attractive to trout, and is a prime favorite in its day—the end of June, July, and August. Body—Dark orange silk. Tail—Two fibers of brown mallard feather. Wings—From the quill-feather of the large red-crowned woodpecker. For Pennsylvania, hooks Nos. 6 to 8; for New York, hook No. 6; for New England, hooks Nos. 5 and 6.

*fj.* Green Mackerel, with water-color sketch of original.

*fk.* Brown Mackerel, with water-color sketch of original.

*fl.* Marlow Buzz, with water-color sketch of original.



**Hooks** (including a full series of unmounted hooks, of recent and aboriginal manufacture).

32737. Artificial flies for trout, salmon, and bass—Continued.

*fm.* Pale Evening Dun, with water-color sketch of original.

*fn.* July Dun, with water-color sketch of original.

Body—Mole's fur and pale-yellow mohair mixed and spun on yellow silk.

Tail—Two or three whiskers of a dark dun hackle. Wings—From the quill-feather of a blue-jay. Legs—Dark dun hackle. For Pennsylvania, hooks Nos. 8 to 10; for New York, hooks Nos. 6 to 8; for New England, hooks Nos. 5 and 6.

*fo.* Gold-eyed Gauge-wing, with water-color sketch of original.

*fp.* Butcher, No. 1.

*fq.* Blue Ranger.

*fr.* Black Ranger.

*fs.* Colonel.

*ft.* Children's Farlow.

*fu.* Candlestick Maker.

*fv.* Baker.

*fw.* Butcher.

*fx.* Namsen.

*fy.* Black and Teal.

*fz.* Guinea Hen.

*ga.* Claret.

*gb.* Inquithin.

*gc.* Maxwell Ranger.

*gd.* August Dun, with water-color sketch of original.

Body—Brown floss silk ribbed with yellow silk thread. Tail—Two rabbit's whiskers. Wings—Feather of a brown hen's wing. Legs—A dark red hackle. For Pennsylvania, hook No. 8; for New York, hook No. 6; for New England, hook No. 5.

*ge.* Orange, with water-color sketch of original.

Body—Orange floss silk ribbed with black silk. Wings—Dark part of the blue-jay's wing. Legs—A very dark furnace hackle. For Pennsylvania, hooks Nos. 8 to 10; for New York, hooks Nos. 6 to 8; for New England, hook No. 6.

*gf.* Cinnamon, with water-color sketch of original.

Body—Fawn-colored floss silk ribbed with red silk thread. Wings—Feather of a yellow-brown hen's wing. Legs—A ginger hackle. For Pennsylvania, hook No. 8; for New York, hook No. 6; for New England, hook No. 6.

*gg.* Blue-bottle, with water-color sketch of original.

Body—Bright blue floss silk with a few turns of brown floss at the shoulder. Wings—From the quill-feather of a water-hen. Legs—Black hackle from a cock wrapped down the principal part of the body. For Pennsylvania, hook No. 8; for New York, hook No. 6; for New England, hook No. 5.

*gh.* Whirling-blue Dun, with water-color sketch of original.

Body—Squirrel's red-brown fur mixed with yellow mohair. Tail—One or two whisks of a pale ginger hackle. Wings—From the quill-feather of a mallard. For Pennsylvania, hook No. 8; for New York, hook No. 8; for New England, hook No. 6.



**Hooks** (including a full series of unmounted hooks, of recent and aboriginal manufacture).

## 32737. Artificial flies for trout, salmon, and bass—Continued.

*gi.* Willow, with water-color sketch of original.

Body—Mole's fur mixed with a little fine yellow mohair. Wings—From the quill-feather of a water-hen or coot. Legs—A dark dun hen's hackle. For Pennsylvania, hooks Nos. 8 to 10; for New York, hook No. 8; for New England, hooks Nos. 5 and 6.

*gj.* Snowy.

*gk.* Beauty Snow.

*gl.* Red Palmer, with water-color sketch of original.

Body—Red mohair ribbed with gold twist or tinsel. Legs—A blood-red cock's (saddle) hackle wrapped nicely over it, working the hackle closely together at the shoulder. For Pennsylvania, hooks Nos. 6, 8, and 10; for New York, hooks Nos. 4, 5, and 6; for New England, hooks Nos. 3, 4, and 5.

*gm.* Black and Red Palmer, with water-color sketch of original.

*gn.* Brown Palmer, with water-color sketch of original.

*go.* Furnace.

*gp.* Grizzle.

*gq.* Ginger.

*gr.* List.

*gs.* Soldier.

*gt.* White.

*gu.* Grizzle Peacock.

*gv.* Red.

*gw.* Black Peacock.

*gx.* Black.

*gy.* Brown Peacock.

*gz.* Scarlet.

25548. Salmon fly-book for carrying artificial flies.

25547. Trout fly-book for carrying artificial flies. Loaned by Bradford & Anthony, Boston, Mass. (\$4.50.)

26677. Fly-book. Forest & Stream Publishing Company. Property of J. A. [Nichols, Syracuse, N. Y.]

26678. Fly-book. “ “

26679. Fly-book. “ “

**Lines (twisted and plaited).**

## Silk lines.

25633. Series of braided raw-silk lines. (50 yards; C to G.) G. H. Mansfield & Co., Canton, Mass.

25632. Oiled, braided, raw-silk lines. G. H. Mansfield & Co., Canton, Mass.

25628. XXXX silk fish-line. (50 yards.) “

25629. XX silk fish-line. (50 yards.) “

25634. Grass lines. Nos. 0, 1, and 3 cable, and 3 shroud. Bradford & Anthony, Boston, Mass.

25635. Braided grass lines. Bradford & Anthony, Boston, Mass.



**Lines (twisted and plaited).**

## Linen lines.

25626. Hard-braid linen lines. (1 to 5; 50 yards each.) G. H. Mansfield & Co., Canton, Mass.  
 25631. Series of braided linen fish-lines. (50 yards.) G. H. Mansfield & Co., Canton, Mass.  
 25612. Linen fish-lines. J. & S. Allen, Walpole, Mass.  
 25613. Linen fish-lines. "  
 25618. Linen fish-lines. "  
 25637. Linen bass-line. (600 feet.) Bradford & Anthony, Boston, Mass.

## Cotton lines.

25619. Cotton fish-lines. (20 feet hank.) L. Crandall & Co., Ashaway, R. I.  
 25620. Cotton fish-lines. (50 feet shroud, laid.) "  
 25621. Cotton fish-lines. (28-fathom hawser.) "  
 25622. Cotton fish-lines. (14-fathom hawser.) "  
 26738. Fishing-line, No. 3. (Sea-Island fly-line.) J. W. Dresser, Castine, Me.  
 26733. Fishing-line, No. 5. "  
 26743. Fishing-line, No. 5. (Golden mackerel, oiled.) "  
 26741. Fishing-line, No. 6. (Golden mackerel, oiled.) "  
 26735. Fishing-line, No. 6. "  
 26744. Fishing-line, No. 7. (Golden mackerel, white.) "  
 26739. Fishing-line, No. 7. (White.) "  
 26742. Fishing-line, No. 8. (Golden mackerel, oiled.) "  
 26740. Fishing-line, No. 9. (Golden mackerel, oiled.) "  
 26734. Fishing-line, No. 9. "  
 26745. Fishing-lines, No. 7, 8, and 9. (Sea-side cotton chalk-line, white.) J. W. Dresser, Castine, Me.  
 26736. Fishing-line, No. 10. (14 fathoms, hawser-laid.) J. W. Dresser, Castine, Me.  
 26732. Fishing-line, No. 11. (Bluefish.) (24 fathoms long, hawser-laid.) J. W. Dresser, Castine, Me.  
 25624. Tarred cotton fishing-lines. (25-fathom shroud.) L. Crandall & Co., Ashaway, R. I.  
 25623. Cotton fishing-lines. (50 feet shroud, laid.) L. Crandall & Co., Ashaway, R. I.  
 26016. Golden mackerel lines of assorted sizes. Made from pure Sea-Island cotton. J. W. Dresser, Castine, Me.  
 25625. Braided cotton fishing-lines. G. H. Mansfield & Co., Canton, Mass.  
 25636. Sea-Island cotton mackerel-lines. Bradford & Anthony, Boston, Mass.  
 25627. Water-proof braided fish-lines. (B to G.) G. H. Mansfield & Co., Canton, Mass.  
 660. Fishing-line. Northwest coast of America. G. Gibbs.

## Whalebone lines.

2193. Whalebone fish-line. Anderson River Indians. Anderson River. R. MacFarlane.  
 2197. Whalebone line with hooks. Eskimo. Anderson River. R. MacFarlane.  
 2016. Whalebone line. Arctic coast. B. R. Ross.



**Lines (twisted and plaited).**

## Hide lines.

8787. Fishing-line made of seal-skin. Mahlemut Eskimo. W. H. Dall.  
 8785. Fishing-line made of seal-skin. Kaviakemut Eskimo. Grantley Harbor, Alaska. W. H. Dall.  
 8786. Fishing-line made of seal-skin. Unaleet Eskimo. St. Michael's, Alaska. W. H. Dall.  
 16314. Harpoon-line. Nunivak Island, Alaska. W. H. Dall.  
 15617. Harpoon-line. Made of skin of young walrus. Alaska. H. W. Elliott.  
 19376. Harpoon-line made of seal-skin. Rev. James Curly.

## Bark lines.

20655. Fishing-line made of cedar bark. Bella Bella, B. C. J. G. Swan.  
 20888. Fishing-line made of spruce root-fibers. Hannegan Indians. Prince of Wales Islands, Alaska. J. G. Swan.  
 26821. Harpoon-line, cedar bark. Makah Indians. J. G. Swan.

## Kelp lines.

656. Fishing-lines of sea-weed. (*Nereocystis lutkeana*.) Northwest coast of America. G. Gibbs.  
 6561. Fish-line of kelp. (*Nereocystis lutkeana*.) With halibut-hooks. Haidah Indians. Prince of Wales Archipelago. Dr. T. T. Minor.  
 1052. Fish-line. (*Nereocystis lutkeana*.) Northwest coast. Lieut. J. W. White.  
 26818. Halibut-line of kelp. (*Nereocystis lutkeana*.) Makah Indians. Neah Bay, W. T. J. G. Swan.  
 26819. Fish-line of kelp with halibut-hooks. Clioquot Indians. Vancouver's Island. J. G. Swan.

## (ACCESSORY.) APPARATUS FOR TWISTING LINES

**Snoods, leaders, and traces.**

“Cat-gut” (sheep) snoods and leaders.

Silkworm-gut snoods.

Flax snoods.

Gimp snoods.

Wire snoods.

Hooks mounted on leaders.

25540. Kinsey trout-hooks. (Tied to gut.) Bradford & Anthony, Boston, Mass.  
 25542. Aberdeen hooks. (Tied to gut.) Bradford & Anthony, Boston, Mass.  
 25543. Hollow-point Limerick hooks. (Tied to double gut.) Bradford & Anthony, Boston, Mass.  
 25544. Hollow-point Limerick hooks. (Tied to twisted gut.) Bradford & Anthony, Boston, Mass.  
 25545. Hollow-point Limerick hooks. (Tied to gimp.) Bradford & Anthony, Boston, Mass.  
 25546. Carlisle hooks. (Tied to gimp.) Bradford & Anthony, Boston, Mass.  
 25539. Hollow-point Limerick trout-hooks. (Tied to gut.) Bradford & Anthony, Boston, Mass.  
 25541. New York bass-hooks. (Tied to gut.) Bradford & Anthony, Boston, Mass.



**Sinkers.**

## Sinkers and swivels.

- . Sinkers and swivels. For fishing-lines. Bradford & Anthony, Boston, Mass.
25605. Series of sinkers used in fishing for cod and tautog. Newport models. J. M. K. Southwick, Newport, R. I.
25607. Hand-line sinkers. Rhode Island and Eastern Connecticut. A. R. Crittenden.
25716. Cod-line sinker. Central Wharf Company, Provincetown, Mass.
29456. Cod-lead mold. Used to make form in molding. John B. Parsons, Rockport, Mass.
15591. Sinker made of walrus ivory. Pornoox Eskimos, Alaska. H. W. Elliott.

## Net-sinkers.

- . Net-sinkers. Wilcox, Crittenden & Co., Middletown, Conn.
29393. Net-rings or sinkers. Wilcox, Crittenden & Co., Middletown, Conn.
29474. Primitive net-sinkers. Used in Wellfleet, Mass. Newell B. Rich, Wellfleet, Mass.
25800. Menhaden-net sinkers (old style). Formerly used about Beverly and Salem, Mass. George B. Foster, Beverly, Mass.
25603. Seine-sinkers. Newport model. J. M. K. Southwick, Newport, R. I.

**Spreaders.**

## Chopsticks.

One-armed chopsticks or "revolving booms."

**Floats.**

## Line-floats of wood, cork, and quill.

25661. Egg-shaped floats. Wm. M. Young, Philadelphia, Penn.
25662. Barrel-shaped floats. " "
25663. Snake-head floats. " "
25664. Quill floats. " "

## Seine-floats of cork, wood, glass, and rubber tubing.

25597. Seine-corks. Used at Newport, R. I. J. M. K. Southwick, Newport, R. I.

## Harpoon-floats of bladder, inflated skin, and wood.

20898. Seal-skin buoy. Sitka Alaska. J. G. Swan.
1035. Seal-skin buoy. Makah Indians. Puget Sound. J. G. Swan.
19515. Seal-skin buoy. North Greenland. G. Y. Nickerson.
26824. Seal-skin buoy. (Used in whale fisheries.) Clioquot Indians, Vancouver's Island. J. G. Swan.
26823. Seal-skin buoy. (Used in whale fisheries.) Clioquot Indians, Vancouver's Island. J. G. Swan.
20594. Seal's bladder buoy. Bella Bella, B. C. J. G. Swan.
- 827, 4970. Seal-skin buoy with rope. Makah Indians. Neeah Bay, Puget Sound, W. T. J. G. Swan.

## Keg and other floats for lobster-pots, gill-nets, &amp;c.

## Whale-line drag.



## 29. (ACCESSORY.) ANGLING-APPARATUS.

**Reels.**

Simple reels for fly-fishing, with and without check.

25590. Brass fishing-reel. Plain, single, with ring. Bradford & Anthony, Boston, Mass.
25589. Brass fishing-reel. Plain, single, with plate. Bradford & Anthony, Boston, Mass.
25587. Brass fishing-reel. Plain, single, with stop and ring. Bradford & Anthony, Boston, Mass.
25588. Brass fishing-reel. Plain, single, with stop and plate. Bradford & Anthony, Boston, Mass.
25577. Hard-rubber fishing-reel, German-silver band. Rim very narrow, with leather case. Bradford & Anthony, Boston, Mass.
25568. Hard-rubber salmon-fishing reel. German-silver rim. Bradford & Anthony, Boston, Mass.
25581. Rubber trout-reel. (Fowler's patent.) Bradford & Anthony, Boston, Mass.
25582. Orvis' patent fishing-reel. German silver, nickeled and perforated. Bradford & Anthony, Boston, Mass.
25567. Fine click brass fishing-reel. (25 yards.) Bradford & Anthony, Boston, Mass.
25586. Brass fishing-reel. Click, with plate. Bradford & Anthony, Boston, Mass.
25585. Brass fishing-reel. Click, with ring. Bradford & Anthony, Boston, Mass.
25575. German-silver trout-fishing reel. Click, with rim. Bradford & Anthony, Boston, Mass.
25565. German-silver trout click fishing-reel. (150 yards.) Bradford & Anthony, Boston, Mass.
25569. Hard-rubber trout-fishing reel. Click, German-silver rim.
25571. Hard-rubber trout-fishing reel. Click, plain rim. Bradford & Anthony, Boston, Mass.
25579. Celluloid trout click fishing-reel. Bradford & Anthony, Boston, Mass.
25560. German-silver trout click fishing-reel. (60 yards.) Bradford & Anthony, Boston, Mass.
25564. German-silver salmon-fishing reel, click. (4½ inch.) Bradford & Anthony, Boston, Mass.

Multiplying reels for bass-fishing, with and without check.

25580. Celluloid fishing-reel. Multiplying and click. Bradford & Anthony, Boston, Mass.
25583. Brass fishing-reel. Multiplying, stop and ring. Bradford & Anthony, Boston, Mass.
26688. Fowler reel. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.
26687. Fowler reel. " " " " " "
26686. Frankfort reel. " " " " " "
26689. Plain reel. " " " " " "
26916. Winans reel. J. Ross Winans, Baltimore, Md.
26666. Reel for trolling-line. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.



**Reels.**

Multiplying reels for bass fishing, with or without check.

25574. German-silver fishing-reel. Multiplying; 25 yards. Bradford & Anthony, Boston, Mass.
25570. Hard rubber trout-fishing reel. Multiplying; 60 yards. Bradford & Anthony, Boston, Mass.
25584. Brass fishing-reel. Multiplying stop and plate. Bradford & Anthony, Boston, Mass.
25573. Brass fishing-reel. Multiplying drag; 60 yards. Bradford & Anthony, Boston, Mass.
25572. German-silver fishing-reel. Steel pivot, multiplying drag, 300 yards. Bradford & Anthony, Boston, Mass.
25578. Celluloid fishing-reel. With multiplying click and extra spool. Bradford & Anthony, Boston, Mass.

Gunwale-winch.

Trawl-line rollers.

29432. Trawl-roller or hauler. Provincetown style. Andrew Kennedy, Provincetown, Mass.
29434. Trawl-roller or hauler. Cape Ann style. Samuel Elwell, jr., Gloucester, Mass.
29488. Trawl-roller and eye-plate. First used by Provincetown fishermen. Amasa Taylor, Provincetown, Mass.
29445. Improved trawl-roller and socket. Amasa Taylor, Provincetown, Mass.
25767. Trawl-roller. Used to haul in trawls over the sides of dory. Allen L. McDonald, Gloucester, Mass.
- . Trawl-winch. Gloucester, Mass. G. Brown Goode.

Dredge-line rollers.

Seine-windlasses.

**Line-holders.**

Whaleman's line-tub.

- 88 F. C. Sounding-line reel. U. S. Fish Commission.
25009. Harpoon-line and tub. Used in whale-boat. J. H. Thomson, New Bedford, Mass.

Tub for trawl-line. (See under Trawl.)

Winders.

Spools.

25592. Crab-line reel. Used in Newport, R. I. J. M. K. Southwick, Newport, R. I.

Seine-reels.

**Rods.**

25511. Common rod. Three pieces; ash and hornbeam; brass mounting. Bradford & Anthony, Boston, Mass.



**Rods.**

25501. General fishing-rod. Nine pieces; German-silver mounting. Bradford & Anthony, Boston, Mass.
25500. General fishing-rod. Six pieces; ash and lancewood; German-silver mounting. Bradford & Anthony, Boston, Mass.
26890. Trunk-rod of greenheart; five-jointed, with extra fourth piece and tip, seven pieces in all; weight, 8 oz.; length, 11 feet 6 inches. Thaddeus Norris, Philadelphia, Pa.
25512. Gudgeon-rod. Three pieces; ash and hornbeam; brass mounting; common. Bradford & Anthony, Boston, Mass.
25510. Common pickerel-rod. Four pieces. Bradford & Anthony, Boston, Mass.
25509. Bait-rod for trout. Four pieces; common. Bradford & Anthony, Boston, Mass.
25513. Jointed rod. Four joints, extra tips, tie guides; made of Calcutta bamboo; full mounted in brass. Bradford & Anthony, Boston, Mass.
25508. Common bass-rod. Four pieces; brass mounted. Bradford & Anthony, Boston, Mass.
25498. Light bass-rod. Four pieces; extra top; ash and lancewood; German-silver mounting. Bradford & Anthony, Boston, Mass.
25497. Bass-rod. Four pieces and extra top for sea-fishing; ash and lancewood; German-silver mounting; jeweled tip. Bradford & Anthony, Boston, Mass.
25496. Sea-bass rod. Ash butt joint, bamboo middle joint, lancewood stock; double guides, jeweled; German-silver mounting; jeweled tips. Bradford & Anthony, Boston, Mass.
25499. Black-bass rod. Four pieces and two extra tops; split bamboo; German-silver mounting. Bradford & Anthony, Boston, Mass.
25502. Fly-rod. Three pieces and extra top; cedar and split bamboo. Bradford & Anthony, Boston, Mass.
25504. Fly-rod. Three pieces and extra top; extra middle joint; bamboo tip case; ash and lancewood; German-silver mounting. Bradford & Anthony, Boston, Mass.
25505. Fly-rod. Four pieces and extra top; ash and lancewood; German-silver mounting. Bradford & Anthony, Boston, Mass.
26887. Salmon-rod of greenheart, four-jointed in cedar case, with extra third piece and tip; weight, 30 oz.; length, 17 feet 3 inches. Thaddeus Norris, Philadelphia, Pa.
25503. Fly-rod for trout. Three pieces and extra top; split bamboo; German-silver mounting. Bradford & Anthony, Boston, Mass.
25506. Trout-rod. Four pieces and extra top; ash and lancewood; German-silver mounting; agate-lined tips. Bradford & Anthony, Boston, Mass.
25507. Salmon-rod. Four pieces and extra tops; bamboo top-case; ash and lancewood; German-silver mounting. Bradford & Anthony, Boston, Mass.
25887. The "Cold Brook," hollow, fly-rod. (Patented June 22, 1875.) J. L. Graves, Springfield, Mass.
25886. The "Cold Brook," hollow, salmon, bass, and angling rod. Nickel-plated, with reel showing an attached line working. (Patented June 22, 1875.) J. L. Graves, Springfield, Mass.



**Rods.**

The following are the advantages claimed by Mr. Graves for his new rods:

1. The line is concealed and cannot be caught in underbrush or branches.
  2. The strain on the rod is equalized through the entire length.
  3. There is no friction through rings or guides except on the tip.
  4. The strength of the rod is greatly increased.
  5. The weight of the rod is diminished.
  6. The wet line is not reeled up to decay.
  7. The rod goes under the brush where the big trout lie.
  8. It adds greatly to the comfort and pleasure of 'the gentle art.'
26661. Plain fly-rod. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.
26662. Bait-rod. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.
26663. Bait-rod. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.
26712. English fly-rods. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.
26707. Rod-case. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.
25882. Split bamboo trout-rod. 11½ feet. H. L. Leonard, Bangor, Me.
26660. Split bamboo rod. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.
26888. Extra greenheart trout-rod; cedar case; three-jointed, with one extra middle and two extra tips, six pieces in all; weight, 8 oz.; length, 12 feet. Thaddeus Norris, Philadelphia, Pa.
26889. Rent and glued bamboo trout-rod in cedar case, with one extra middle and two extra tips, six pieces in all; weight, 8 oz.; length, 12 feet. Thaddeus Norris, Philadelphia, Pa.
26886. Plain trout-rod of greenheart; three-jointed, with extra middle and tip, five pieces; weight, 8 oz.; length, —. Thaddeus Norris, Philadelphia, Pa.
25881. Split bamboo grilse-rod. 14 feet. H. L. Leonard, Bangor, Me.
25883. Split bamboo salmon-rod. 16 feet. " "
25884. Piece of bamboo. Showing splitting process in construction of rods. H. L. Leonard, Bangor, Me.
25885. Piece of bamboo. Showing gluing process in construction of rods. H. L. Leonard, Bangor, Me.
25491. Chapman's combination trolling-pole. Hoop-line holder and cane. W. D. Chapman, Theresa, N. Y.

**Swivels.**

25798. Horn cod-line swivel. Much used in olden time by Grand and George's Banks fishermen. George B. Foster, Beverly, Mass.
25945. Cod-line swivel. Central Wharf Company, Gloucester, Mass.
26017. Cod-line gange-swivel. A. R. Crittenden, Middletown, Conn.
- 25944-6. Patent gange-swivel. Used in cod-fishing. Central Wharf Company, Gloucester, Mass.
29486. Cod-gange swivel. Showing mode of fastening. Lemuel Cook, 2d, Provincetown, Mass.
29487. Haddock-gange swivel. Showing mode of fastening. Lemuel Cook, 2d, Provincetown, Mass.
29392. Wood horse-swivel. Used on cod-line. Capt. E. L. Rowe, Gloucester, Mass.



**Swivels.**

25942. Halibut-gange. Showing mode of fastening on the hook. A. R. Crittenden.  
 29457. Shark-hook swivel. Wilcox, Crittenden & Co., Middletown, Conn.  
 29395. Primitive trawl-buoy swivels. George B. Foster, Beverly, Mass.  
 29476. Halibut-trawl-buoy swivel. Used by the George's Banks fishermen. Amasa Taylor, Provincetown, Mass.  
 29498. Trawl-buoy swivels. Alex. McCurdy, East Gloucester, Mass.  
 25187. Trawl-buoy rope swivel. Wilcox, Crittenden & Co., Middletown, Conn.  
 25946. Trawl-buoy rope swivel. Central Wharf Company, Provincetown, Mass.

**Clearing-rings.****Disgorgers.**

29435. Trawl-sheave bushing. Samuel Elwell, jr., Gloucester, Mass.  
 —. Halibut "gob-stick." Philip Merchant, Gloucester, Mass.

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**V. NETS.**
**ENTANGLING-NETS.****Meshing-nets** (entangling in meshes).

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 ‡ *Barrier-nets.*

## Rabbit-nets, used by Indians of the Southwest.

- 14405-6-7-8-9-10-11-12-13-14-15-16-17-18-19-20-21. Small rabbit-nets. Pi-Ute Indians, Southern Utah. Maj. J. W. Powell.  
 14500. Small rabbit-net. Pi-Ute Indians, Southern Utah. Maj. J. W. Powell.  
 11245. Small rabbit-net. " " "  
 12058. Small rabbit-net. " " "  
 12051, 53. Large rabbit-net. " " "  
 11247. Large rabbit-net. " " "  
 14430-31. Large rabbit-net. " " "  
 14401-2-3. Large bunt net (for rabbits). " "  
 19049. Rabbit-net. Cooyuwee Pi-Ute Indians, Southern Utah. Stephen Powers.

These nets are used largely in the capture of rabbits for food; they are stretched in long lines by means of slender crotched sticks which support the upper edge. The chaparral is then scoured for miles by the Indians on horseback and on foot, and the rabbits, which are very abundant in the sage-brush, are driven into the meshes of the nets. The species thus captured are the sage-hare (*Lepus sylvaticus* var. *artemisiæ*), and the mule or jackass hare (*Lepus callotis*).

## Bird mesh-nets.

## Gill-net.

## Gill-nets used in Great Lakes.

25751. Model of Lake Michigan gill-net. Scale: Depth, 1 inch to the foot; length,  $\frac{1}{8}$  of inch to the foot. J. W. Milner.

The gill-netting in use on the Great Lakes is knit from linen thread, two and three ply (25-4, 2-cord, and 30-50, 3-cord), from eleven to twenty-



**Meshing-nets** (entangling in meshes).**Gill-nets used in the Great Lakes.**

two meshes in depth,  $3\frac{3}{4}$  to 5 inch mesh. The nets when hung or mounted for use contain from one to three pounds of webbing, and range in length from 60 to 120 yards, and in depth from  $4\frac{1}{2}$  to 6 feet. They are set in gangs of from three to five nets, and three to five gangs are laid out in one setting usually by aid of sailboats or steamers. (See models of Mackinaw boat and lake gill-net steamer.)

For floating the upper line, round or octagonal floats of bark, or wooden pickets about two and one-half feet in length, are used. Sinkers are of lead or stone. The nets are set in from 20 to 100 fathoms of water, the lead-line resting upon the bottom. They are taken out once a week and dried.

They are used principally for the capture of the whitefish (*Coregonus albus*, &c.), and the lake trout (*Salmo namaycush*), though most of the common lake fishes are taken in these meshes. Sea-Island cotton (3, 4, 5, and 6 thread) is being largely substituted for linen in their manufacture.

The weight of the twine preferred by fishermen varies in different localities, that used in Green Bay being the finest, that in Lake Erie next, then Lakes Michigan and Superior, and heaviest in Lake Huron. Lake Ontario consumes about 5,000 pounds of netting annually, Erie 7,500, Huron 6,000, Michigan 20,000, Green Bay 2,500, and Lake Superior 5,000. The aggregate length of this netting is probably about 4,575,000 yards.

**Sisco and herring gill-nets.**

Used in the Great Lakes in the capture of the sisco (*Salmo siscowet*) and the lake herring (*Argyrosomus clupeiformis*).

\* These nets are hung and set like the whitefish-nets previously described.

They are knit from linen thread (35-60, 2-cord) 30 to 40 meshes in depth, and  $2\frac{1}{8}$  to 3 inch mesh. About 2,500 pounds are annually consumed, chiefly about Sacket's Harbor, N. Y., and Lakes Huron and Michigan. (E. B. French.)

**Anchored gill-nets.**

Used on the coast from Cape Cod to Cape Hatteras in the capture of the bluefish (*Pomatomus saltatrix*).

\* These nets are knit from cotton twines (12-18 thread,  $\frac{1}{2}$  patent), and are 75 to 100 fathoms in length, and 80 to 200 meshes in depth, from  $4\frac{1}{2}$  to 6 inch mesh. They are heavily leaded and anchored with lead-line on the bottom, off-shore, in from 10 to 20 fathoms of water. They are chiefly used by New York fishing vessels; probably 1,000 or more are in use on the coast. In the winter season the fishing vessels follow the bluefish as far south as Cape Hatteras. (E. B. French.)

**Hook or trap gill-nets.**

Used on the coast of New Jersey in the capture of the Spanish mackerel (*Cybium maculatum*), &c.

\* These nets are peculiar in shape. They are straight nets, anchored in the form of an L with a hook-like continuation, heavily leaded, and with anchors at the angles. They are knit from cotton twines (9-12 thread,  $\frac{1}{2}$  patent), the outer end being of finer twine. Their length is about 100 fathoms, depth 75-100 meshes,  $3\frac{3}{4}$  to 4 inch mesh. About 100 of these are in use on the coast, mostly between Sandy Hook and Barnegat Light. (E. B. French.)

\* The nets belonging to this series are enumerated below, among Nos. 26848-26880.



**Meshing-nets** (entangling in meshes).

Salmon hook-gill-net of the Saint Lawrence.

‡ *Drift-nets.*

† *Those drifting across the tide.*

## Shad gill-nets used in Southern rivers.

26126, 26131-2. Model of shad gill-net. American Net and Twine Company, Boston and New York.

Used in rivers of the Atlantic coast.

These nets are knit of linen thread (22-50, 3-cord, and 20-60, 2-cord). They range in length from 50 to 200 fathoms, and in depth from 25 to 90 meshes,  $4\frac{3}{4}$  to 5 inch mesh. They are used exclusively as drift-nets.

On the Connecticut River about 4,000 pounds of this netting are used annually. The average weight of a net is 30 to 40 pounds, its depth 45 to 50 meshes,  $5\frac{1}{4}$  to  $5\frac{1}{2}$  inches.

On the Hudson River about 7,500 pounds are annually used, fine threads (50-75, 2-cord), 100 to 200 fathoms in length, and from 50 to 90 meshes in depth,  $4\frac{3}{4}$  to 5 inch, weight from 15 to 30 pounds to the net.

In the Delaware, Potomac, and Chesapeake 20,000 pounds are used, from 30 to 60 meshes in depth, and  $5\frac{1}{8}$  (30 to 40, 2-cord) length, 75 to 100 fathoms.

In the rivers of North Carolina nets are made from coarse twine (22-35, 3-cord, and 20-35, 2-cord) 25 to 40 meshes in depth, 5- $5\frac{1}{2}$  gauge. Their length is about 100 yards. About 25,000 pounds are used annually.

In the rivers of South Carolina the twine is slightly finer than in North Carolina (25-35, 3-cord), 25 to 60 meshes deep, the size otherwise about the same. 1,500 pounds are used annually.

In Georgia and Florida about 6,000 pounds are used. This netting is knit from linen thread (30-40, 3-cord, and 25-35, 2-cord) 40 to 60 meshes in depth;  $4\frac{3}{4}$  to  $5\frac{1}{4}$  mesh. About 18 to 24 pounds are used in a net; its length 100 yards. (E. B. French.)

## Herring gill-nets.

Used in Hudson and Delaware Rivers in capture of the alewife or herring (*Pomolobus pseudoharengus*).

\* Knit from 30-40, 2-cord, thread, from 45 to 100 meshes in depth,  $2\frac{1}{2}$  to 3 inch mesh; about 13 pounds to a net on the Hudson and 6 to 7 pounds on the Delaware; the nets on the Hudson, 60 to 100 meshes, on the Delaware from 35 to 60. About 2,500 pounds used annually. (E. B. French.)

## Mullet gill-nets.

Used principally on the Saint John's River, Florida.

Knit from coarse linen thread (16-25, 3-cord) and from 36 to 50 meshes in depth. The size of mesh varies with the season: in July  $3\frac{1}{2}$ , August  $3\frac{3}{4}$ , September 4 inch. The average length of the nets is 100 to 150 yards. About 1,500 to 2,000 pounds in use on Saint John's River, and about 1,000 pounds of cotton ( $\frac{1}{5}$  and  $\frac{1}{6}$  to  $\frac{2}{6}$ ) nets on the Gulf coast from 30 to 40 meshes in depth,  $3\frac{1}{2}$  to  $3\frac{3}{4}$ , not varying with seasons. (E. B. French.)

\* The nets belonging to this series are enumerated below, among Nos. 26848-26880



**Meshing-nets** (entangling in meshes).

Series of samples of gill-netting. American Net and Twine Company, Boston and New York :

Number	Depth	Meshes	Size of mesh	Thread	Count	Notes
26848.	Depth	15	mesh $1\frac{1}{4}$ inch,	No. 20	(3) thread.	
26849.	"	35	"	"	40	(2) "
26850.	"	100	"	"	25	(3) "
26851.	"	35	"	"	30	(3) "
26852.	"	50	"	"	25	(3) "
26853.	"	22	"	"	35	(2) "
26854.	"	50	"	"	15	(3) "
26855.	"	100	"	"	25	(3) "
26856.	"	100	"	"	25	(3) "
26857.	"	100	"	"	25	(3) "
26858.	"	16	"	"	25	(2) "
26859.	"	16	"	"	30	(2) "
26860.	"	40	"	"	18	(3) "
26861.	"	50	"	"	20	(3) "
26862.	"	17	"	"	35	(3) "
26863.	"	35	"	"	40	(3) "
26864.	"	16	"	"	35	(3) "
26865.	"	45	"	"	40	(3) "
26866.	"	14	"	"	35	(3) "
26867.	"	14	"	"	50	(3) "
26868.	"	14	"	"	35	(2) "
26869.	"	14	"	"	35	(2) "
26870.	"	16	"	"	35	(3) "
26871.	"	16	"	"	50	(3) "
26872.	"	18	"	"	50	(3) "
26873.	"	16	"	"	35	(3) "
26874.	"	45	"	"	30	(2) "
26875.	"	12	"	"	30	(2) "
26876.	"	60	"	"	35	(2) "
26877.	"	65	"	"	40	(2) "
26878.	"	35	"	"	35	(3) "
26879.	"	75	"	"	35	(3) "
26880.	"	11	"	"	35	(3) "

‡ *Drift-nets.*

† *Those drifting across the tide.*

26135. One bale of brown gill-netting. American Net and Twine Company, Boston, Mass.

26139. One bale of white gill-netting. American Net and Twine Company, Boston, Mass.

†† *Those drifting along the tide.*

Mackerel gill-nets.

Herring gill-nets.

26124-28-38. Herring gill-net. Used on the coast of New England and the Provinces in the capture of the herring (*Clupea harengus*). American Net and Twine Company, Boston, Mass.



**Meshing-nets** (entangling in meshes).

## Herring gill-nets.

These nets are about 40 yards long and 150 meshes in depth. They are stretched together in big gangs, floated by pieces of wood and weighted by stones. They are made of 45 and 6 thread cotton from 14 to 20 yarn,  $2\frac{1}{2}$  inch average mesh. American Net and Twine Company, Boston, Mass.  
 —. Model of herring gill-net. American Net and Twine Company, Boston, Mass.

## Other gill-nets.

1667. Gill-net. Anderson River Eskimos. Anderson River, H. B. T. R. MacFarlane.  
 7962. Gill-net made of animal fiber. Kawquettle Indians. Vancouver's Island, B. C. Dr. T. T. Minor.  
 19043. Gill-net. Cooyuwee Pi-Ute Indians. Pyramid Lake, Nev. Stephen Powers.  
 4765. Gill-net made of "Babiche." Anderson River Indians. Mackenzie's River district, H. B. T. MacFarlane.

**Pocket-nets** (entangling in pockets).

## Trammel-nets.

25270. Model trammel-net. 10 feet long, 2 feet wide, 2 and 5 inch mesh. William E. Hooper & Sons, Baltimore, Md.  
 26118-29. Trammel-net. American Net and Twine Company.

Used for general fishing in rivers and ponds of Northern Mississippi Valley.

These nets range from 20 to 75 yards in length, 4 to  $6\frac{1}{2}$  feet in depth. The inside netting of finer linen thread (20-25, 3-cord), mesh  $2-2\frac{1}{4}$ ,  $\frac{1}{8}$  deeper than the outside. The outside netting-wall from cotton (15-21 thread), mesh 8 to 10 inches. (E. B. French.)

## 31. ENCIRCLING-NETS.

**Seines.**

## Seines.

26134. Seven bales of brown seine-netting. Used for manufacture of pounds, traps, seines, fykes, &c. American Net and Twine Company, Boston, Mass.  
 26139. Eighteen bales of white seine-netting. American Net and Twine Company, Boston, Mass.

## Seal-seines.

17270. Seal-net made of sinew. Found wrapped about a mummy. Kagamil Island, Alaska. Alaska Commercial Company, San Francisco, Cal.

## Manatee-seines.

## Shad-seines.

## Mullet-seines.

## Menhaden-seines.



**Seines.**

Bass-seines.

Bluefish-seines.

Capelin-seines.

Herring-seines.

26119. Model of herring-seine. Used on coasts of New England and the Provinces in capture of herring (*Clupea harengus*), and in the Hudson, Potomac, Delaware, and Chesapeake, and in North Carolina. American Net and Twine Company, Boston, Mass.

26127. Model of herring-seine. American Net and Twine Company, Boston, Mass.

**Shad-seines.**

These are used in the rivers of the Atlantic and Gulf coast.

These seines are knit from cotton thread. On the Connecticut River, the seines are of nine-thread twine, 5-5½ mesh; on the Hudson, the mesh is four inches, knit of six-thread twine in the wings and nine thread in the bunt. In the Delaware, Potomac, and Chesapeake, the mesh is 3½ to 4½ inches, the twine 12, 15, and 18 thread; in North Carolina, the mesh is 2½ to 3½ inches, and the cotton twine twelve-thread. (E. B. French.)

**Cod-seines.**

26137. Model of cod-seine. Used in Provinces in capture of cod (*Gadus morrhua*). American Net and Twine Company, Boston and New York. 30 to 40 feet deep. Mesh 5 inches, 18 to 21 thread, cotton.

**Lance-bunts.****Baird collecting-seines.**

26136. Baird net. Designed by Prof. S. F. Baird. Used by naturalists in collecting small fishes in brooks and ponds and in following behind large seines to secure the small species which escape through the meshes, six-thread coarse cotton. American Net and Twine Company, Boston, Mass.

26126. Model of Baird net. American Net and Twine Company, Boston, Mass.

**Bait-seines.**

26123, 26130. Model of minnow-seine. Used by amateurs in capture of minnow-bait. ½ to ⅝ inch mesh, six-thread cotton twine. American Net and Twine Company, Boston, Mass.

26121. Model of minnow-seine, with bag. Used by fishermen to secure bait for eel-pots. American Net and Twine Company, Boston, Mass.

26668. Minnow-seine. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.

**Other seines.**

2232. Seine. Anderson River Eskimos. Mackenzie's River district. Robert MacFarlane.

2444. Seine made of "babiche." Tschutchi Indians. Capt. John Rodgers, U. S. N., North Pacific Exploring Expedition.



**Seines.**

## Other seines.

2445. Seine made of "babiche." Tschutchi Indians. Capt. John Rodgers, U. S. N., North Pacific Exploring Expedition.
2446. Hand-seine made of grass. Tschutchi Indians. Capt. John Rodgers, U. S. N., North Pacific Exploring Expedition.
2447. Hand-seine made of grass. Tschutchi Indians. Capt. John Rodgers, U. S. N., North Pacific Exploring Expedition.
19234. Salmon-net. McCloud River Indians. Shasta County, Cal. Livingston Stone.
20648. Salmon-net. Indians of Northwest coast. Fort Simpson, B. C. J. G. Swan.
2231. Hand-seine. Anderson River Eskimo. Mackenzie's River district, H. B. T. R. Kennicott.
21368. Fishing-net. Made from fiber of milkweed (*Asclepias* sp.). Hoochnorre Indians. South Eel River, Cal. Stephen Powers.
7929. Fishing-net. Made from fibers of pineapple (*Tillandsia* sp.). Mirador, Mex. Dr. Sartorius.
897. Fishing-net made of willow bark. Kootchin Indians. Mackenzie's River district, H. B. T. R. Kennicott.
4883. Net made of "silkweed." Fort Crook Indians. Fort Crook, Cal. Capt. J. W. T. Gardiner.

**Hoop-nets.**

## Handle, or dip nets.

Bull-nets (worked with ropes and blocks).

Scoop-nets (herring-nets, pound-scoops, car-scoops, &amp;c.).

25608. Bow of scoop-net. Used in dipping fish from smack's well. J. M. K. Southwick, Newport, R. I.
25165. Series of scoop-net hoops. Wilcox, Crittenden & Co., Middletown, Conn.
- 83, F. C. Frame of dip-net. Used in Bay of Fundy herring fisheries. U. S. Fish Commission.
25229. Folding dip-net frame. U. S. Fish Commission.
26141. Dip-nets. American Net and Twine Company, Boston, Mass.
26141. Minnow dip-nets. " "
26141. Crab dip-nets. " "

## Landing-nets.

25494. Jointed staff and folded net-ring. Bradford & Anthony, Boston, Mass.
25492. Nason's patent net-staff and ring. Flexible ring carried inside of staff. C. F. Nason, patent August 31, 1875. Bradford & Anthony, Boston, Mass.
25493. Nason's patent solid net-staff. With flexible ring. C. F. Nason, patent August 3, 1875. Bradford & Anthony, Boston, Mass.
25235. Folding handles for dip-net or lance. U. S. Fish Commission.
25638. Braided linen landing-net (waterproofed). Bradford & Anthony, Boston, Mass.
25639. Braided silk landing-net. Bradford & Anthony, Boston, Mass.
658. Dip-net. Used in the capture of the oulachan (*Osmerus pacificus*). Northwest coast of America. G. Gibbs.
21725. Dip-net. Used by McCloud River Indians in fishing in small streams. Shasta County, Cal. Livingston Stone.



**Hoop-nets.**

## Landing-nets.

26669. Landing-net. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.
26711. Landing-net. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.
26664. Landing-net and rod. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.

## Eskimo auk-nets.

15616. Bird-net frame. Aliut Eskimos. Alaska. Henry W. Elliott.

## Baited hoop-net:

## Crab-nets.

- 26591-2. Models of lobster-nets. Used on the coast of California. Johnson & Young, Boston, Mass.
26801. Crab-nets. American Net and Twine Company, Boston and New York.
32710. Open cunner-net. Gloucester, Mass. G. Brown Goode.
32711. Folding cunner-net. " "

**Trailing-nets.**

## Trawls:

Beam-trawl.  
(Otter-trawl.)

26882. Model of beam-trawl. American Net and Twine Company, Boston and New York.
32720. Model of beam-trawl. Made by J. G. Adam. U. S. Fish Commission.

## Dredges:

Flange, or ordinary dredge.  
Rake-dredge.  
Oyster-scrapers.  
(Coral-dredge.)

26140. Four brown dredge-nets. Oyster-dredging, &c. American Net and Twine Company, Boston and New York.

## Towing-nets:

## Surface tow-nets.

25228. Towing-net frame. U. S. Fish Commission.

**Folding or jerk nets.**

## Purse-nets:

Mackerel purse-seines (pursed by weight).  
Menhaden purse-seines.

29387. Model of mackerel purse-seine. Used on North Atlantic coast in capture of mackerel (*Scomber scombrus*). American Net and Twine Company, Boston, Mass.



**Folding or jerk nets.**

## Menhaden purse-seines.

26,120. Model of mackerel purse-seine. American Net and Twine Company, Boston, Mass.

These purse-seines range in length from 120 to 220 fathoms, and from 750 to 1,000 meshes in depth, reaching the depth of 20 to 30 fathoms of water. The average mesh is  $2\frac{1}{2}$  inches. They are made of fine Sea-Island cotton twine, and cost from \$750 to \$1,500 complete. About 300 are now in use on the coast of North America. The pursing weight varies from 100 to 150 pounds.

26122-26125. Model of purse-seine. American Net and Twine Company, Boston, Mass.

90 to 150 fathoms in length, 300 to 650 meshes in depth,  $1\frac{3}{4}$  to  $2\frac{3}{4}$  fine Sea-Island twine. Wings, 9 to 12; bag, 15 to 21, coarse.

25179. Snatch-block used in pursing-seine. Higgins & Gifford, Gloucester, Mass.

25186. Ring or thimble for pursing-seine. Wilcox, Crittenden & Co., Middletown, Conn.

## Cast-nets:

Mullet cast-nets.

Pompano cast-nets.

Bait cast-nets.

25046. Casting-net. Diameter  $4\frac{1}{2}$  feet. William E. Hooper & Sons, Baltimore, Md.

26799. Mullet cast-net. Diameter  $5\frac{1}{2}$  feet,  $1\frac{1}{2}$ -inch mesh.

26800. Shrimp cast-net. Diameter  $4\frac{1}{2}$  feet,  $\frac{3}{4}$ -inch mesh.

Clap-nets for birds.

Rabbit spring-nets.

Spring-weirs (St. Lawrence).

Sieve-traps (for birds).

**(Accessory.)** Parts of nets and apparatus for manufacture.

Raw material of nets.

Babiche. (See under D. 20.)

Netting-fiber.

Netting-twine.

\* 659. Netting-twine. Indians. Northwest coast of America. G. Gibbs.

14432. Fiber used for making nets. Pi-Ute Indians. Southern Utah. Maj. J. W. Powell.

29376. 38 bales of white netting-twine. American Net and Twine Company, Boston, Mass.

Samples of netting hung to lines. William E. Hooper & Sons, Baltimore, Md.:

25048.	1-inch	mesh,	12	thread,	1	fathom	long,	2	feet	deep.
25049.	$1\frac{1}{2}$	"	12	"	1	"	2	"		
25047.	$1\frac{1}{4}$	"	12	"	1	"	2	"		
25051.	$1\frac{1}{2}$	"	12	"	1	"	2	"		
25050.	2	"	12	"	1	"	2	"		



**(Accessory.)** Parts of nets and apparatus for manufacture.

Netting-needles.

Mesh-needles.

Hanging-needles.

Eskimo netting-needles.

25596. Seine-needle (home made). J. M. K. Southwick, Newport, R. I.  
 25593. Seine-needle. " "  
 25712. Seine-needle (called hanging-needle). N. H. Payne, Wellfleet, Mass.  
 —. Knitting-gauge. Used in regulating size of mesh. American Net  
 and Twine Company, Boston and New York.  
 9839. Seine-needle. Eskimos. Northeastern America. S. F. Baird.  
 16202. Seine-needle. Magemut Eskimos. Nunivak Island, Alaska. W. H.  
 Dall.  
 5613. Seine-needle of wood. Yukon River. W. H. Dall.  
 5614. Needle of bone. Norton Sound Eskimos. "  
 16170, 16169, 16166, 16167, 16168, 16171, 16196. Seine-needles of bone. Mage-  
 mut Eskimos. Nunivak Island. W. H. Dall.  
 1180. Seine-needle of wood. Chirikoff. W. H. Dall.  
 1315. Netting-needle. Eskimos. Smithsonian Institution.  
 9839. Seine-needle of bone. Eskimos of Northeastern America. S. F.  
 Baird.

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## VI. TRAPS.

### 32. PEN-TRAPS.

**Pocket-traps.**

Pitfalls :

Pits, covered.

Barrel-traps.

Jar mole-traps.

"Rabbit-tipe," used in England.

Salmon-baskets (Columbia River).

Salmon-weirs (Upper Columbia River).

River-weirs, with pockets :

Eel-traps.

Fish-slides :

Shad-slides, used in the rivers of North Carolina.

25830. Fish-slide. Used in James River, Virginia. Scale 1 inch to the foot.  
 J. G. Adam.

25831. Fish-slide (with box). Used in rivers of Virginia. Scale 1 inch to  
 the foot. J. G. Adam.

**Labyrinth-traps.**

Corrals.

Turkey-traps.



**Labyrinth-traps.**

## Weirs, or pounds.

12102. Bar-weir. Used in Bay of Fundy herring fisheries. Scale, 1 inch to 15 feet. Capt. W. S. Treat, Eastport, Me.
12101. Fish-weir. Used in Dennis River, Me. Scale,  $\frac{1}{2}$  inch to the foot. Prof. S. F. Baird.
12106. Salmon-weir. Used in rivers of Maine. Dennis River. Scale, 1 inch to  $8\frac{1}{2}$  feet. Prof. S. F. Baird.
26833. Model of heart-weir. American Net and Twine Company.
25750. Model of pound-net. Used in Lake Michigan. Scale,  $3\frac{1}{2}$  feet to 1 inch. Waukegan, Ill. D. D. Parmalee.
- Model of weir, or heart-net. Used on southern coast of New England. Scale, 1 inch to 8 feet. Spindel's Cove, Wood's Holl, Mass. Prof. S. F. Baird.
- 26731, 26746. Models of brush-weirs. Used in the Bay of Fundy in capture of herring (*Clupea harengus*). W. B. McLaughlin, Grand Manan, N. B.
25829. Model of fish-weir. Used by aborigines of Virginia in the fifteenth century. From figures in De Bry. J. G. Adam.
25820. Model of fish-trap. Valley of Yukon River. Scale, 1 inch to the foot. W. H. Dall.

## Funnel-traps.

## Fish-pots.

1754. Wicker fish-pot (model). Used in West Indies. 5 to 15 fathoms. Scale, 1 inch to the foot. H. O. Claughton, St. Martin's, W. I.
32738. Fish-pot (model). Bermudas. Scale of  $\frac{1}{4}$ . Made from wood of submerged cedar. G. Brown Goode.

## Lobster-pots.

12100. Lobster-pot. Used in Bay of Fundy. 4 to 10 fathoms. Scale,  $\frac{3}{4}$  inch to the foot. Prof. S. F. Baird.
24801. Lobster-pot. Used in Narragansett Bay, in 10 to 15 fathoms. Scale 3 inches to the foot. J. M. K. Southwick, Newport, R. I.
29296. Model of Noank lobster-pot. G. L. Green, Noank, Conn.
29531. Lobster-pot net. Used on coast of New Jersey. American Net and Twine Company, Boston and New York.
- 26586-7-8-9. Models of lobster-pots. Used on the coast of New England. Johnson & Young, Boston, Mass.
29363. Model of lobster-pot. N. C. Smith, Stonington, Conn.

## Eel-weirs, with leaders.

## Eel-pots, without leaders.

- Eel-pot. Used in Fisher's Island Sound, Conn. Scale, one-half. James H. Latham, Noank, Conn.
- 25015-16. Wicker eel-pot, two funnels, with leaders. Used about Martha's Vineyard, in 3 to 10 fathoms. Capt. Josiah Cleveland, maker, Vineyard Haven, Mass.
25014. Wicker eel-pot (three funnels). Used about Martha's Vineyard. Capt. Josiah Cleveland, maker, Vineyard Haven, Mass.
29530. Eel-pot net. Used on the coast of New Jersey. American Net and Twine Company, Boston and New York.



**Labyrinth-traps.**

## Eel-pots, without leaders.

25016. Leaders for eel-pot (Nos. 25014-15-16). Used in Martha's Vineyard. Capt. Josiah Cleveland, Vineyard Harbor, Mass.
26802. Basket eel-pot. American Net and Twine Company.
25018. Roots of young pine trees (*Pinus strobus*). Used in manufacture of eel-pots. Vineyard Haven, Mass. G. Brown Goode.

## Barrel-pots for eels.

## Set-nets.

32733. C. Set-net. Diameter of largest hoop, 15 inches. U. S. Fish Commission.

## Fykes (set-nets with leaders).

25045. Fyke-net with wings. Diameter, 3 feet. Wm. E. Hooper & Sons, Baltimore, Md.
26113. Model of minnow-fyke. American Net and Twine Company, Boston [and New York.
26114. Minnow-fyke. " " "
26117. Minnow-fyke. " " "

## Bird-fyke.

- 26115, 26116. Model of bird-net. American Net and Twine Company, Boston and New York.

## Bass-traps.

25704. Bass-trap. Used in Peconic Bay and Fisher's Island Sound. Scale,  $\frac{1}{2}$  inch to the foot. Charles T. Potter.

**Door-traps.**

† *Closed by the falling of a door.*

## Box-traps (figure 4).

25833. Horan's box-trap. Used in Philadelphia Zoological Gardens. Scale, one-half. Henry Horan.
25478. Box-trap. Used in capture of hares, possums, etc. Scale, one-half. T. N. Woltz.

## Traps with hanging doors.

- Self-setting trap. Used in capture of muskrats, hares, &c. Scale, one-half. Henry Horan.
25703. Self-setting trap. To be set in mouth of rabbit-burrow. Scale, one-half. E. Herron.

## Double box-traps.

25477. Double box-trap. Used in capture of hares, possums, &c. Scale, one-half. T. N. Woltz.



**Door-traps.**

Spring-door traps.

†† *Closed by falling of whole trap.*

Bowl-traps.

Cob-house bird-traps.

25659. Fall-trap. Used for partridges and other birds. Scale, one-half.  
T. N. Woltz.

25705. Fall-trap. Used in capture of partridges, &c. Scale, one-half.  
Henry Horan.

Pigeon-nets.

††† *Closed by falling of tide.*

Bar-weirs, arranged with the other weirs.

**Sheaf-traps.**

Sheaf-traps (New York Harbor).

## 33. CLUTCHING-TRAPS.

**Noose-traps.**

Snares:

Foot-path and barrier snares.

2033. Snare (made of sinew). Used in capture of lynxes, rabbits, &c.  
Fort Resolution, H. B. T. R. Kennicott.

19063. Rabbit-snare. Coowoye Pi-Ute Indians. Pyramid Lake, Nevada.  
Stephen Powers.

25660. Spring-trap (model). Used in capture of hares, grouse, &c. Scale,  
one-half. E. Herron.

25479. Spring-trap (model). Used for capture of hares, grouse, &c. Scale,  
one-half. T. N. Woltz.

25832. Model of grouse-snare. Yukon River, Alaska. W. H. Dall.

Springes.

“Round mouse-traps.”

**Jawed traps.**

“Steel traps:”

Newhouse traps.

25262. Newhouse trap. No. 0 for rats. Spread of jaws,  $3\frac{1}{2}$  inches; strong  
enough to hold muskrat. Oneida Community, N. Y.

25261. Newhouse trap. No. 1 for muskrats. Spread of jaws, 4 inches;  
adapted to capturing the smaller fur-bearing animals. Oneida  
Community, N. Y.

25260. Newhouse trap. No.  $1\frac{1}{2}$  for minks and fishers. Spread of jaws,  $4\frac{7}{8}$   
inches; strong enough to hold fox or fisher. Oneida Community,  
N. Y.

25259. Newhouse trap. No. 2, for foxes. With double spring; spread of  
jaws,  $4\frac{7}{8}$  inches; strong enough to hold an otter. Oneida Commu-  
nity, N. Y.



**Jawed traps.**

“Steel traps:”

Newhouse traps.

25258. Newhouse trap. No. 3, for otters. Double spring; spread of jaws, 5½ inches. Oneida Community, N. Y.

25256. Newhouse trap. No. 4, for deer. Double spring; spread of jaws, 6½ inches. Oneida Community, N. Y.

25257. Newhouse trap. No. 4, for beavers. Double spring; spread of jaws, 6½ inches. Oneida Community, N. Y.

25255. Newhouse trap. No. 5, for bears. Spread of jaws, 11¾ inches; weight of each spring, 2 pounds and 10 ounces; weight of trap 17 pounds, suitable for taking the common black bear. Oneida Community, N. Y.

25254. Newhouse trap. No. 6, for grizzly bears and moose. Spread of jaws, 16 inches; weight of each spring, 6 pounds and 10 ounces; weight of trap with chain, 42 pounds; made throughout, except the pan, of wrought iron and steel; strong enough to hold the moose or grizzly bear. Oneida Community, N. Y.

29250. Spring fish-trap. (Patented Dec. 9, 1856.) Edwin W. Judge, New Haven, Conn.

Spring bird-nets.

(French bird-trap.)

13153. Spring bird-trap. Used in France. Dr. H. C. Yarrow, U. S. A.

## 34. FALL-TRAPS.

**Crushing-traps.**

Dead-falls.

Figure-four traps.

25749. Log dead-fall (model). Used in Mississippi Valley. Scale, 1 inch to the foot. Henry Horan.

15614. Fox-trap. Used by Mahlemut Eskimos. Henry W. Elliott.

**Piercing-traps.**

Spear-falls.

Mole-traps.

Harpoon-traps.

**Spring-hooks.**

Pickerel-hooks, arranged with other hooks.

## 35. MISSILE-TRAPS

**Cross-bow traps.****Spring-guns.**

## 36. ADHESIVE PREPARATIONS.

**Bird-lime, &c.****Hoods, boots, &c.**



## VII. APPARATUS FOR WHOLESALE DESTRUCTION.

## 37. POISONS.

**Food poisons.**

Phosphorus poisons.  
 Strychnine.  
 Arsenic.  
 Corrosive sublimate.  
 Cyanide of potassium.  
 Opium poisons.

For obvious reasons this series is not exhibited.

**Blood poisons: Woorara.**

## 38. ASPHYXIATORS.

**Apparatus for smoking out.**

(Apparatus for suffocating with fumes of sulphur.)

**Apparatus for drowning out.**

## 39. TORPEDOES.

## 39½. STOMACH-SPRINGS.

**Eskimo whalebone springs** (used for killing bears).

7442. Stomach-springs. Used by Eskimo in capturing bears, &c. Fort Anderson, Arctic coast. R. McFarlane.

## VIII. HUNTING-ANIMALS.

## 40. HUNTING-MAMMALS.

**Dogs.**

**Hunting-leopard** (*Cynailurus jubatus*).

**Weasels and ferrets.****Otters.**

## 41. ACCESSORIES TO HUNTING-DOGS.

**Dog-whips.****Dog-whistles.**

29255. Dog-call (double).	Edwin M. Judge, New Haven, Conn.
29256. Dog-call.	“ “
29257. Dog-call.	“ “
29258. Dog-call.	“ “
29259. Dog-call.	“ “



**Dog-whistles.**

29260. Dog-call.	Edwin M. Judge,	New Haven,	Conn.
29261. Dog-call.	"	"	"
29262. Dog-call for whip.	"	"	"
29254. Police-call.	"	"	"
29255. Railroad-call.	"	"	"

**Dog-collars.****Dog-food.****Dog-carts.****Dog-muzzles.**

## 42. HUNTING-BIRDS.

**Falcons.****Owls.**

**Cormorants** (*Carbo sinensis*). Used in fishing in China.

## 43. ACCESSORY TO HUNTING-BIRDS.

**Hoods.****Perches.****Cormorant-collars.**

## 44. HUNTING-FISHES.

**Remora** (used in West Indies and Australia).

## IX. DECOYS AND DISGUISES.

## 45. BAITS.

**Natural baits.**

Flies and other insects. (This should include a collection of those insects which, as the favorite food of fishes, are imitated in making artificial flies.) Arranged with hooks. (See under 29 *a.*)

Worms.

Mollusks.

Salted baits (prepared).

Menhaden.

Herring.

Squids.

Clams, long.

Clams, hen.

Pea-roe of cod (used in French sardine-fisheries, and largely exported).

Grasshopper paste, used as a substitute for pea-roe.

Tolling baits, "stosh," &c.

These articles, on account of their perishable nature, cannot well be exhibited.



**Natural baits.**

(Accessories.) Methods of preparing baits:

Bait-cutters.

Bait-mills.

Bait-ladles.

Wheelbarrows for bait-clams (Nantucket).

32740. Beach-cart. Nantucket, Mass. W. H. Chase, 2d.

**Bait-boxes and cans.**

25560. Five bait-boxes. Bradford &amp; Anthony, Boston, Mass.

26394. Bait-box. Forest & Stream Publishing Company. Property of John  
[A. Nichols, Syracuse, N. Y.]

26633. Minnow-pail. " "

26692. Crab-can. " "

23691. Grasshopper-can. " "

**Bait-needles.****Artificial baits.<sup>1</sup>**Trolling-spoons.<sup>1</sup>Spinners.<sup>1</sup>Squids and jigs.<sup>1</sup>"Bobs," used in southern waters.<sup>1</sup>Artificial flies.<sup>1</sup>**Accessories to artificial baits.<sup>1</sup>**a. Fly-hooks.<sup>1</sup>b. Raw materials for making artificial flies.<sup>1</sup>c. Tools for making artificial flies.<sup>1</sup>**Pastes.****DECOYS.****Scent-decoys.****Sound-decoys.**

Animal-calls, whistles, &amp;c.

7452, 2149. Deer-call. Eskimos. Mackenzie's River district. R. Mac-  
Farlane.

2253. Deer-call. Eskimos. Mackenzie's River district. R. Kennicott.

**Bird-calls.**

26653. Turkey-call. Used in Illinois. J. W. Milner.

26654. Turkey-call. Used in Maryland. G. W. Woltz.

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<sup>1</sup>Arranged with hooks.



**Sight-decoys.**

Living decoy animals and birds.

Decoy-dogs, used in hunting ducks.

Stool-pigeons.

Tame decoy-ducks.

Tame decoy-brants.

Imitations of animals and birds.:

Decoy-waders (carved in wood).

25042. Black-breasted plover (*Squatarola helvetica*). P. Brasher, New York.  
 25041. Long-billed curlew (*Numenius longirostris*). " "  
 25043. Yellow-shanks (*Gambetta flavipes*). " "

Decoy-waders (stamped in tin).

25909. Black-breasted plover (*Squatarola helvetica*). Herman Strater & Sons,  
 [Boston, Mass.  
 25908. Golden plover (*Charadrius virginicus*) " "  
 25906-7. Red-breasted snipe (*Macrorhamphus griseus?*). " "  
 25910-11. Monstone (*Strepsilas interpres*). " "

These decoys are made hollow, stamped out in halves, hinged at head and tail to open and nest together. One dozen plover weigh 3 pounds, with box occupying a space of 8½ by 9 inches, 3 inches deep. Patented.

Decoy swimming-birds (made from the skins of birds).

7127. Skin of canvas-back duck (*Fuligula vallisneria*) stuffed with dry tulé grass and fitted for decoy with strings and weights. Pi-Ute Indians. Robert Ridgway.  
 7128. Skin of red-head duck (*Fuligula ferina*, var. *americana*), fitted for use as decoy. Pi-Ute Indians. Robert Ridgway.  
 7129. Same. Robert Ridgway.  
 4783. Same. Pi-Ute Indians. Carson Lake, Utah. Capt. J. H. Simpson.  
 19031. Skin of widgeon (*Mareca americana*), fitted for use as decoy. Cooyuwee Pi-Ute Indians. Pyramid Lake, Nevada. Native name, *Imoodoowe*. Stephen Powers.  
 29532. Skin of a pin-tail duck (*Dafila acuta*), stuffed for use as a decoy. P. Louis Jouy, Washington, D. C.

Decoy swimming-birds (carved in wood).

25040. Brant (*Bernicla brenta*). P. Brasher, New York City.  
 25035. Mallard (*Anas boschas*). Henry A. Stevens, Weedsport, N. Y.  
 25242. " " Male. John Krider, Philadelphia.  
 25241. " " Female. " "  
 29540. Black duck (*Anas obscurus*). Francis Burritt, South Norwalk, Conn.  
 25034. " " A. Stevens, Weedsport, N. Y.  
 26051. Pin-tail duck (*Dafila acuta*). John Krider, Philadelphia.  
 26054. Bald-pate duck (*Mareca americana*). Male. John Krider, Philadelphia.  
 26055. " " Female. " "  
 25038. " " P. Brasher, New York City.  
 25031. Blue-wing teal (*Querquedula discors*). Henry A. Stevens, Weedsport, N. Y.



**Sight-decoys.**

## Imitations of animals and birds:

## Decoy swimming-birds (carved in wood).

25245. Blue-wing teal (*Querquedula discors*). Female. John Krider, Philadelphia.  
 25246. " " " Male. " "  
 25244. Green-wing teal (*Nettion carolinensis*). " " "  
 25243. " " " Female. " "  
 25039. Broad-bill duck (*Fuligula marila*). P. Bracher, New York City.  
 26058. " " " Male. John Krider, Philadelphia.  
 26059. " " " Female. " "  
 29541. " " " Francis Burritt, South Norwalk, Conn.  
 25029. Scaup duck (*Fuligula affinis*). Henry A. Stevens, Weedsport, N. Y.  
 25032. Red-head duck (*Fuligula ferina*, var. *americana*). Henry A. Stevens, [Weedsport, N. Y.  
 26056. " " " " Male. John Krider, [Philadelphia.  
 26057. " " " " Female. "  
 25033. Canvas-back duck (*Fuligula vallisneria*). Henry A. Stevens, Weedsport, N. Y.  
 25037. " " " " Male. John Krider, Philadelphia.  
 26053. " " " " Female. " "  
 25036. Whistle-wing duck (*Bucephala americana*). Henry A. Stevens, Weedsport, N. Y.  
 25030. Butter-ball duck (*Bucephala albeola*). Henry A. Stevens, Weedsport, N. Y.

## Decoy swimming-birds (stamped in tin, with wooden bottoms and head balance weights).

26047. Mallard (*Anas boschas*). Male. Herman Strater & Sons, Boston.  
 25905. " " " Female. " "  
 26048. Black duck (*Anas obscura*). Male. " "  
 26049. " " " Female. " "  
 26045. Red-head duck (*Fuligula ferina*, var. *americana*). Male. Herman Strater & Sons, Boston.  
 26046. Red-head duck (*Fuligula ferina*, var. *americana*). Female. Herman Strater & Sons, Boston.  
 26043. Canvas-back duck (*Fuligula vallisneria*). Male. Herman Strater & [Sons, Boston.  
 26044. " " " " Female. "  
 25901. Whistle-wing duck (*Bucephala americana*). Male. "  
 25902. " " " " Female "  
 25903. Sheldrake (*Mergus americanus*). Male. "  
 25904. " " " " Female. "  
 25900. Surf duck (*Ædemia perspicillata*). "  
 26702. Decoys. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.

## Imitations of fishes.

29366. Lure-fish. D. H. Fitzhugh, Bay City, Mich. Used in fishing through the ice for salmon-trout.



**Sight-decoys.**

Imitations of fishes.

29294. Lure-fishes. William Morris, Lake City, Mich. Used in fishing through the ice for pickerel.

These lure-fishes are used to decoy large fish under holes in the ice so that they may be within reach of the spear.

Blanket decoy (for antelopes).

Lanterns and other apparatus for fire hunting and fishing.

Lanterns for still-hunting.

25238. Centennial dash-lamp. For sportsman's hunting-wagons. White Manufacturing Company, Bridgeport, Conn.

25239. Dash-lamp. Used for hunting and fishing. White Manufacturing Company, Bridgeport, Conn.

25236. Jack-lamp. For night-hunting and general camp uses. White Manufacturing Company, Bridgeport, Conn.

25240. Johnson's jack-lamp support. For night hunting and fishing. White Manufacturing Company, Bridgeport, Conn.

25237. Fishing-lamp. White Manufacturing Company, Bridgeport, Conn.

Lanterns for weequashing, or fire-fishing, for eels.

29365. Boat-lanterns. Used in bow of boat in weequashing or spearing eels by night. Southern New England, James H. Latham, Noank, Conn.

12107. Birch-bark used for torchlight fishing. Passamaquoddy Indians. Eastport, Me. Dr. E. Palmer.

32739. Torch for night fishing. Halifax, N. S. Capt. H. C. Chester.

## 47. COVERS.

**Movable covers.**

Masks.

Deer heads and antelope heads.

8420. Antelope decoy. Made from head of prong-horn antelope (*Antilocapra americana*). Prescott, Ariz. Dr. E. Coues, U. S. A.

— Antelope decoy. Arizona. Dr. J. B. White, U. S. A.

5537. Deer decoy. Made from head of mule-deer (*Cervus macrotis*). Apache Indians. Edward Palmer.

Movable copses.

Covers for hunters.

Covers for boats.

**Stationary covers.**

Hunting-lodges.



## X. PURSUIT, ITS METHODS AND APPLIANCES.

## 48. METHODS OF TRANSPORTATION.

**Personal aids.**

Snow-shoes.  
 Skates.  
 Alpenstocks and staves.  
 Portable bridges.

**Animal equipments.**Harness:<sup>1</sup>

Horse-trappings.  
 Dog-harness.  
 Girths, sinches.  
 Bits, cabrestos, spurs.

Saddles:<sup>1</sup>

Riding-saddles.  
 Pack-saddles.  
 Aparejos.  
 Riding-pads (for buffalo hunting).  
 Fur pack-saddle (Hudson's Bay Territory).

Vehicles:<sup>1</sup>

Deer-sledges.  
 Dog-sledges.  
 Wagons.  
 Dog-carts.  
 Fish-carts, used in Nantucket.

**Boats.**

## Hunting-boats, fishing-boats:

Birch canoes.

## Birch-bark canoes.

Used by Indians in hunting and fishing.

26615. Bark canoe. Passamaquoddy Indians. Eastport, Me. E. Palmer.

26614. Bark canoe. Sixteen feet long, thirty-seven inches wide. Montagnard Indians of Besamis. Labrador. R. H. Powell.

7630. Bark canoe. (Model.) Lower Ingalik, Alaska. W. H. Dall.

858. Bark canoe. (Model.) Chippeway Indians, Athabasca and Great Slave Lakes. B. R. Ross.

2358. Bark canoe. (Model; scale, about 1 inch to foot.) Northeastern America. J. Varden.

<sup>1</sup> Arranged with Ethnological series.



**Boats.**

## Birch-bark canoes.

859. Bark canoe. (Model.) Slave Indians of Mackenzie's River. Fort Simpson, H. B. T. B. R. Ross.
641. Bark canoe. (Model.) Upper Columbia River. G. Gibbs.
12107. Birch-bark, used in manufacture of canoes. Passamaquoddy Indians. Eastport, Me. E. Palmer.

## Wooden sea canoes.

Used by Indians of Northwest coast in hunting and fishing.

20592. Wooden canoe. Northwest coast. J. G. Swan.
13102. Wooden canoe. (Model.) Queen Charlotte Island. J. G. Swan.
2616. Wooden canoe. (Model.) Northwest coast. U. S. Exploring Expedition. Capt. Charles Wilkes, U. S. N.
20592. Wooden canoe. (Model.) Bella Bella, B. C. J. G. Swan.
2583. Wooden canoe. (Model.) Oregon. U. S. Exploring Expedition. Capt. Charles Wilkes, U. S. N.
1785. Wooden canoe. (Model.) Northwest coast. Dr. George Suckley.
11082. Wooden canoe. (Model.) Alaska. Lieutenant Ring, U. S. N.
20895. Wooden canoe. (Model.) Haidah Indians. Prince of Wales Island, Alaska. J. G. Swan.

## Wooden canoes.

Used by Indians of the Northwest coast in whaling and sea fisheries.

26785. Wooden canoe. (60 feet long.) British Columbia. J. G. Swan.
16269. Wooden canoe. (Model.) Sitka, Alaska. W. H. Dall.
21595. Wooden canoe. (Model.) Alaska. Dr. J. B. White.
21594. Wooden canoe. (Model.) Alaska. “
639. Wooden canoe. (Model.) Northwest coast. George Gibbs.
7285. Wooden canoe. (Model.) Neah Bay, Washington Territory. J. G. Swan.
16269. Wooden canoe. (Model, painted.) Ihliuket Indians. Sitka, Alaska. W. H. Dall.
640. Wooden canoe. (Model.) Northwest coast. George Gibbs.
1871. Wooden canoe. (Model.) Vancouver's Island. Dr. C. B. Kennerly.
811. Wooden canoe. (Model.) “ “
26761. Wooden canoe. Model of Haidah canoe (with masts and pushing-sticks, for traveling, fishing, &c.). Queen Charlotte Island. J. G. Swan.
26760. Wooden canoe. Model of Haidah canoe (for deep sea and war). Queen Charlotte Island. J. G. Swan.
26763. Wooden canoe. Model of wooden canoe (with masts, paddles, pushing-sticks, and ivory harpoons). J. G. Swan.
26762. Wooden canoe. Model of Cogwell canoe (for deep sea and war). Flathead Indians. J. G. Swan.
26787. Wooden canoe. British Columbia. J. G. Swan.
26786. Wooden canoe. “ “
26785. Wooden canoe. Dug-out canoe (60 feet long). British Columbia. J. G. Swan.



**Boats.****Kyaks or bidarkas.**

Used by Eskimos of Arctic America in hunting and fishing.

26617. Kyak. (13 feet 9 inches long, 30 inches wide.) Northwest coast, Sitka, Alaska. William Burling.
14971. Kyak. (Model.) Alaska. W. H. Dall.
16275. Kyak. (Model.) Kodiak. “
14971. Kyak. (Model, one hole.) Alaska. W. H. Dall.
21609. Kyak. (Model, one hole.) Alaska. Dr. J. B. White.
1127. Kyak. (Model, two-hole.) Koloshes, Aleutian Islands. Capt. J. R. Sands.
14970. Kyak. (Model.) Aleutian Islands. W. H. Dall.
21604. Kyak. (Model, 2-hole.) Alaska. Dr. J. B. White.
21605. Kyak. (Model, 3-hole.) Alaska. “
21610. Kyak. (Model, 3-hole.) Alaska. “
21606. Kyak. (Model, 4-hole.) Alaska. “
8788. Kyak. (Model.) Unabeet Eskimo. Norton Sound, Alaska. W. H. Dall.
26618. Kyak. Eighteen feet long, 22 inches wide. Greenland. Eskimo Joe.
562. Kyak. (Model.) East coast, Upernavik. Dr. Hayes.
14750. Kyak. (Model, with bird-spear, harpoon, and seal-skin float.) Eskimos, Tusiack, North Greenland. Prof. S. F. Baird.
2230. Kyak. (Model, with bird-spear, lances, and spear-rest.) Anderson River Eskimos. Mackenzie's River district. R. MacFarlane.

**Umiaks or bidarras.**

Used by Eskimos in whaling and sea fisheries.

1098. Umiak. (Model.) Fort Anderson, H. B. T. Robert MacFarlane.
15618. Umiak. (Model of frame.) Saint Lawrence Island, Alaska. H. W. Elliott.

**Indian raft-boats.**

Used in hunting and fishing.

19028. Raft of tulé grass. (Model.) Pi-Ute Indians. Pyramid Lake, Nev. Stephen Powers.

**Dug-out canoes.**

Used by Indians of Pacific coast.

21358. Dug-out canoe. (Model.) Hoopah Indians, Trinity River, Cal. S. [Powers.
21359. Dug-out canoe. (Model.) “ “

**Dug-out canoe.**

Used in river fisheries of the Southern States.

25728. Dug-out canoe. (Model; scale, inch to foot.) Saint John's River, Florida. Francis C. Goode.



**Boats.**

## Portable boats.

29506. Hegeman portable folding boat. Length, 10 feet; width, 3 feet.  
Hegeman Portable Folding Boat Company, Ballston Spa, N. Y.

Directions for setting up boat:

1. Unfold the frame.
2. Place the knees and seats in position before fastening the bottom-end section at the ends of the boat.
3. Fasten the bottom-end section to the ends of the boat by the thumb-screws.
4. Place on the canvas with the cords and tie in a single loop (or bow knot).

22218. Model of Colvin portable canvas boat. (Patented Oct. 6, 1874.) R.  
A. Scott & Co., Albany, N. Y.

"This boat consists of a canvas exterior made thoroughly water-proof by a preparation which preserves the strength of the canvas and prevents decay and oxidation. It is shaped like a canoe, sharp at both ends, and cuts the water handsomely. Along the sides and bottom are leather thongs, by which the boughs and limbs cut for frame can be lashed securely to the canvas, with the assistance of the four leather framing blocks or sockets (two for each end), which connect the stem and stern posts (or prow pieces) with the keelson, and it can be readily put together anywhere in the woods, no tools being required for the purpose, excepting such as are *always carried* by a party of sportsmen, or others, an ax or hatchet only being needed. The whole of it can be packed away in a space 24 inches long, 6 inches wide, and 3 inches thick. The size now made (No. 3), although but 12 feet long, will carry six men, or four men with their necessary baggage, and weighs but 12 pounds when rolled up. It has been tested in a heavy sea with a frame of green boughs cut only two hours before, and carried a weight of 700 pounds safely and easily."

25879-26-112. Model of Fenner's portable boat. With canvas bottom. C.  
A. Fenner, Mystic River, Connecticut.

One of these models is shown closed up in its case ready for transportation, the other set up for use.

**Canoes.**

26619. Paper canoe "Maria Theresa." N. H. Bishop, Lake George, N. Y.

Designed by Rev. Baden Powell, of England; built by E. Waters & Sons, of Troy, N. Y. Dimensions: length, 14 feet; beam, 28 inches; depth (amidship), 9 inches; weight of canoe, 58 pounds; weight of canoeist, 130 pounds; weight of outfit, 90 pounds; total, 278 pounds. Rowed by Mr. N. H. Bishop (from Troy, N. Y., 2,000 miles) while on his first geographical journey from the Gulf of Saint Lawrence to the Gulf of Mexico, 2,500 miles, during 1874 and 1875. Since the completion of the voyage all injuries the hull sustained were remedied by the simple application of a sheet of paper and a coat of shellac varnish to the outside of the boat. When in use a piece of canvas covers the undecked part of the canoe and keeps the interior dry. Water-courses traversed by Mr. Bishop during 1874 and 1875: From Quebec, rivers Saint Lawrence and Richelieu,



**Boats.**

## Canoes.

Lake Champlain, and canal to Albany; the Hudson, Kill Von Kull, and Raritan rivers and canal, and the Delaware to Philadelphia; Delaware River and bay to Cape Henlopen, and interior salt-water passages on coast of Maryland and Virginia to Norfolk; the Elizabeth River and canal to Currituck Sound, Albemarle, Pamlico, Cove, Bogue, Stump, and other sounds, to near Wilmington, N. C.; Waccamau River to Georgetown, S. C.; by salt-water creeks, rivers, bays, and sounds along the coast of the United States to Florida; from Atlantic coast, via Saint Mary's and Suwannee rivers, to Gulf of Mexico.

26628. Rice Lake canoe. William English, Peterborough, Ontario.

## Coracles or skin boats.

9785. Skin boat. Hidatza (*Gros Ventres*) Indians. Fort Buford, Dakota.  
Dr. W. Mathews, U. S. A.

## Whale boat (used in whale fisheries).

24880. Whale-boat. (Model, with all fittings; scale, 1 inch to foot.) Capt. L. Howland, New Bedford, Mass.

24868. Whale-boat. (Model.) C. H. Shute & Son, Edgartown, Mass.

26839. Whale-boat, 35 feet long. Williams, Haven & Co., New London, Conn.

This boat is mounted with all the gear used in the capture of the whale.

## Seine-boat.

25827. Model of Cape Ann seine-boat. Higgins & Gifford, Gloucester, Mass.

This model shows the fittings manufactured for seine-boats by Wilcox, Crittenden & Co., Middletown, Conn., to wit: cleat, stern-cap, snatch-block for pursing-seine, steering-oarlock with stern socket, socket used on side of stern for steering, davit-iron, tow-iron, tow-link and hook, belaying-pin, oar-holder, davit-guard and step-plate, breast-brace and eye-plate or oar-holder swivels, all of which are shown in their proper places by full-size models.

## Dorys, sharpies, and dingies.

25657. Nantucket dory. (Model; scale, 1 inch to the foot.) William H. Chase.

Used in gathering clams for codfish-bait.

12678. New England dory. (Models; scale, 1 inch to the foot.) Starling & Stevens, Ferryville, Me.

13493. New England dory. (Model; scale, 1 inch to the foot.) Starling & Stevens, Ferryville, Me.

Used in coast fisheries and bank cod fisheries.

24752. Connecticut sharpie. (Scale, 1 inch to the foot.) Capt. H. C. Chester, Noank, Conn.



**Boats.**

## Italian fishing-boats.

Used in harbor fisheries of California.

22213. Italian fishing-boat. (Model; felucca rig.) San Francisco. Livingston Stone.  
 22214. Italian fishing-boat. (Model; felucca rig.) " "  
 22215. Italian fishing-boat. (Model; felucca rig.) " "  
 22217. Italian fishing-boat. (Model.) Chinese fishing-boat. San Francisco. Livingston Stone.

## Pinkies.

25729. Martha's Vineyard pinkie-boat. (Model; scale,  $\frac{1}{2}$  inch to the foot.) William H. Chase.  
 Used in shore fisheries.  
 25898. Norman's Land pinkie-boat. (Model; scale, inch to the foot.) Capt. William Cleveland, Vineyard Haven, Mass.  
 Used in cod and coast fisheries.

## Hunting-skiffs.

Used for hunting and fishing in mountain lakes.

26621. Adirondack boat. Full size. Frederick D. Graves, maker, Boston, Mass.  
 25681. Adirondack boat. (Model; scale,  $\frac{1}{2}$  inch to the foot.) Frederick D. Graves, maker, Boston, Mass.  
 Dimensions: 15 feet long, 3 feet 6 inches wide; weight, 75 to 80 pounds. For the use of sportsmen this boat is claimed to excel, on account of its *extreme lightness* and *durability*, one man being able by means of a yoke to carry the same to any distance without fatigue. This boat is also adapted for family purposes, the *patent rowlock* enabling the most inexperienced rower of either sex to propel the boat with ease and perfect safety, and without any possible chance of losing the oars.  
 25899. Ausable boat. (Model.) D. L. Fitzhugh, jr., Bay City, Mich.  
 Used in trout and grayling fishing, with well for live fish.  
 Length, 16 feet; sides twelve inches high inside, 2 feet 10 inches wide on top, 2 feet 4 inches at bottom.  
 26624. Saint Lawrence boat. (Length, 19 feet; width, 43 inches.) Henry Sweetman, Clayton, N. Y.  
 Used in trolling in the Thousand Island region. Length, 19 feet; width, 43 inches.  
 25053. Alexandria Bay boat. (Model.) Cornwall & Walton, Alexandria, N. Y.  
 Used for hunting and fishing in the Adirondacks and the Saint Lawrence.

## Sea boats.

24999. New England surf-boat. (Model; scale, 2 inches to the foot.) Cragin & Sheldon, makers, Boston, Mass.  
 Used in harbor, lake, and river fisheries.  
 25001. Whitehall boat (18 feet). (Model; scale, 2 inches to the foot.) Cragin & Sheldon, Boston, Mass.  
 25000. Ship's yawl. (Model; scale, 2 inches to the foot.) Cragin & Sheldon, Boston, Mass.  
 Carried by coasters and fishing smacks.



**Boats.**

## Sea boats.

22216. San Francisco yawl. (Model.) Livingston Stone.  
Used by Italian fishermen on coast of California.
25028. Nantucket Harbor boat. (Model; scale, 1 inch to the foot.) W. H. Chase.  
Used in harbor fishing.

## Oyster-canoe.

25003. Chesapeake oyster-canoe (made from two logs). (Model; scale, 1 inch to the foot.) Major T. B. Ferguson, Maryland Fish Commission.  
Used for oyster-raking in Chesapeake Bay.
25002. Chesapeake canoe-pungy. (Model; scale, 1 inch to the foot.) Major T. B. Ferguson, Maryland Fish Commission.  
Used in oyster-dredging in Chesapeake Bay.

## Ducking-boats.

25658. Egg Harbor boat. (Model; scale, 1 inch to the foot.) P. Brasher, New York City.  
Used for hunting in marshes and bays.
26620. Cedar duck-boat "Central Republic." Built by Capt. George Bogart, surfman, Manahawken, Ocean County, New Jersey. Dimensions: 12 feet long, beam 3 feet 11 inches, depth 12 inches. N. H. Bishop, Lake George, N. Y.  
This is the boat in which Mr. Nathaniel H. Bishop, of Lake George, Warren County, New York State, rowed from Pittsburg, Pa., via Ohio and Mississippi Rivers and the Gulf of Mexico (2,600 miles) to Cedar Keys, Fla., while on his second geographical expedition during 1875-76.
26623. New Jersey sneak-box. (Model; scale, 1 inch to the foot.) John D. Gifford, Tuckerton, N. J.

These boats are from twelve to fourteen feet in length; the shelving or sideboards on the stern of the boat are used to hold the decoys while the hunter rows to and from the shooting ground. Used by gunners on Barnegat and Little Egg Harbor Bays, New Jersey.

26622. Maryland ducking-sink. (Model; scale, 1 inch to foot.) J. G. Adam.  
Used by gunners on the Potomac River and Chesapeake Bay.

## Cat-rigged fishing-boats.

12099. Bay of Fundy cat-boat. (Model; scale,  $\frac{1}{2}$  inch to the foot.) Captain Hallet, Eastport, Me.  
Used in herring fisheries.
25026. Martha's Vineyard cat-boat. (Model; scale,  $\frac{1}{2}$  inch to the foot.) William H. Chase.  
Used in coast fisheries.
29537. Providence River cat-boat. (Model; scale, 1 inch to the foot.) J. M. K. Southwick, Newport, R. I.  
These boats vary in length from 14 to 19 $\frac{1}{2}$  feet, and cost from \$225 to \$425. Used by lobster fisheries and hook and line fisheries. Built by J. U. Stoddard.
26585. Two-masted cat-boat. (Model; scale, about  $\frac{1}{2}$  inch to the foot.) Johnson & Young, Boston, Mass.  
Used in New England lobster fisheries.



**Boats.**

## Schooner-rigged fishing-vessels.

26809. Noank lobster-boat. (Model.) Capt. H. C. Chester, Noank, Conn.  
 25825. Block Island boat. (Model; scale,  $\frac{1}{2}$  inch to the foot.) Capt. H. C. Chester.  
 Used in cod fisheries and shore fisheries.
25730. Massachusetts schooner-smack. (Model; scale,  $\frac{1}{8}$  inch to the foot.) William H. Chase, Boston, Mass.  
 Used in mackerel fisheries and winter oyster trade.
25731. Maine schooner-smack. (Model; scale,  $\frac{1}{4}$  inch to the foot.) Capt. H. C. Chester.  
 Used in bank cod fisheries and eastern mackerel fisheries.
26536. Oyster-schooner. (Model; scale, 1 inch to the foot.) T. B. Ferguson, Maryland Fish Commission.  
 Used in oyster-dredging in Chesapeake Bay.
26584. Schooner-smack. (Model; scale, about  $\frac{1}{2}$  inch to the foot.) Johnson & Young, Boston, Mass.  
 Employed in the New England lobster fisheries.
25727. Noank well-smack. (Model; scale,  $\frac{1}{2}$  inch to the foot.) H. C. Chester, Noank, Conn.  
 Supplies fresh fish to local markets and New York iced-fish trade.
24883. Schooner-yacht. (Model; scale,  $\frac{1}{8}$  inch to the foot.) William H. Chase.  
 Used in pursuit of sword-fish and blue-fishing.
22220. Gloucester schooner-smack, style 1835. (Model.) M. M. McFadyn.  
 First form of sharp-bowed schooner, out of which the present Gloucester schooner was developed.
22219. Old-fashioned topmast schooner. (Model.) A. R. Crittenden.
26584. Schooner-smack. (Model; scale, about  $\frac{1}{2}$  inch to the foot.) Johnson & Young, Boston, Mass.  
 Used in the New England lobster fisheries.

**Ships.**

25726. Whaling-ship. (Model.) C. H. Shute & Son, Edgartown, Mass.  
 Crew engaged in cutting in the blubber.
24881. Whaling-bark. (Model; scale,  $\frac{1}{4}$  inch to the foot.) U. S. Fish Commission.  
 Used in northern whale fisheries.
24882. Merchant ship. (Model; scale,  $\frac{1}{8}$  inch to the foot.) U. S. Fish Commission.  
 Used in foreign trade.

**Boats of Great Lakes.**

26625. Mackinaw boat. (Model.) J. W. Milner.  
 Used in fisheries of the upper great lakes.
26626. "Norwegian boat" (Model.) J. W. Milner.  
 Used in Lake Michigan fisheries.
26790. Lake Erie pound boat. (Model.) J. W. Milner.
26627. Square-stern boat. (Model.) J. W. Milner.  
 Used in Great Lake fisheries.

**Steamers.**

25824. Menhaden steamer with seine-boats. (Model.) Joseph Lawler, Bristol, Me.  
 —. Gill-net steamer. (Model.) N. Crooks, Milwaukee, Wis.



**Boats.**

## Steamers.

25027. Gill-net steamer. (Model; scale, 1 inch to 5 feet 5 inches.)  
Used in Lake Michigan fisheries.
25027. "Camel" floating-dock. (Model; scale, 1 inch to 5 feet 5 inches.)  
William H. Chase.
26808. "Camel" floating-dock. Model of steamship Cuba. Deposited by  
F. McFadden, Philadelphia.  
Built in 1842 for floating loaded ships over Nantucket bar.

**Apparatus accessory to rigging fishing-vessels.**

## Blocks.

25821. Three single iron-sheaved, plain-hook tackle blocks. Walter Coleman & Sons, Providence, R. I.
25820. Two double iron-sheaved, plain-hook tackle blocks. Walter Coleman & Sons, Providence, R. I.
25806. "Dead-eye" block. Used to secure the standing or fixed rigging to the hull of the vessel. Walter Coleman & Sons, Providence, R. I.
25804. "Heart" block. Used to secure the standing or fixed rigging to the hull of the vessel. Walter Coleman & Sons, Providence, R. I.
25805. "Bull's-eye" block. Used to secure the standing or fixed rigging to the hull of the vessel. Walter Coleman & Sons, Providence, R. I.
25819. One single brass-sheaved, sister-hook tackle block. Walter Coleman & Sons, Providence, R. I.
25152. Series of boat-blocks. Used on small fishing-boats around Cape Cod and Newport. Wilcox, Crittenden & Co., Middletown, Conn.
25817. One single brass-sheaved, sister-hook tackle block. Walter Coleman & Sons, Providence, R. I.
25818. One double iron-sheaved, sister-hook tackle block. Walter Coleman & Sons, Providence, R. I.
25812. Round block. For jib-sheets and small craft. Walter Coleman & Sons, Providence, R. I.
25816. Two double brass-sheaved, plain-hook tackle block. Walter Coleman & Sons, Providence, R. I.
25815. Common iron sheave. Walter Coleman & Sons, Providence, R. I.
25814. Plain brass sheave. Walter Coleman & Sons, Providence, R. I.
25813. Patent brass-roller sheave. Walter Coleman & Sons, Providence, R. I.
29444. Improved swivel-hook. For blocks and general use. Daniel Walker, Providence, R. I.

## Clews and hanks.

25139. Ship's clew for courses. Wilcox, Crittenden & Co., Middletown,  
[Conn.]
25140. Earing-ring. " "
25141. Throat-ring. " "
25221. Sail-clew. " "
25135. Series of spectacle or fore-and-aft clews. With patent clew-thimbles. Wilcox, Crittenden & Co., Middletown, Conn.
25136. Improved heart-clew. Wilcox, Crittenden & Co., Middletown, Conn.
25142. Tack-ring. " "
25137. Series of topsail clew-bows. " "
25138. Series of clew-bars. " "



**Apparatus accessory to rigging fishing-vessels.****Clews and hanks.**

29475. Clement's patent self-adjusting jib-hank. Wilcox, Crittenden & Co., Middletown, Conn.
25143. Jib-head, with patent clew-thimble, used where the jib has been stretched too much; the jib is shortened at the head; and the jib-head is attached to the sail. Wilcox, Crittenden & Co., Middletown, Conn.
25803. Jib-hank. Goes on jib-stay to hold the sail to it. Walter Coleman & Sons, Providence, R. I.
25777. Wooden jib-hank. Samuel Elwell, jr., Gloucester, Mass.
25156. Series of single-stay jib-hanks. Wilcox, Crittenden & Co., Middletown, Conn.
25157. Series of double-stay jib-hanks. " "
25215. Self-adjusting jib-hank for double stay. Clement's patent. Wilcox, Crittenden & Co., Middletown, Conn.
25214. Patent self-adjusting jib-hank. Clement's patent. Wilcox, Crittenden & Co., Middletown, Conn.
29460. Jib-sheet block (peculiar to Gloucester fishing-vessels). Samuel Elwell, jr., Gloucester, Mass.
25158. Pratt's patent jib-hank or yacht-jib. Wilcox, Crittenden & Co., [Middletown, Conn.]
25207. Hook-and-eye for bonnet of jib. " "

**Chocks.**

29468. Line-chock for whale-boat. Provincetown style. William W. Smith, Provincetown, Mass.
25180. Line-chock for whale-boat. Wilcox, Crittenden & Co., Middletown, [Conn.]
25216. Bow-chocks. " "
25195. Boat-chocks. " "

**Boat-hooks.**

25926. Whaler's large-ring boat-hook. E. B. & T. Macy, New Bedford, Mass.
25614. Whale-boat boat-hook (peculiar to New Bedford). Humphrey S. Kirby, New Bedford, Mass.
25196. Series of wrought-iron boat-hooks. Wilcox, Crittenden & Co., [Middletown, Conn.]
25200. Boat-hook for gunboat. " "
25226. Boat-hook. U. S. Fish Commission (deposited).
25197. Double Navy boat-hooks with ball points. Wilcox, Crittenden & [Co., Middletown, Conn.]
25198. Series of Navy boat-hooks with ball points. " "
25199. Series of sharp-pointed boat-hooks. " "

**Belaying-pins.**

25161. Series of belaying-pins. Wilcox, Crittenden & Co., Middletown, [Conn.]
25169. Belaying-pin for Cape Ann seine-boat. " "
25766. Two belaying-pins. Samuel Elwell, jr., Gloucester, Mass.



**Apparatus accessory to rigging fishing-vessels.**

## Riggers' hooks.

25194. Deck or hammock hook. Wilcox, Crittenden & Co., Middletown,  
[Conn.]
25195. Hammock-hook. " " "
25206. Series of riggers' sister-hooks. " " "
25145. Wide-mouthed single-hooks, or Cape Ann bonnet-hooks. Wilcox,  
[Crittenden & Co., Middletown, Conn.]
29478. Bonnet-hook and grommet. " " "
29452. Bonnet-hook-and-eye, for removing the jib. Wilcox, Crittenden &  
[Co., Middletown, Conn.]
25155. Series of hooks and thimbles. " " "
25943. Purrel hooks. S. Elwell, jr.
25144. Sister-hooks. Wilcox, Crittenden & Co., Middletown, Conn.
25150. Sailmaker's bench-hook. " " "
25149. Sailmaker's heaver. " " "
25207. Hook-and-eye for bonnet of jib. " " "
25185. Hook-and-eye plate. " " "

## Grommets.

25116. Series of galvanized-iron sail-grommets (Wilcox's patent). Wilcox,  
Crittenden & Co., Middletown, Conn.
25117. Series of brass sail-grommets (Wilcox's patent). Wilcox, Crittenden  
& Co., Middletown, Conn.
25118. Series of brass grommets. Conical point, rolled rim. Wilcox, Crit-  
tenden & Co., Middletown, Conn.
25119. Series of metallic grommets. First used in America. Wilcox, Crit-  
tenden & Co., Middletown, Conn.
25120. Series of brass grommets. First patented in America. Wilcox, Crit-  
tenden & Co., Middletown, Conn.
25121. Rope-yarn grommets (with worked holes showing mode of use).  
Wilcox, Crittenden & Co., Middletown, Conn.
25128. Series of light, galvanized grommet-rings. Wilcox, Crittenden &  
Co., Middletown, Conn.
25129. Series of heavy galvanized sail-thimbles. Wilcox, Crittenden &  
Co., Middletown, Conn.
25130. Series of heavy iron sail-thimbles (Navy pattern). Wilcox, Critten-  
den & Co., Middletown, Conn.
25122. Galvanized-iron ring grommet, with worked holes showing mode of  
use. Wilcox, Crittenden & Co., Middletown, Conn.
25123. Series of buntline leaders and earing grommets. Wilcox, Critten-  
den & Co., Middletown, Conn.
25124. Series of eyelet grommets. Used to line worked holes and couplings  
to Wilcox's patent grommets. Wilcox, Crittenden & Co., Middle-  
town, Conn.
25125. Setting-die. Used for inserting eyelets. Wilcox, Crittenden & Co.,  
Middletown, Conn.
25126. Cutting-punch. Used for cutting grommet-holes. Wilcox, Critten-  
den & Co., Middletown, Conn.
25127. Series of heavy grommet-rings. Used for earings. Wilcox, Crit-  
tenden & Co., Middletown, Conn.
25131. Series of light iron sail-thimbles. Wilcox, Crittenden & Co., Mid-  
dletown, Conn.



**Apparatus accessory to rigging fishing-vessels.****Grommets.**

25132. Series of throat-thimbles. Gloucester pattern. Wilcox, Crittenden & Co., Middletown, Conn.
25133. Series of reef-tackle or saddle-thimbles. Wilcox, Crittenden & Co., Middletown, Conn.
25134. Series of brass sail-thimbles. Wilcox, Crittenden & Co., Middle-  
[town, Conn.]
25152. Series of open or riggers' thimbles. " " "
25153. Series of wire-rope thimbles. " " "

**Anchors.**

25162. Boat-anchor. Wilcox, Crittenden & Co., Middletown, Conn.
25163. Grappling-iron for dory. " " "
25219. Wooden killick or coast anchor. H. C. Chester, Noank, Conn.
29249. Series of sailors' palms (from best to the poorest). Wilcox, Crittenden & Co., Middletown, Conn.
29423. Sailor's palm (left hand). Wilcox, Crittenden & Co., Middletown,  
[Conn]
29424. Sailor's roping palm, A 1 (right hand). " " "
29454. Superior cast-steel sail-needles. " " "

**Mast-gear.**

25802. Six "purrel trucks." Used on a rope around the mast to keep the gaff on the mast. Walter Coleman & Sons, Providence, R. I.
25807. Mast-hoop. Used to hold the sail to the mast. Walter Coleman & Sons, Providence, R. I.
25808. Lace trucks. Used on the foot of sail to attach it to the boom. Walter Coleman & Sons, Providence, R. I.
25159. Series of boat-mast hoops. Wilcox, Crittenden & Co., Middletown, Conn.
25810. Mast-head truck. Used on top of mast to display bunting and signals. Walter Coleman & Sons, Providence, R. I.
25811. Mast-head ball. Used on top of the topmast to display bunting and signals. Walter Coleman & Sons, Providence, R. I.
29480. Mast-head gear for dory. Amasa Taylor, Provincetown, Mass.
29481. Mast and boom attachment for dory. " " "
29484. Mast and gaff attachment for whale-boat (new style). Used by Provincetown whalers. Wilcox, Crittenden & Co., Middletown,  
[Conn.]
25181. Mast-hinge for whale-boat. " " "

**Leaders and foot-stops.**

25604. Series of sail-leaches and boom foot-stops. Used by Newport smackmen. J. M. K. Southwick, Newport, R. I.
25193. Boom foot-stops. Wilcox, Crittenden & Co., Middletown, Conn.
25181. Mast-hinge for whale-boat. " " "
29450. Fair-leader. Used on the booms of Gloucester vessels. Samuel Ellwell, jr., Gloucester, Mass.
29463. Patent topsail travelers. Used on square-rigged vessels. Wilcox, Crittenden & Co., Middletown, Conn.
29449. Mast-hook clutch. E. A. Sawyer, Portland, Me.



**Apparatus accessory to rigging fishing-vessels.**

## Boat-builders' materials.

25170. Ring-bolts. Wilcox, Crittenden & Co., Middletown, Conn.  
 25201. Series of screw eye-bolts. " " "  
 25202. Series of screw ring-bolts. " " "  
 25203. Series of ring-bolts. " " "  
 25211. Common oval head clinch boat-nail. Wilcox, Crittenden & Co.,  
 [Middletown, Conn.  
 25212. Chisel-point clinch boat-nails. "  
 25213. Countersunk clinch boat-nails. "  
 25220. Series of boat-rivets. "  
 25223. Washers or clinch-rings for rivets. "  
 25178. Stem cap for Cape Ann seine-boat. "  
 25173. Davit-guard and step-plate for Cape Ann seine-boat. "  
 25175. Eye-plate or oar-holder swivels for Cape Ann seine-boat. "  
 25176. Gunwale supporter for Cape Ann seine-boat. "  
 25173. Davit-guard and step-plate for Cape Ann seine-boat. "  
 25174. Breast-brace for Cape Ann seine-boat. "  
 25166. Davit-iron for Cape Ann seine-boats. "  
 25167. Tow-iron for Cape Ann seine-boats. "  
 25168. Tow-link and hook for Cape Ann seine-boat. "  
 29482. Boom-rest or crotch-socket. Used on the taffrail of Cape fishing-  
 vessels when they are "laying to" on George's Banks. Theo.  
 Brown, Wellfleet, Mass.  
 25204. Water-deck iron. Wilcox, Crittenden & Co., Middletown, Conn.

## Rudder-fixtures.

29496. "W. N. Clark's rudder-hanger." (Patented September 3, 1867.)  
 James B. Clark, Chester, Conn.

"Advantages claimed for this hanger: To ship the rudder one has only to enter the tongue (which has the rudder already attached) in the grooved plate from the top just far enough to get it steady, and then let it down, when it will go to its place without further care. Hence arises the first great advantage which this hanger possesses over the old way, viz, the ease and dispatch with which the rudder can be shipped under all circumstances.

Every boatman knows the trouble he has been to, at times, in trying to ship his rudder, while in a seaway, in the dark, or in muddy water, when the eyes in the boat could not be seen; often being obliged to reach down with his hand to get the lower pintle entered.

From the quickness with which the rudder can be shipped, in any position of the boat, and under any circumstances, and its security when shipped, it must recommend itself for all life-boat purposes, where, in case of an emergency, time is of vital importance.

Another advantage is that with this hanger the rudder cannot of itself unship as has often been the case with the common hanger, when the boat has been left for a short time and the tiller worked out, thereby leaving the rudder free, by striking the bottom or anything sufficient to raise it three or four inches, to unhinge and float away. As will readily be seen, this cannot get away until the rudder has risen the whole length of the tongue, which, of itself, would never happen.

Again, with this hanger the rudder can be shipped and unshipped while under full sail, thus making it very convenient for fishermen or



**Apparatus accessory to rigging fishing-vessels.****Rudder-fixtures.**

any one sailing over a line or seine, as the rudder can be easily raised far enough to pass over and prevent a line getting caught between the rudder and boat, as would otherwise likely ensue, and when over, by simply letting down the rudder, it will go to its place again ready for use.

By this arrangement we are enabled to get the hinges further down on the rudder, thereby bringing the strain on both of them, while in the old way, the lower eye and pintle are so far from the bottom of the boat, in order to facilitate the shipping of the rudder, that this one has to bear nearly all of the strain." (W. N. Clark.)

25190. Rudder-gudgeons. Wilcox, Crittenden & Co., Middletown, Conn.  
 25182. Rudder-braces for whale-boat. Wilcox, Crittenden & Co., Middle-  
 [town, Conn.  
 25209. Series of common wrought-iron rudder-braces. " "  
 25189. Series of rudder braces. " "  
 25210. Rudder-braces for New Orleans cat-boat. " "  
 25183. Rudder-braces for metallic life-boat. " "  
 29472. Dory breast-hook and stern braces. " "

**Cleats.**

25779. Stay-sail snatch-cleat. Used by Gloucester fishing-schooners. Al-  
 len L. McDonald, Gloucester, Mass.  
 25809. Wooden cleats. Used to fasten ropes to. William Coleman & Sons,  
 Providence, R. I.  
 25218. Series of small cleats. Wilcox, Crittenden & Co., Middletown, Conn.  
 25217. Small brass cleats. " "  
 25177. Cleats for Cape Ann seine-boat. " "  
 25191. Boat-cleats. " "

**Rowlocks.**

25088. Whale-boat rowlock. Wilcox, Crittenden & Co., Middletown, Conn.  
 25086. Brass wash-streak rowlock. " "  
 25113. Steering rowlock with stem socket for Cape Ann seine-boat. Wilcox,  
 Crittenden & Co., Middletown, Conn.  
 25114. Socket used on side of stern for steering. Used on Cape Ann seine-  
 boat. Wilcox, Crittenden & Co., Middletown, Conn.  
 25085. Seine-boat rowlock. Wilcox, Crittenden & Co., Middletown, Conn.  
 25070-72. Polished brass rowlocks. " "  
 25076, 25077. Polished brass rowlock used on gunning-skiff. Wilcox, Crit-  
 tenden & Co., Middletown, Conn.  
 25104-5 Galvanized socket rowlocks. Wilcox, Crittenden & Co., Middle-  
 [town, Conn.  
 25082-3-4. Brass socket rowlocks. " "  
 25091-2-3. Plain brass patent swivel rowlock. " "  
 25094. Galvanized-iron patent swivel rowlock. " "  
 25101. First patent swivel rowlock put in market. Wilcox, Crittenden &  
 Co., Middletown, Conn.  
 25079-80-81. Plain brass rowlock used on gunning-skiff. Wilcox, Critten-  
 den & Co., Middletown, Conn.  
 25106-7-8. Side-plate rowlock used on gunning-skiff. Wilcox, Crittenden  
 & Co., Middletown, Conn.



**Apparatus accessory to rigging fishing-vessels.**

## Rowlocks.

25188. Rowlock for dory. Showing new mode of fastening. Wilcox, Crittenden & Co., Middletown, Conn.
25765. Dory thole-pin rowlock. Samuel Elwell, jr., Gloucester, Mass.
25090. Gun-metal dory rowlock with Southwick's patent fastening. Wilcox, Crittenden & Co., Middletown, Conn.
25100. Dory rowlock, showing patent mode of fastening. Wilcox, Crittenden & Co., Middletown, Conn.
26902. "Lyman's patent bow-facing rowing-gear." William Lyman, Middlefield, Conn.

This bow-facing, *i. e.*, front view, rowing-gear is an invention which allows the rower to face forward instead of backward, pulling in the same manner as with the ordinary oars. This reverse movement is obtained by having the oar in two parts, each part having a ball-and-socket joint, which is attached to the wale of the boat by means of a slot and button, and the two parts connected by a rod (with hinged bearings) which crosses the wale of the boat.

The advantages claimed for this rowing-gear over the ordinary oar, are:

1. *The oarsman faces the direction in which he goes.*
2. The arrangement of the levers is such that the oarsman applies his strength to the best mechanical advantage, enabling him to row faster and more easily than with any other oar.
3. During the stroke the bow of the boat is slightly raised by the motion of the rower instead of being lowered by his motion as in ordinary rowing.
4. The stroke is longer than with ordinary oars.
5. The oars can be closed up out of the way along the side of the boat without detaching them from the gunwale.
6. It is better from the fact that the blade of the oar is in front and can be *seen* at the beginning of the stroke, so that there is no difficulty in avoiding obstacles, and in a rough sea there is little danger of "catching crabs."
7. With these oars the boatman makes no more effort in steering than in directing his course while walking, and this advantage lessens greatly the effort of rowing.
8. While rowing there is no noise from the bearings.
9. A pair of these oars weigh about 5 pounds more than the oars, but this additional weight has this advantage, that at the beginning and end of the stroke it helps to lower and raise the blade owing to the peculiar position of the oar.
10. When these oars are detached from the boat, no wood or iron projections are left on the wale of the boat, as in ordinary rowing-gear, and thus a serious inconvenience is obviated.

These oars can be attached to and detached from the boat very quickly and they can be closed up in a convenient form for carrying.

These several advantages, *viz*, *the front view*, the increased ease and speed in rowing, the raising of the bow instead of depressing it, the closing up of the oar out of the way while on the boat, the increased facility in avoiding obstacles, the diminished effort of hand and eyes in steering, the rowing without noise, the better balance and swing of the oars, have commended this new gear to all who have tried it.

This gear can be attached to almost any boat, and is especially adapted to hunting, fishing, and all kinds of pleasure boating.



**Apparatus accessory to rigging fishing-vessels.**

## Rowlocks.

Almost any one (even if he has never rowed a boat) with an hour's practice can use these front view oars well; it being much easier to learn to use a pair of these oars than a pair of the back view oars." (William Lyman.)

28292. Frederick D. Graves's improved noiseless rowlock. Fred. D. Graves, Boston, Mass.

"The object of this invention is to improve the construction and operation of the class of rowlocks in such manner as, first, to insure the proper inclination of the blade of the oar, and prevent the liability of its catching the water when feathering in recovering, as well as to insure the proper position of the blade of the oar when making the stroke; secondly, to enable the outer end of the oar to be raised when it is being feathered, in order to prevent its contact with the water in rough weather. My improved rowlock, which is composed of an inclosing ring located on a pintle, and an inner ring inclosed by the ring and adapted to be partially rotated therein; the inside of the inclosing ring is provided with a groove which extends almost-around it, its continuity being broken only by a stop. The pintle of the rowlock is inserted in a socket attached to the gunwale of the boat, the pintle and rowlock being adapted to turn freely in the socket. From the foregoing it will readily be seen that an oar pivoted in the inner ring is adapted to be partially rotated, in addition to its oscillating movements, so that when its stroke is completed it can be turned, so as to feather the blade in the recover stroke. The stop and shoulders of the inner ring are arranged in such mutual relation that the shoulder abuts against the stop, in feathering the oar, before the blade becomes horizontal in cross-section, so that the cross-section of the oar is necessarily inclined downward from its forward to its rear edge during the feathering stroke, this inclination of the blade preventing its forward edge from engaging with the water and overturning the rower, or, in other words, causing him to "catch a crab." This limitation of the oar in its rotation prevents awkward accidents in feathering, and enables an unskilled person to row with a considerable degree of certainty." (F. D. Graves.)

- 25098-9. Galvanized-iron patent swivel rowlock. Wilcox, Crittenden & [Co., Middletown, Conn.
25095. Galvanized-iron patent swivel rowlock. " "
25097. Galvanized-iron patent swivel rowlock. " "
25096. Galvanized-iron patent swivel rowlock. " "
- 25073-4-5. Polished brass patent swivel rowlock. " "
- 25102-3. Galvanized socket rowlock. " "
25111. Countersunk rowlock. Used on Ohio River flat-boats. Wilcox, Crittenden & Co., Middletown, Conn.
29459. Rowlock. Newport and Providence River style. Wilcox, Crittenden & Co., Middletown, Conn.
25087. North River pattern rowlock. " "
25089. East River pattern rowlock. " "
29319. Socket-joint rowlock. Frederick A. Gower, Providence, R. I.

"The socket-joint rowlock is intended to increase the speed and improve the convenience of racing boats. Its advantages have proved so easily apparent to oarsmen that there is little need of detailing its strong points, but the following are among its leading features:



**Apparatus accessory to rigging fishing-vessels.**

## Rowlocks.

Wabbling of the oar is wholly avoided. If the oar is a properly good fit, it will have less than  $\frac{1}{4}$  inch of fore-and-aft motion in the lock.

"Catching crabs" is largely avoided by preventing the oar from jamming in the lock at the beginning or end of the stroke. If a "crab" should be caught, the rowlock is not strained, and the oar can be recovered without stopping the boat.

A good grip of the water is assured to even the inexperienced oarsman by the shape of the back of the rowlock, which corresponds to that of the oar. The oar settles itself into the proper position on beginning the stroke.

Any length of reach may be taken by long-built men in going forward, avoiding an evil often complained of.

A space half as wide admits passage of the boat. Equipped with this rowlock a six or four oared shell passes through an opening the width of the outriggers. Crews rowing on narrow or bridged water will find this advantage worth the price of the rowlocks in a single season.

Uniting the rods at a single point brings the whole strength of the outrigger into play at every part of the stroke, and an outrigger thus made can hardly be demolished while the boat stands.

Any oars may be used if of recent pattern, *i. e.*, without the unsightly "bulge" on the loom. It is only necessary to make a slight change in the button, as described below.

Better time may be made. Experiments thus far indicate that the socket-joint rowlock is perceptibly speedier than the common pattern, by the stoppage of wabbling, and general smoothness of action.

Raising a rowlock with the common outrigger is a half hour's trouble with rusty nuts (one or two of which usually twist the bolt off in starting) and experimenting to get the right thickness of washers. With the socket-joint rowlock the same thing is done in two minutes by slipping half or three-quarters of an inch of washers on the shaft under the top rod.

Superior strength. The ordinary iron thole-pins are strong in one direction only; a backward or sidewise blow is likely to bend them. The supporting shaft of the socket-joint rowlock is equally strong all around and withstands a greater strain than the best oars made can apply to it. The whole rowlock is made of the best bronze-metal, which will not rust nor suddenly snap on a frosty morning. Under great mechanical pressure the lower part of the lock has been bent out nearly straight without breaking.

Minor conveniences continually appear in the use of this improvement. There is no wiring to do; no reaching out-board to ship oars; no wriggling the button through the rowlock; no getting grease on the oar-handle by passing through the rowlock; no "losing the button" outside the outrigger; no jamming the button between the thole-pins. When the outriggers are taken off the boat the rods turn on the shaft as a hinge and fold up into a compact bundle not easily bent out of shape nor injured. The rowlocks can be detached entirely, if desired, and each set of rods made into a package as easily carried as a walking-stick, while the rowlock may be put into the oarsman's coat-pocket. Oarsmen having occasion to travel with boats by rail will appreciate this convenience.

This rowlock cannot pretend to be a cheap contrivance; it is made of the best material, and requires expensive labor. Its first cost is more than that of the common pattern, but considering its advantages it will be found cheaper in the end." (F. A. Grower.)



**Apparatus accessory to rigging fishing-vessels.**

## Rowlocks.

25185. Thole-pins for metallic life-boat. Wilcox, Crittenden & Co., Middle-  
[town, Conn.
25115. Whitehall pattern rowlock. " "
25112. Detroit or Lake Michigan rowlock. " "
22227. "Acme" oarlock. Pattern invented 1876. " "
25172. Oar-holder for Cape Ann seine-boat (old model). Higgins & Gifford,  
Gloucester, Mass.
25171. Oar-holder for Cape Ann seine-boat. Wilcox, Crittenden & Co.,  
Middletown, Conn.

## Oars.

25022. One pair white-ash oars (9 feet). R. T. Dodge, maker, Boston, Mass.
25021. One pair white-ash oars (6 feet). " "
25041. Pair white-ash oars (12 feet). " "
25011. Pair pine oars (8 feet). " "
25023. Pair white-ash oars (9 feet). " "
25012. Pair spoon oars (10 feet). " "
26811. Pair of oars (7 feet 8 inches). Waters & Son, Troy, N. Y., makers;  
Delong & Sons, Glens Falls, N. Y.

## Paddles.

25020. White-ash paddles. R. T. Dodge, maker, Boston.
643. Indian paddles. Northwestern coast. George Gibbs.
644. Indian paddles. " "
645. Indian paddles. " Cape Flattery. George Gibbs.
646. Indian paddles. " Whaling. "
1790. Indian paddles. " "
1791. Indian paddles. " "
14284. Indian paddles. " "
14285. Indian paddles. " "
11471. Indian paddles. Fort Townsend, W. T. J. G. Swan.
11473. Indian paddles. " "
11474. Indian paddles. " "
11363. Indian paddles (for skin canoe used by Aleutians). Alaska. V. Colyer.
11369. Indian paddles (for skin or wooden canoe). " "
11366. Indian paddles. " " "
20902. } Indian paddles (used by Trimsein Indians). Fort Simpson, B. C.
20903. } J. G. Swan
11434. Indian paddles. Passamaquoddy Indians, Eastport, Me. E. Palmer.
2652. Indian paddles. Northwestern coast. Exploring Expedition.  
Lieut. Wilkes, U. S. N.
2652. Indian paddles. Northwestern coast. Exploring Expedition.  
Lieut. Wilkes, U. S. N.
26783. Whaling paddle. Makah Indians, Neeah Bay. J. G. Swan.
26781. Whaling paddle. " "
26782. Whaling paddle. " "
26780. Whaling paddle. " "
26779. Whaling paddle. " "
26778. Whaling paddle. " "
26777. Whaling paddle. " "
26776. Whaling paddle. " "



**Apparatus accessory to rigging fishing-vessels.**

## Paddles.

26775.	Whaling paddle.	Makah Indians, Neeah Bay.	J. G. Swan.
26774.	Whaling paddle.	“	“
26773.	Canoe paddle.	“	“
26772.	Canoe paddle.	“	“
26771.	Canoe paddle.	“	“
26770.	Canoe paddle.	“	“
26769.	Canoe paddle.	“	“
26768.	Canoe paddle.	“	“
26767.	Canoe paddle.	“	“
26766.	Canoe paddle.	“	“
26765.	Canoe paddle.	“	“
26764.	Canoe paddle.	“	“
26810.	Double paddle.	Made by Waters & Son, Troy, N. Y.; De Long & Sons, Glens Falls, N. Y.	

## Poles and pushing sticks.

15653.	Bidarka pole.	Nunivak, Alaska.	W. H. Dall.
15653.	Bidarka pole.	“	“
17443.	Bidarka pole.	Cave, Kagamil Island, Alaska.	Alaska Commercial Company.

## Candlestick.

Used in hold of vessel while storing fish.

32741.	Candlestick.	A. McCurdy, Gloucester, Mass.
32692.	Candlestick or “Sticking Tommy.”	Gloucester, Mass. G. Brown Goode.

## Fog-horns.

29382.	Series of common reed fog-horns, Nos. 1, 2, 3, and 4.	Wilcox, Crittenden & Co., Middletown, Conn.
25783.	Grand Bank fog-horn. Called by the fishermen “lipper” or “ripper.”	William H. Weston, Provincetown, Mass.
25281.	The Anderson fog-horn.	U. S. Fish Commission. (Deposited.)

## Deck-scrapers.

25160.	Series of ships' deck scrapers.	Wilcox, Crittenden & Co., Middletown, Conn.
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## Dory scoop.

25222.	Dory scoop.	S. Elwell, jr., Gloucester, Mass.
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## Flagging irons, &amp;c.

Used by mackerelmen of Capes Cod and Ann to separate barrel staves for the insertion of stems of flag to stop leakage.

29492-94.	Flagging iron, hoop-drivers, and adze.	M. W. Grant, Wellfleet, Mass.
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## Pump-bolt or toggle-pin.

Used on fishing-vessels of Cape Cod and Cape Ann.

29470.	Pump-bolt or toggle-pin.	Wilcox, Crittenden & Co., Middletown, Conn.
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**Apparatus accessory to rigging fishing-vessels.****Pump box and haft for seine-boat.**

29497. Pump box and haft for seine-boat. Andrew Kennedy, Provincetown,  
| Mass.  
29499. Pump box and haft for seine-boat. " "

**Bung-bucket or "water-thief."**

25784. Bung-bucket or "water-thief." Wm. H. H. Weston, Provincetown,  
Mass.

**Devil's claw.**

Used to stop the chain when the windlass is wanted for other uses.

29442. Devil's claw. W. H. Hesbolt, Provincetown, Mass.

**Box hook.**

Used in closing boxes packed full of fish.

32680. Bilge hooks. Gloucester, Mass. G. Brown Goode.  
32695. Box hook or "devil's claw." Gloucester, Mass. G. Brown Goode.

**Barrel-lifters.**

Used for stowing away mackerel-kegs in holds of vessels.

29291. Barrel-lifters. Wilcox, Crittenden & Co., Middletown, Conn.  
32679. Chime barrel-hooks. Gloucester, Mass. G. Brown Goode.

**Ice-hooks.**

For lifting ice on vessel from wharf.

32674. Ice-hooks. Gloucester, Mass. G. Brown Goode.

**Lance-hooks.**

Fastened on side of whale-boat to hang lance on.

25919. Lance-hooks. E. B. & F. Macy, New Bedford, Mass.

**Grappling gear.**

Used to recover lost trawls.

25936. Grappling gear. A. McCurdy, Gloucester, Mass.

**Marline spikes.**

29418. Marline spike or pricker. Used for splicing trawl-lines. Wilcox,  
Crittenden & Co., Middletown, Conn.  
29455. Marline spike. Made from the jawbone of sperm whale. Robert D.  
Baxter, Provincetown, Mass.  
29419. Marline spike. Made from the jawbone of whale. Frank O. Blake,  
Portland, Me.  
25147. Sailmakers' marline spike. Wilcox, Crittenden & Co., Middletown,  
[Conn.  
25148. Sailmakers' marline pricker. " "  
25164. Series of marline spikes. " "  
25778. Fishermen's marline spike or trawl-line splicer. Alex. McCurdy,  
East Gloucester, Mass.



**Apparatus accessory to rigging fishing-vessels.**

Marline spikes.

25146. Series of hickory hand fids. Wilcox, Crittenden & Co., Middletown, Conn.  
 25672. Copper marline spike. Made at sea by Thomas Freeman. Used for splicing trawl-lines. Sanford Freeman, Norwichport, Mass.  
 32693. Splicer. Gloucester, Mass. G. Brown Goode.

Rest for harpoon, &c.

11392. Rest for harpoon and bow and arrow. Aleutian Island. Vincent Colyer.  
 Used on deck of kayak.

Stretchers for kayak-line.

9836. Stretchers for kayak-line. Eskimos.

Stool.

3978. Stool. R. MacFarlane.  
 Used by Eskimos to stand on while watching for seal in water.

49. CAMP-OUTFIT.

**Shelter.**

- Lodges.  
 Tents.  
 Hunting-camps.  
 Hunters' houses.  
 Fishing-houses.

**Furniture.**

- Hammocks.  
 Beds, couches, stretchers, and lounges.  
 Blankets (rubber and mackinaw), and fur robes.  
 Fuel.  
 Apparatus for kindling fire.  
 Lamps and lanterns.  
 Tools.

**Commissary supplies.**

- Cooking apparatus, kettles, and stoves.  
 Commissary supplies.

29295. Portable camp-stove. H. L. Duncklee, Boston, Mass.  
 25689. Portable camp-stove. " "  
 Open, showing utensils, viz:  
 25690. Six tin plates.  
 25691. Six tin cups.  
 25692. Six-quart kettle.  
 25693. Eight-quart kettle.  
 25694. Stew-pan.



**Commissary supplies.**

## Commissary supplies.

25695. Coffee-pot.  
 25696. Dipper.  
 25697. Toast-rack.  
 25698. Frying-pan.  
 25699. Bread-pan.  
 F. & S. 60. Camp-stove and utensils. Property of John A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.  
 26673. Coffee-heater. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.  
 26713. Camp-stove. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.  
 26843. Lehmen's patent folding camp-baker. Scoville & Johnson, Marquette, Mich.

## Table-furniture.

## Preserved meats, &amp;c.

## Canned meats.

24917. Fresh tomato soup. Wm. Underwood & Co., Boston, Mass.  
 26649. Ox-tail soup (star brand). Portland Packing Company, Portland, Me.  
 24913. Fresh soup and bouilli. Wm. Underwood & Co., Boston, Mass.  
 26648. Soup and bouilli (star brand). Portland Packing Company, Portland, Me.  
 24921. Mock-turtle soup. Wm. Underwood & Co., Boston, Mass.  
 26641. Cumberland potted sausage (star brand). Portland Packing Company, Portland, Me.  
 24927. Ox-tail soup. Wm. Underwood & Co., Boston, Mass.  
 24929. Original deviled ragout. " "  
 24928. Deviled tongue. " "  
 24930. Deviled ham. " "  
 26645. Cumberland roast mutton (star brand). Portland Packing Company, Portland, Me.  
 24920. Fresh chicken. Wm. Underwood & Co., Boston, Mass.  
 26640. Cumberland roast chicken (star brand). Portland Packing Company, Portland, Me.  
 24931. Deviled chicken. Wm. Underwood & Co., Boston, Mass.  
 26646. Cumberland roast veal (star brand). Portland Packing Company, Portland, Me.  
 24916. Fresh mutton. Wm. Underwood & Co., Boston, Mass.  
 26647. Cumberland roast beef (star brand). Portland Packing Company, Portland, Me.  
 24910. Beef à la mode. Wm. Underwood & Co., Boston, Mass.  
 24911. Fresh mince-meat. " "  
 24915. Fresh veal. " "  
 26639. Champion shell-beans (star brand). Portland Packing Company, [Portland, Me.  
 26638. Portland blueberries (star brand). " "  
 22238. Fresh blueberries. Castine Packing Company, Castine, Me.  
 24919. Fresh beef. Wm. Underwood & Company, Boston, Mass.  
 26637. Yarmouth sugar-corn. (Patented April 8, May 13 and 20, and August 26, 1862.) (Star brand.) Portland Packing Company, Portland, Me.



**Commissary supplies.**

## Canned meats.

26652. Yarmouth succotash. Made from Yarmouth sugar-corn and champion shell-beans (star brand). Portland Packing Company, Portland, Me.

## 50. PERSONAL EQUIPMENTS.

**Clothing.**

## Hunting suits.

26655. Canvas hunting-coat. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.
26658. Fur vest. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.
26659. Buckskin coat. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.
26670. Mole-skin pants. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.
26671. Corduroy hunter's coat. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.
26675. Corduroy hunter's pants. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.
26676. Corduroy vest. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.
26701. Chamois shirt. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.
26594. Hunter's water-proof suit, with patent cartridge-holding vest. Geo. C. Henning, Washington, D. C.

This suit includes:

1. Pantaloon so made that they can be folded close to the legs.
2. Gaiters.
3. Vest with sleeves.
4. Reversible shooting-coat, with seventy-six receptacles for shell or cartridges so arranged as to permit them to be carried either end up, and secured from loss or from injury by rain, by means of the flaps which button over them. The coat is of the same shape before and behind, so that when the hunter exhausts his shells in front he can reverse the coat and have a fresh supply. There are eight pockets opening on the outside of the skirt, and two large game pockets on the inside arranged with openings in the bottoms for ventilation and drip.
5. A double-visored cap.

26710. Hunting-coat. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.

## Water-proof suits.

26656. Rubber hunting-coat. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.

## Oil-skin suit.

29543. Cape Ann coats. J. F. Carter, Gloucester, Mass.
29544. Cape Ann pants. " " "



**Clothing.**

## Boots, moccasins, leggings.

26015. Fishermen's red cod boots. Jonathan Buck, Harwich, Mass.  
 26015. Fishermen's red-leather slippers. " "  
 26014. Fishermen's black boots. " "  
 25823. Slippers made of sheep-skin, with the wool on the inner surface.  
 Worn by fishermen inside of their boots. A. R. Crittenden, Middletown, Conn.  
 26671. Boot-packings. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.  
 26672. Moccasins. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.  
 26708. Rubber boots. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.

## Hats and caps.

25722. Fisherman's cap, called "Russian cap." E. R. Cook, Provincetown, Mass.  
 26651. Hunter's rubber cap. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.  
 29542. Series of sou'westers and oil-cloth hats (Cape Ann pattern). J. F. Carter, Gloucester, Mass.

## Clothing for the hands.

25788. Pair of mittens. Called "Newfoundland cuffs" by fishermen. Peculiar to Gloucester. A. R. Crittenden, Middletown, Conn.  
 25790. Mackerel cots. Used on the fingers when taking mackerel by hook and line. Capt. Samuel Elwell, Gloucester, Mass.  
 25787. Pair of "hand-haulers." Used by fishermen off the Newfoundland Banks. Joseph Parsons, jr., East Gloucester, Mass.  
 25789. Pair of nippers; peculiar to Gloucester, Mass. Joseph Parsons, East Gloucester, Mass.  
 25718. Pair of nippers. Used by fishermen to protect the fingers while hauling in trawls. David Conwell.  
 25717. Pair of nippers. Central Wharf Company, Provincetown, Mass.  
 26709. Rubber gloves. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.

## Protection from insects:

## Nets for beds and for face.

26700. Mosquito-net. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.

## Ointments (such as tar and sweet-oil):

## Smudges (such as pyrethrum powder).

## Shields, breastplates, and defensive armor.

**Trappings.**

## Belts.

26665. Belt for sheath-knife. J. A. Nichols, Syracuse, N. Y.



**Trappings.**

Cross-belts.

Game-bags.

26667. Game-bag. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.
2523. Game-bag. Indians of Northwest coast. U. S. Exploring Expedition.
1473. Game-bag. Comanche Indians. Lieut. D. N. Couch, U. S. A.
2023. Game-bag of knit leather thongs. Dog-rib Indians. Fort Simpson, B. C. R. R. Ross.
2047. Hunting-bag of "babiche." Fort Simpson, H. B. T. R. R. Ross.
2020. Hunting-bag made of "babiche." Dog-rib Indians. Fort Simpson, H. B. T. R. R. Ross.
2551. Hunting-bag of "babiche." Fort Rae Eskimos. Mackenzie's River district. Stratton Jones.
2498. Game-bag. Indians of Northwest coast. U. S. Exploring Expedition.

Wrist-guards.

6927. Wrist-guard. Used in shooting with the bow. Kiowa Indians. Fort Cobb, I. T. E. Palmer.
5520. Wrist-guard. Apache Indians. Arizona. E. Palmer.

**Optical instruments, &c.**

Snow-goggles.

1651. Snow-blind. Anderson River Eskimos. R. MacFarlane.
10292. Snow-goggles.
- 1650, 2147, 2157. Snow-goggles. Anderson River Eskimos. R. MacFarlane.
5589. Ingaleet Eskimos. Yukon River, Alaska. W. H. Dall.
5579. Mahlemut Eskimos. Lower Yukon, Alaska. "
10200. Snow-goggles.

Telescopes.

Field-glasses, &amp;c.

Water-telescopes.

26884. Water-telescope. U. S. Fish Commission.  
Used in examination of submarine objects.

Compasses.

26682. Hunter's compass. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.

Scales.

26681. Scales. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.

Game and fish baskets and slings.

Wallets for lines and other tackle.



**Medical outfit.**

Medicine-chests.

Hunter's and fishermen's flasks.

26684. Flasks. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.

**Artificial lights.**

Lanterns for camp and ship use.<sup>1</sup>

Torches.

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<sup>1</sup> See under *Sight decoys* above, p. 141.



## SECTION C.

# METHODS OF PREPARATION.

## I. PREPARATION AND PRESERVATION OF FOOD.

1. PRESERVATION DURING LIFE (see under E, 3).
2. PRESERVATION OF FRESH MEATS.

### Refrigerators.

Ice-boxes and refrigerators.

- Allegretti iceberg-refrigerator. Allegretti Refrigerator Company,  
[New York.
- Allegretti refrigerator show-case. “ “

Banta refrigerator.

Banta horizontal refrigerator.

- Banta refrigerator show-case. Process patented July 1, 1867. G.  
A. Banta, New York City.
- Zero refrigerator. Alexander M. Lesley, New York.

Refrigerator-cars.

(Accessory.) The ice-trade:

- Ice cutting and handling apparatus.
- Methods of manufacturing artificial ice.
- Ice-houses.

### Other accessories of preservation.

- Meat-hooks.
- Skewers, &c.
- Carving-tools.

## 3. PRESERVATION BY DRYING.

### Sun-drying apparatus.

Beach dryers.

Flake-drying:

- Newfoundland flakes.
- Massachusetts flakes.

- 12495. Codfish-flake (with covers). Model. Coast of Maine. E. Skillings,  
Portland, Me.



**Smoke-drying apparatus.**

## Herring smoke-houses.

12105. Model of smoke-house used in preparation of herring (*Clupea harengus*). Lubec, Me. U. S. Fish Commission.

12105½. Model of smoke-house used in preparation of salmon (*Salmo salar*). Lubec, Me. U. S. Fish Commission.

## Halibut smoke-houses.

## Sturgeon smoke-houses.

## Aboriginal drying-houses.

## Methods of drying haliotis, used by the Indians of California.

## 4. PRESERVATION BY CANNING AND PICKLING.

**Salting fish.**

## Knives (see under B, 2).

## Scaling apparatus.

26039. Kelsey & Hosmer's fish-dresser. Sandusky, Ohio. Patented Sept. 15, 1873. Kelsey & Hosmer, Sandusky, Ohio.

## Tables, tubs, &amp;c.

## Barrels.

25750. Model of D. D. Parmalee's Waukegan fishery. J. W. Milner.

This model shows in miniature all the apparatus employed in cleaning and salting down the lake whitefish.

## (Accessory.) Salt:

Specimens of the salts used in preserving fish.

Model of salt-mills used on Cape Cod in former days.

Extensively used in the first half of the present century in obtaining salt by evaporation of sea-water. Their remains are found on Cape Cod and Nantucket.

25706. Model of salt-works. Nantucket, Mass. W. H. Chase, 2d.

**Canning meats.**

Model of salmon-canning establishment.

Model of sardine-factory.

(Accessory.) Cotton-oil, and its manufacture.

Model of lobster-canning factory.

26583. Model of Johnson & Young's lobster-house. Warren bridge, near Fitchburg depot. Johnson & Young, Boston, Mass.

This model shows the factory with its vats for steaming the lobsters, the wharf, and the derricks used in handling the lobsters. It is accompanied by models of lobster-smack, and of the principal forms of lobster-nets; catalogued elsewhere.

Model of oyster-canning factory.



5. PREPARATION OF BAIT.

**Bait-mills, knives, choppers, &c.** (see, also, under B, 2 and 3).

26011. Voss' improved bait-mill. (Patented January 17, 1876.) A. Voss,  
Gloucester, Mass.

**Bait-tubs, vats, &c.**

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II. MANUFACTURE OF TEXTILE, FABRICS, FELTS,  
AND STUFFINGS.

6. PREPARATION OF WOOL AND HAIR OF MAMMALS.

**Preparation of wool cloths.**

Washing.  
Shearing.  
Stapling or assorting.  
Scouring.  
Combing, carding, and plucking.  
Spinning and reeling.  
Weaving.  
Fulling and teasing.  
Cropping.  
Pressing.

**Weaving worsted cloths.**

**Felting and the hat manufacture.**

Bowing.  
Pressing.  
Stopping.  
Rolling off.  
Shaping.

**Preparation of curled hair for stuffings.**

7. PREPARATION OF WHALEBONE.

**Preparation of stuffings.**

8. PREPARATION OF FEATHERS.

**Preparation of down for stuffings.**

**Preparation of feather fabrics.**

**Preparation of "brillantine."**



**Preparation of, or flocking for wall-paper, from refuse quills.**

**Preparation of fibers for manufacture of plush carpets.**

9. PREPARATION OF SILK OF INSECTS.

**Preparation of silk of silk-worms.**

Boiling the cocoons.

Reeling.

Spinning.

Dyeing.

Weaving.

10. PREPARATION OF SOFT PARTS OF OTHER INVERTEBRATES.

**Preparation of silk from byssus of Pinna.**

**Preparation of sponge stuffing.**

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III. PREPARATION OF THE SKIN AND ITS APPENDAGES.

11. CURRYING OF LEATHER.

**Processes of currying.**

Dipping.

Graining.

Scraping.

Dressing.

**Implements employed by carriers.**

“Head-knives.”

“Pommels.”

“Stretching-irons.”

“Round-knives.”

“Cleaners.”

“Maces.”

“Horses” or trestles.

“Dressers.”

“Treading-hurdles.”

**Eskimo and Indian currying methods and implements.**

**Methods of dressing gut and sinew.**



12. LEATHER DRESSING.

**Processes of tanning leather.**

Soaking.  
Liming.  
Tanning.

**Processes of tawing or oil-dressing leather.**

Soaking.  
Liming.  
Oiling.

**Apparatus of leather-dressing, recent and aboriginal.**

13. FUR-DRESSING.

**Processes of fur-dressing.**

Currying. (See under 12.)  
Scouring.  
Tanning.  
Lustering.  
Plucking and dyeing.

14. FEATHER-DRESSING.

**Method of preparing ornamental feathers.**

Scouring.  
Bleaching.  
Washing.  
Azuring.  
Sulphuring.  
Scraping.  
Dyeing.

**(Art of plumagery.)**

15. MANUFACTURE OF QUILL ARTICLES.

**Manufacture of quills for pens.**

Sand-bath drying and steaming.  
Polishing.  
Dyeing.  
Shaping.

**Manufacture of tooth-picks.**

**Manufacture of floats and other articles.**

**Manufacture of quill brush-bristles.**

16. HAIR AND WOOL WORK.



## VI. PREPARATION OF HARD TISSUES.

## 17. IVORY CUTTING AND CARVING.

**Manufacture of handles, trinkets, billiard-balls, &c.**

Turning and sawing.  
Polishing.  
Bleaching.

**Manufacture of organ and piano keys.**

Sawing.  
Strip-sawing.  
Polishing.  
Bleaching. &c.

**Other processes.**18. PREPARATION OF HORN AND HOOF.<sup>1</sup>**Steaming.**<sup>1</sup>**Pressing.**<sup>1</sup>19. PREPARATION OF WHALEBONE.<sup>1</sup>**Cutting and other processes.**<sup>1</sup>**Manufacture of whip-makers' stock and whips.****Manufacture of umbrella-makers' bone.****Manufacture of ribbon-weavers' bone.****Manufacture of hat and bonnet makers' bone.****Manufacture of suspender-makers' bone.****Manufacture of stock-makers' bone.****Manufacture of dress and stay makers' bone.****Manufacture of billiard-table cushions.****Manufacture of surgical instruments.****Manufacture of whalebone brushes.****Manufacture of rosettes, woven work, and trinkets.**

<sup>1</sup>These processes are illustrated in part by the specimens, showing the horn, whalebone, and tortoise-shell, in various stages of preparation, exhibited in Section D.



**Other whalebone manufactures.**

20. PREPARATION OF TORTOISE-SHELL.<sup>1</sup>
21. PREPARATION OF FISH-SCALE WORK.
22. PREPARATION OF NACRE.
23. PREPARATION OF CORAL.
24. PREPARATION OF OTHER HARD TISSUES.

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**V. OILS AND GELATINES.**

25. EXTRACTION OF WHALE-OIL (WITH MODELS OF TRY-WORKS, CLARIFYING-VATS, ETC.).

**Preparation of body-oil.**

Cutting in and stowing  
Leaning and mincing.  
Trying.  
Bailing.  
Cooling.  
Barreling.  
Refining.

**Preparation of head-oil.**

**Preparation of spermaceti.**

**Instruments and appliances of rendering whale-oil.**

Boarding-knives.<sup>2</sup>  
Leaning-knives.<sup>2</sup>  
Mincing-horse and mincing-knives.  
Mincing-tub.  
Mincing-machine.  
Blubber-fork.<sup>3</sup>

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<sup>1</sup>These processes are illustrated in part by the specimens, showing the horn, whale-bone, and tortoise-shell, in various stages of preparation, exhibited in Section D.

<sup>2</sup>Arranged with the knives.

<sup>3</sup>Arranged with the hooks.



**Instruments and appliances of rendering whale-oil.**

## Try-pots.

25013. Model of whaler's try-works. Capt. L. W. Howland, New Bedford, Mass.

This model is accompanied by miniature models of all the implements used in trying out the blubber, viz:

- a. Fire-pike.
- b. Stirring-pole.
- c. Scrap-hopper.
- d. Skimmer.
- e. Bailer.
- f. Cooler.
- g. Deck-pot.
- h. Casks.

26. EXTRACTION OF OTHER MAMMAL OILS.

27. EXTRACTION OF BIRD AND REPTILE OILS.

28. EXTRACTION OF FISH-OILS (WITH MODELS OF BOILERS, PRESSES, CLARIFYING-VATS, ETC.).

26899. Model of menhaden oil factory. Owned by Jos. Church & Co. Joseph Lawler, Bristol, Me.

The factory is the most elaborate of the sixty or more on the coast of New England and the Middle States, and is 160 feet in length by 40 in width.

29. EXTRACTION OF GLUE, GELATINE, AND ISINGLASS.

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## VI. DRUGS, PERFUMES, AND CHEMICAL PRODUCTS.

30. MANUFACTURE OF PERFUMES.

31. MANUFACTURE OF IVORY-BLACK.

32. MANUFACTURE OF PRUSSIATES.

33. MANUFACTURE OF MUREXIDES.

34. PREPARATION OF COCHINEAL COLORS.

35. MANUFACTURE OF INKS FROM ANIMAL SUBSTANCES.

36. PREPARATION OF ALBUMEN.

37. MANUFACTURE OF PEPSIN.

38. MANUFACTURE OF PHOSPHORUS.

39. MANUFACTURE OF SAL AMMONIAC.

40. MANUFACTURE OF AMMONIA.

41. MANUFACTURE OF ALBUMEN PREPARATIONS.

42. MANUFACTURE OF PROPYLAMINE.

43. MANUFACTURE OF FORMIC ACID.

44. MANUFACTURE OF CARBAZOTATES.



## VII. MANUFACTURE OF FERTILIZERS.

### 45. PREPARATION OF GUANO.

#### **Model of fish-guano works.**

Grinders and pulverizers.

Mixers.

25822. Model of guano-mixer. Patented April 27, 1867. Poole and Hunt, Baltimore, Md.

This mixer is employed in the fish-guano works for the purpose of thoroughly mixing the fish-scrap with the mineral phosphates and sulphuric acid.

Guano in its various stages, with its ingredients, South Carolina phosphates, Navassa phosphates, scrap (crude and dried), sulphuric acid, kainite, screened and unscreened guano, and sea-weed used in preparation: a full series of these is exhibited in the case of Guanos.

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## VIII. LIMES.

### 46. BURNING OF LIME.

#### **Models of kilns for burning shells.**

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## IX. PRESERVATION OF THE ANIMAL FOR SCIENTIFIC USES.

### 47. APPARATUS FOR MAKING AND PRESERVING ALCOHOLIC SPECIMENS.

#### **Tanks and jars.**

Agassiz collecting-tank.

Army collecting-tank.

Museum storage-tank, Agassiz model.

Anatomical jars.

Self-sealing jars used in collecting.

Vials.

#### **Syringes for injecting.**

#### **Inflatable bags.**

#### **Preservative mixtures.**

Alcohol.

Glycerine.



**Preservative mixtures.**

Carbolic acid.  
 Chloral hydrate.  
 Picric acid.  
 Osmic acid.

**Labels.**

Metallic labels.  
 Parchment labels.  
 Indelible ink, pencils, &c.

## 48. APPARATUS FOR PRESERVING AND MAKING SKELETONS.

**Preparation of the bones.**

Macerating-vats.  
 Boiling-vats.  
 Cleaning and bleaching preparation.

**Mounting of the bones.**

Scraping-tools.  
 Articulating-tools.

## 49. APPARATUS FOR MAKING CASTS. MODELING.

**Materials.**

Clays.  
 Plasters.  
 Glues.  
*Papier-maché* and *carton-pierre*.  
 Gelatine.  
 Paraffine.  
 Collodion.

This apparatus and material is in constant use by the assistants in the National Museum and the Fish Commission. It is thought scarcely necessary to exhibit it.

**Frames and modeling tools.****Molds:**

Of plaster.  
 Of gelatine.  
 Of paper.  
 Of paraffine.



50. APPARATUS AND METHODS OF MAKING AND MOUNTING SKINS.  
TAXIDERMISTRY.

**Tools.**

Flaying-tools.

Scraping-tools.

Taxidermists' tools for stuffing:

Forceps.

Pliers.

**Preservatives and insect-powders.**

Arsenic and arsenical soap.

Corrosive sublimate.

Salt, alum, &c.

Persian insect-powder.

Tobacco, snuff, used as preservatives.

**Frames, &c.**

Wooden frames.

Wire frames.

Plaster model-bodies.

51. (ACCESSORY.) PHOTOGRAPHIC AND OTHER DELINEATING APPARATUS.

**Photographic apparatus.**

Lenses.

Cameras and fittings.

Camera tripods and stands, with model.

Fish Commission stands.

— Model of Fish Commission camera-stand. U. S. Fish Commission.

This stand is employed in taking photographs of large fishes. It enabling the photographer to operate his camera vertically.

Plates, and their results:

Wet plates.

Dry plates.

Dark closets.

**Camera-obscuras.**

**Mechanical delineators.**

**Methods of heliotyping and engraving illustrations.**



## SECTION D.

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# ANIMAL PRODUCTS AND THEIR APPLICATIONS.

## I. FOODS.

### 1. FOODS IN A FRESH CONDITION.

This section includes specimens of the marketable animals in a fresh condition in refrigerators.

**The following species of fish** were exhibited in the Allegretti and Banta refrigerators in the Government building from May 10 to November 10, by Mr. E. G. Blackford, of New York City.

#### **Fishes** (eastern coast):

- Rabbit-fish (*Tetrodon laevigatus*).
- Bur-fish (*Chilomycterus geometricus*).
- File-fish (*Balistes capriscus*).
- Long-tailed file-fish (*Alutera cuspidata*).
- Orange file-fish (*Ceratacanthus aurantiacus*).
- American sole (*Achirus lineatus*).
- Flat-fish (*Pseudopleuronectes americanus*).
- Flounder (*Chænopsetta ocellaris*).
- Halibut (*Hippoglossus vulgaris*).
- Pollack (*Pollachius carbonarius*).
- Cod (*Gadus morrhua*).
- Tom-cod or frost-fish (*Microgadus tomcodus*).
- Haddock (*Melanogrammus aeglefinus*).
- Hake (*Phycis chuss*).
- Striped sea-robin (*Prionotus evolans*).
- Broad-fingered sea-robin (*Prionotus carolinus*).
- Sea-raven (*Hemitripterus americanus*).
- Wolf-fish (*Anarrhichas lupus*).
- Tautog, or black-fish (*Tautoga onitis*), weight 22½ pounds.
- Chogset or cunner (*Tautogolabrus adspersus*).
- Parrot-fish (*Pseudoscarus* sp.).
- Sergeant-major (*Glyphidodon saxatilis*).
- Lump-fish (*Cyclopterus lumpus*).
- Mackerel (*Scomber scombrus*).



**Fishes** (eastern coast):

- Bonito (*Sarda pelamys*).  
 Spanish mackerel (*Cybiium maculatum*).  
 Cero (*Cybiium caballa*).  
 Striped cero (*Cybiium regale*).  
 Crevalle (*Carangus hippos* and *Paratractus pisquetos*).  
 Pompano (*Trachynotus carolinus*).  
 Big-eyed scad (*Trachurops crumenophthalmus*).  
 South Carolina rudder-fish (*Seriola fasciata*).  
 Silver-fish (*Argyriosus vomer*, &c.).  
 Thread-fish (*Blepharis crinitus*).  
 Dolphin (*Coryphæna Sueuri* and *C. punctulata*).  
 Black rudder-fish (*Palinurichthys perciformis*).  
 Butter-fish (*Poronotus triacanthus*).  
 Short harvest-fish (*Peprilus Gardenii*).  
 Squirrel (*Holocentrum sogo*).  
 Squeteague (*Cynoscion regalis*).  
 Spotted squeteague or weak-fish (*Cynoscion carolinensis*).  
 Drum (*Pogonias chromis*).  
 Spot (*Liostomus obliquus*).  
 Red-fish, or spotted bass (*Sciaenops ocellatus*).  
 King-fish (*Menticirrus nebulosus*).  
 Croaker (*Micropogon undulatus*).  
 Sheeps-head (*Archosargus probatocephalus*).  
 Scuppaug, or porgy (*Stenotomus argyrops*).  
 Grunts (*Hæmylum arcuatum*, &c.).  
 Red snapper (*Lutjanus Blackfordii*).  
 Grouper (*Epinephelus striatus*, *E. apua*, &c.).  
 Sea bass (*Centropristis atrarius*).  
 Striped bass or rock fish (*Roccus lineatus*).  
 White perch (*Morone americana*).  
 Moon-fish (*Parephippus quadratus*).  
 Triple-tail (*Lobotes surinamensis*).  
 Bluefish (*Pomatomus saltatrix*).  
 Cobia (*Elacate canadus*).  
 Sucker-fish (*Leptecheneis naucrateoides*).  
 Striped mullet (*Mugil lineatus*).  
 Silver gar-fish (*Belone longirostris*).  
 Skipper (*Scomberesox scutellatus*).  
 Salmon (*Salmo salar*).  
 Tarpum (*Megalops thrissoides*).  
 Menhaden (*Brevoortia tyrannus*).  
 Shad (*Alosa sapidissima*).  
 Alewife, or gaspereau (*Pomolobus pseudoharengus*).  
 Tailor herring (*Pomolobus mediocris*).  
 Herring (*Clupea harengus*).



**Fishes** (eastern coast):

- Mud shad (*Dorosoma Cepedianum*).
- Sea cat-fish (*Aelurichthys marinus*).
- Eel (*Anguilla bostoniensis*).
- Sturgeon (*Acipenser oxyrhynchus* and *A. brevirostris*).
- Spoonbill (*Polyodon folium*).
- Ray, or skate (*Raia* sp.).
- Spotted-fin shark (*Isogomphodon maculipinnis*).
- Dog-fish (*Mustelus lævis*).

**Fishes** (fresh waters):

- Burbot, or lawyer (*Lota maculosa*).
- Fresh-water drum (*Haploidonotus grunniens*).
- Small-mouthed black bass (*Micropterus salmoides*).
- Large-mouthed black bass (*Micropterus pallidus*).
- Rock bass (*Ambloplites rupestris*).
- Sun-fish (*Pomotis aureus*).
- Yellow perch (*Perca flavescens*).
- Yellow pike-perch (*Stizostedium americanum*).
- White bass, or striped bass (*Roccus chrysops*).
- Lake pike (*Esox lucius*).
- Masquallonge (*Esox nobilior*).
- Pickerel (*Esox reticulatus*).
- Brook trout (of eastern slope), (*Salvelmus fontinalis*).
- Lake trout (*Salmo confinis*).
- Salmon trout, or Mackinaw trout (*Cristivomer namaycush*).
- Atlantic salmon (*Salmo salar*).
- Sebago salmon (*Salmo salar* var. *sebago*).
- White-fish (*Coregonus albus*).
- Lake herring (*Argyrosomus harengus* and *A. clupeiformis*).
- Michigan grayling (*Thymallus tricolor*).
- Moon-eye (*Hyodon tergisus*).
- Suckers (*Catostomus teres* and *Ptychostomus aureolus*).
- Buffalo fish (*Bubalichthys bubalus*).
- Shiner (*Stilbe americana*).
- Catfishes (*Amiurus catus*, *A. nigricans*, &c.).

**Fishes** (western coast):

- Salmon (*Salmo quinnat*).
- Mussels.
- Clams.
- Crabs.
- Lobsters.
- Squid.



## 2. FOODS: DRIED AND SMOKED.

**Mammal preparations.**

Jerked bear-meat.

Jerked seal and walrus meat (Indian).

11435. Dried (jerked) flesh of harbor seal (*Phoca vitulina*). Prepared by the Passamaquoddy Indians. Eastport, Me. E. Palmer.

Jerked and smoked buffalo-meat.

14281. Dried (jerked) flesh of buffalo (*Bison americanus*), as prepared for hunters' use. Wyoming. F. V. Hayden, U. S. Geologist.

10917. Dried (jerked) flesh of buffalo (*Bison americanus*). Prepared by Sioux Indians. Army Medical Museum.

Dried and smoked beef.

Dried and smoked venison.

Hams of various kinds.

Jerked porpoise-meat (Indian).

11436. Dried (jerked) flesh of harbor porpoise (*Phocaena brachycion*). Prepared by the Passamaquoddy Indians of Eastern Maine. Eastport, Me. E. Palmer.

Jerked squirrels and other small mammals.

Pemmican.

12238. Pemmican of dried flesh of buffalo (*Bison americanus*), with buffalo-skin case. Prepared for hunters' use. Western Plains. Army Medical Museum.

Meat-biscuit, desiccated meat, meat extract (*extractum carnis*), desiccated and condensed milk, &c.

29524. Valentine's preparation of meat juice. M. L. Valentine, Richmond, Va.
29525. Valentine's meat juice and glycerine. (Meat juice 1 part, glycerine 3 parts.)
29358. Condensed milk. The Gail Borden Eagle brand (made in 1876). New York Condensed Milk Company, New York.
29360. Borden's pure cocoa (in combination with refined sugar and Borden's condensed milk). New York Condensed Milk Company, New York.
29359. Borden's meat-biscuit (made in 1851). Composed of pure juice or extract of beef combined with wheat-flour. New York Condensed Milk Company.
29361. Borden's extract of beef (made in 1876). Prepared by the Borden Meat Preserving Company, Colorado County, Texas. Concentrated *in vacuo*. New York Condensed Milk Company.

(Borden's extract of beef consists of the juices of lean meat concentrated *in vacuo* at a low degree of heat, by which process it is claimed the burnt taste and smell, objected to in other beef extracts, are avoided.)

4915. Condensed raw beef (pulverized). Prepared by the National Preserving Company, Baltimore.



**Mammal preparations.**

Sausages.

Cheese.

See in exhibition of Agricultural Department.

**Bird preparations.**

Jerked birds (Indian).

**Reptile preparations.**

Dried lizards (Indian).

**Fish preparations.**

Smoked halibut.

Dried cod, haddock, hake, &amp;c.

26750. Alden's vapor-cured, snow-flaked, fresh codfish. E. G. Blackford.

Dried and smoked mullet and roes.

Dried and smoked garfish, flying-fish, &amp;c.

Smoked herring, alewives, &amp;c., and their roes.

12130. Smoked No. 1 herrings (*Clupea harengus*). Eastport, Me. D. T. Odell.12131. Smoked "Magdalena" herrings (*Clupea harengus*). Eastport, Me. D. T. Odell.12129. Smoked "scaled" herrings (*Clupea harengus*). Eastport, Me. D. T. Odell.26552-3-4. Smoked herring (*Clupea harengus*). Eastport, Me. Griffin Bros.

Smoked salmon, oulachan, white-fish, smelt, &amp;c., and their roes.

12121. Smoked white-fish (*Coregonus albus*). Lake Erie. Schacht & Bros., Sandusky, Ohio.11608. Smoked flesh of the quinnat salmon (*Salmo quinnat*). Prepared by the McCloud River Indians. Shasta County, California. Livingston Stone.12122. Smoked sturgeon (*Acipenser rubicundus*). Lake Erie. Schacht & Bros., Sandusky, Ohio.19646. Dried flesh of trout (*Salmo*, sp.). Used as food by the Ahgy Pi-Ute Indians of Walker Lake, Nevada. Stephen Powers.19353. Dried eggs of quinnat salmon (*Salmo quinnat*). Prepared by the McCloud River Indians. Shasta, Cal. Livingston Stone.11049. Dried eggs of quinnat salmon (*Salmo quinnat*). Prepared for food by the Bannack Indians.21716. Flour made from flesh of quinnat salmon (*Salmo quinnat*) by the McCloud River Indians of California. Livingston Stone.21712. Basket of dried salmon (*Salmo quinnat*). Prepared for food by the McCloud River Indians. Shasta County, California. Livingston Stone.25284. Dried flesh of salmon (*Salmo*, sp.). Prepared by the Sitka Indians of Alaska. Alaska. J. G. Swan.12132. Dried flesh of the quinnat salmon (*Salmo quinnat*). Used as food by the McCloud River Indians. California. Livingston Stone.



### **Fish preparations.**

13752. Dried eggs of quinnat salmon (*Salmo quinnat*). Used as food by the McCloud River Indians. California. Shasta County, California. Livingston Stone.

21187. Eggs of "herring" (sp. incog.). Used as food by Sitka Indians. Collected by them upon branches of hemlock (*Abies Mertensiana*), planted in shallow water, upon the spawning grounds of the fish. Sitka, Alaska. J. G. Swan.

Smoked sturgeon.

*Veziga*, prepared from the notochord of sturgeon.

### **Insects.**

Dried grasshoppers (Indian).

25314. Grasshoppers. Dried for food by the Indians of Southern California. E. Palmer.

### **Worms.**

Dried worms (Indian).

### **Mollusk preparations.**

Dried abalones (*Haliotis*) prepared by the California Chinese.

Dried siphons of *Schizothærus* prepared by the Indians of the Northwest coast.

Dried slugs (*Limax*, &c.), used by Indians.

### **Radiate preparations.**

(Dried holothurians, "bêches de mer," used by Chinese.)

### **Protozoans.**

("Mountain meal," a kind of infusorial earth, mixed with flour, and used as food in Lapland and China.)

### 3. FOODS: SALTED, CANNED, AND PICKLED.

### **Mammal preparations.**

Salted buffalo-meat.

Salted beef.<sup>1</sup>

Salted deer, reindeer, elk.

Salted tongues of beef, buffalo, deer, horse.<sup>1</sup>

Salted pork.<sup>1</sup>

Canned milk of the various brands.

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<sup>1</sup>See above, p. 163.



**Bird preparations.**

Canned turkey.

Canned meats.

24918. Fresh turkey (*Meleagris gallopavo*). Wm. Underwood & Co., Boston,  
[Mass.]24932. Deviled turkey (*Meleagris gallopavo*). “ “26644. Cumberland roast turkey (star brand). Portland Packing Company,  
Portland, Me.

Canned chicken.

Canned goose.

**Reptile preparations.**

Salted and canned turtles and turtle soup.

Canned frogs.

26751. Alden fresh green turtle. Prepared by Alden Sea Food Company.  
Sold by Lynn Manufacturing Company, New York. Presented by  
E. G. Blackford, New York.**Fish preparations.**

Salted halibut, halibut fins, &amp;c.

25271. Preserved fresh halibut (*Hippoglossus vulgaris*). Wm. Underwood  
& Co., Boston, Mass.

Salted cod, cod's tongues, sounds, and roe.

24923. Fresh codfish (*Gadus morhua*). Wm. Underwood & Co., Boston, Mass.25273. Fresh haddock (*Melanogrammus aeglefinus*). “ “

Salted mackerel.

Salted Spanish mackerel.

26650. Fresh Seguin mackerel (star brand). Portland Packing Company,  
Portland, Me.25855-60. Canned mackerel (*Scomber scombrus*). Kemp, Day & Co., New  
York.24922. Fresh mackerel (*Scomber scombrus*). Wm. Underwood & Co., Boston,  
Mass.

Salted bluefish.

Salted pompano.

Salted sword-fish.

Salted mullets.

Salted salmon.

24924. Fresh salmon (*Salmo salar*). Wm. Underwood & Co., Boston, Mass.26557. Pickled salmon (*Salmo*).26755. Fresh Columbia River salmon. Brookfield, Columbia River, W. T.  
J. G. Megler & Co.

— Canned salmon. A. Booth &amp; Co., Chicago, Ill.



**Fish preparations.**

## Salted salmon.

26756. Fresh Columbia River salmon. Brookfield, W. T. J. G. Megler & Co.  
 26757. Fresh Columbia River salmon. Brookfield, Columbia River, W. T. J. G. Megler & Co.  
 26803. Spring salmon bellies (salted). Oregon Packing Company, Portland, Oreg.  
 26747. Cook's Columbia River fresh salmon. Oregon Packing Company.

## Canned menhaden, in oil, "American sardines."

16609. "American sardines." Prepared "à l'huile" from the menhaden (*Brevoortia tyrannus*). American Sardine Company, New York.  
 16702. Cornish sardines (à l'huile), first quality. Prepared by Fox & Fryer, Falmouth and Nevagissy, Cornwall, from the pilchard (*Clupea pilchardus*).  
 16680. "American boneless sardines." Prepared in olive oil from the menhaden (*Brevoortia tyrannus*). Process patented May 21, 1872. American Sardine Company, New York.  
 15516. "Shadines." Prepared from the menhaden (*Brevoortia tyrannus*). Port Monmouth Fishery, New York. Hooper & Coit, New York.

(Spiced lampreys) used in Europe.

Anchovy-sauce and "essence of anchovies."

Canned menhaden, in oil, "American club-fish."

Spiced menhaden, "ocean trout."

— Ocean trout. Hooper & Coit, Port Monmouth, N. J.

## Salted herring.

26748. Quoddy River herring (salted). Griffin Bros., Eastport, Me. Presented by E. G. Blackford, New York.

## Salted anchovies.

- 26565-68 } "Krauter anchovies, Christiania." New York. Eagle Preserved  
 26571-72 } Fish Company.  
 26559. Anchovies.

## Canned herring, in oil, "Russian sardines."

26562. Russian sardines.  
 26563-26570. "Russische Sardinien." Adler brand. Prima qualitat. "Reval." New York. Eagle Preserved Fish Company.

## Caviare, prepared from roe of the various sturgeons.

12129. Caviare. Prepared from the eggs of the lake sturgeon (*Acipenser rubicundus*). Lake Erie. Schacht & Bros., Sandusky, Ohio.  
 26558. Caviare.  
 26635. American caviare. Max Ams, New York.  
 26634. Prime Russian caviare. (Patented Nov. 9, 1875.) H. Dittman, Hamburg. Max Ams, New York.



**Fish preparations.**

## Pickled fish preparations.

26555. Pickled eels (*Anguilla bostoniensis*).  
 26633. American eels (pickled eels). Max Ams, New York.  
 26636. "Hamburger aale" (cans) (pickled eels). Max Ams, New York.  
 26630. "Hamburger aale" (pickled eels in jelly). Max Ams, New York.  
 26631. "Hamburger aale" (whole eels rolled and pickled with olives, capers, and mushrooms). Max Ams, New York.  
 26629. Hamburger aale (boxes). Max Ams, New York.  
 26632. Hamburger aale. G. Dittman, Hamburg. Max Ams, New York.

## Extract of fish.

26749. Extract of fish. Made from the juices of the flesh of fishes (menhaden). S. L. Goodale, Saco, Me.

**Preparations of mollusks.**

Canned clams.

Canned Little Neck clams.

Canned scallops.

Cockles (*Cardium edule*), used in Europe as pickles and catsup.

See supplementary catalogue of Invertebrates.

## 4. GELATINES.

**Mammal gelatines** (see, also, under 24)

Gelatines made from tanners refuse and from sinews.

Gelatines made from feet and hoofs.

Gelatines made from bone and ivory shavings.

**Bird gelatines.**

(Nests of esculent swallows (*Calocalia esculenta*, *C. fuciphaga*, *C. indifca*, &c.), exported from Indian Archipelago to China.)

**Fish gelatines or isinglass** (see, also, under 24).**Insect gelatine.**

Gelatine from cocoons of silk-worms.

## 5. BAITS AND FOODS FOR ANIMALS.

**Prepared baits.** (See under B, 45.)**Food for domesticated animals.**

Oil-factory scraps.

Fish-scraps.

Cuttle-fish bone (see under 18).



## II. CLOTHING.

6. FURS (embracing the furs in their rough state (peltries), and in the various stages of preparation; also the manufactured articles, such as robes, rugs, cloaks, sacks, tippets, cuffs, muffs, hats, caps, gloves, trimmings, and linings).

**Mammal furs.**

Puma (*Felis concolor*), used for carriage-robes, rugs, &c.

H. 67. Missouri. C. A. Herpich & Co.

Ocelot (*Felis pardalis*) used for rugs.

12509. Texas. Smithsonian Institution.

Jaguar (*Felis onca*), used for rugs.

— Texas. Smithsonian Institution.

Cat (*Felis domestica*), used for robes and philosophical apparatus:

Black cat.

White cat.

Maltese cat.

Tortoise-shell cat.

H. 64. Natural. United States. C. A. Herpich & Co.

H. 65. Dyed brown. United States. C. A. Herpich & Co.

Canada lynx (*Lynx canadensis*), used for rugs and trimmings and dyed muffs, boas, &c.

24754. Labrador. G. R. Renfrew & Co., Quebec.

Bay lynx (*Lynx rufus*), used for rugs, and, when dyed, muffs and boas.

H. 61. Natural. Minnesota. C. A. Herpich & Co.

H. 62. Dyed brown. Kansas. “

H. 63. Dyed black. “ “

H. 59. Dyed black. “

H. 60. Dyed brown. “

Eskimo dog (*Canis sp.*), used for rugs, &c.

24756. Labrador. G. R. Renfrew & Co., Quebec.

Wolf (*Canis lupus*), used for lining rugs and robes.

12508. Black variety.

H. 75. Gray variety. Kansas. C. A. Herpich & Co.

24753. Labrador. G. R. Renfrew & Co., Quebec.



**Mammal furs.**

Coyote or prairie-wolf (*Canis latrans*), used for rugs and robes.

- H. 75. Colorado. C. A. Herpich & Co.  
1014. Smithsonian Institution.

Red fox (*Vulpes fulvus*) used for robes.

24757. Labrador. G. R. Renfrew & Co., Quebec.  
H. 34. Connecticut. C. A. Herpich & Co.  
H. 35. Indiana. “  
H. 3. Missouri. “

Silver fox (*Vulpes alopec, var. argentatus*), used for muffs and trimmings.

24759. Labrador. G. R. Renfrew & Co., Quebec.

Cross fox (*Vulpes alopec, var. decussatus*), used for robes and trimmings.

24758. Labrador. G. R. Renfrew & Co., Quebec.  
H. 30. Montana. C. A. Herpich & Co.

Arctic fox (*Vulpes lagopus*).

24760. Labrador. G. R. Renfrew & Co., Quebec.  
H. 29. White Arctic. C. A. Herpich & Co.  
H. 28. Blue Labrador. “

Kit fox (*Vulpes velox*) used for robes, muffs, trimmings.

- H. 37. Nebraska. C. A. Herpich & Co.

Gray fox (*Urocyon virginianus*), used for robes, rugs, and linings.

- H. 32. Michigan. C. A. Herpich & Co.  
H. 33. North Carolina. “

American or Hudson's Bay sable (*Mustela americana*), used for cloaks, muffs, cuffs, boas, linings, &c.

4393. Summer Arctic coast. B. R. Ross.  
10176. Alaska. Lieut. F. M. Ring.  
4389. Arctic coast, B. R. Ross.  
460. Fort Boise, M. T. Dr. Geo. Suckley.  
24764. Orange. Labrador. G. R. Renfrew & Co., Quebec.  
24763. Silver. “ “ “  
24762. Black. “ “ “  
H. 25. Labrador. Smithsonian Institution.  
H. 25. N. W. coast. “ “  
H. 26. Lake Superior. “ “  
H. 27. Maine. “ “

Fisher or pekan (*Mustela Pennanti*) used for linings; tails used for trimmings.

3230. Fort Crook, Oreg. Capt. Gardiner.  
1008. Fort Dalles, Oreg. Dr. Geo. Suckley.  
2000. Steilacoom, Wash. “  
1009. Fort Dalles, Oregon. “  
24761. Black. Labrador. G. R. Renfrew & Co., Quebec.



**Mammal furs.**

Ermine or weasal (*Putorius erminea*) of northern hemisphere, used for cloaks, linings, &c.

24765. Labrador. G. R. Renfrew & Co., Quebec.  
H. 39. (5 specimens.) United States. C. A. Herpich & Co.

Mink (*Putorius vison*), used for cloaks and muffs.

4395. Arctic coast. B. R. Ross.  
350. California. Lt. Trowbridge.  
3568. Puget Sound. Dr. Kennerly.  
2387. Cape Flattery, Wash. Dr. Geo. Suckley.  
24766. Brown. Labrador. G. R. Renfrew & Co., Quebec.  
H. 18. New York. C. A. Herpich & Co.  
H. 19. Minnesota. "  
H. 20. Ohio. "  
H. 22. Maine. "  
H. 22. Missouri. "  
H. 23. Florida. "

Wolverine (*Gulo luscus*), used for muffs, robes, linings.

24767. Labrador. G. R. Renfrew & Co., Quebec.  
11339. Filmore, Utah. Lieut. Geo. M. Wheeler.  
4379. Fort Simpson, H. B. T. Robt. Kennicott.

American badger (*Taxidea americana*), used for muffs and rugs.

26609. Southern Utah. U. S. Engineer Corps.  
H. 70. United States. C. A. Herpich & Co.

Skunk, Alaska sable (*Mephitis mephitica*), used for muffs, boas, &c.

81. Washington, D. C. S. F. Baird.  
H. 7. Black. Ohio. C. A. Herpich & Co.  
H. 8. Half-striped. Pennsylvania. C. A. Herpich & Co.  
H. 9. Striped. Connecticut. "  
H. 10. White. Missouri. "

Striped skunk (*Spilogale zorilla*).

11136. Marsh Valley. Dr. F. V. Hayden.

Otter (*Lutra canadensis*), with specimens of the plucked and dyed fur, used for muffs, trimmings, &c.

2803. White River. Puget Sound. Dr. George Suckley.  
24768. Labrador. G. R. Renfrew & Co., Quebec.  
25752. Dressed by G. C. Treadwell & Co., Albany, N. Y.  
25753. " "  
25763. " "  
H. 41. Natural. Maine. C. A. Herpich & Co.  
H. 42. Natural. Plucked. Canada. C. A. Herpich & Co.  
H. 43. Natural. Plucked and dyed. New York. C. A. Herpich & Co.



**Mammal furs.**

Sea otter (*Enhydra marina*), used for muffs, gloves, collars, cuffs, trimmings.

12262. St. Paul's Island, Alaska. H. W. Elliott.  
 12265. " " " "  
 12263. " " " "  
 H. 44. California. C. A. Herpich & Co.  
 H. 45. Silver tipped. California. C. A. Herpich & Co.

Black bear (*Ursus americanus*), used for caps, rugs, muffs, robes, &c.

24769. Labrador. G. R. Renfrew & Co., Quebec.  
 24770. " " " "  
 H. 75. Minnesota.  
 H. 76. Kansas.  
 H. 77. West Virginia.  
 12510. White bear (*Thalarctos maritimus*), used for rugs, robes; extensively by the Eskimos.  
 19904-5. Grizzly bear (*Ursus horribilis*), used for rugs, robes, trimmings.  
 12507. Raccoon (*Procyon lotor*), used for hats, linings:  
 H. 1. Natural. Northern New York. C. A. Herpich & Co.  
 H. 2. Natural. Ohio. "  
 H. 3. Natural. Virginia. "  
 H. 4. Natural, plucked. Wisconsin. "  
 H. 5. Dyed black. Michigan. "  
 H. 6. Dyed black and silver pointed. Michigan. C. A. Herpich & Co.

Fur seal (*Callirhinus ursinus*) used for cloaks, hats, gloves, muffs, linings, trimmings, &c.

- 12513-14-15-16-17-18. St. Paul's Island, Alaska. H. W. Elliott.  
 9526. Unplucked. Hutchinson, Kohl & Co., San Francisco, Cal.  
 9527. Unplucked. Alaska. Hutchinson, Kohl & Co.  
 25757. Unplucked. Prybilov Islands, Alaska. Hutchinson, Kohl & Co.  
 25758. London dye. Alaska. C. A. Herpich & Co.  
 H. 93. " " " "  
 22233. Unplucked. Alaska. G. C. Treadwell & Co., Albany, N. Y.  
 22234. Plucked. South Sea. " "  
 26610. Unplucked pelt of fur seal. Alaska.  
 26611. Plucked " " "  
 26612. Plucked and dressed pelt of fur seal. Alaska.  
 26613. Plucked and dyed pelt of fur seal. Alaska. Alaska Commercial Company.

Antarctic fur-seal (*Arctocephalus aucklandicus*), &c.

25762. Dressed by G. C. Treadwell & Co. Islos de Diego Ramires.  
 25761. " " South Georgia Islands.  
 25760. " " "  
 25759. " " Staten Land, South Atlantic.  
 25756. " " South Shetland Islands.  
 25755. " " "  
 25754. " " "  
 26804-5-6-7. Deposited by Duryea & Hallet, Rahway, N. J.



**Mammal furs.**

Banded seal (*Histiophoca equestris*), used by Eskimos as fur.

7580. (Bag). Cape Romanzoff. W. H. Dall.

Square flipper seal (*Erignathus barbatus*).

12422. Labrador. Governor of Newfoundland.

Pacific hair seal (*Phoca Richardi?*).

H. 89. White coat. Pacific. C. A. Herpich & Co.

H. 90. White coat, silver pointed. Pacific. C. A. Herpich & Co.

Hood or bladder-nose seal (*Cystophora cristata*).

12424. Young. Labrador. Governor of Newfoundland.

12425. Bedlamer (1 year old). Labrador. Governor of Newfoundland.

12423. Labrador. Governor of Newfoundland.

Harp seal (*Pagophilus grænelandicus*), with specimens of the white fur of the unborn cub and the blue fur of the young.

11828. Unborn. Newfoundland. Michael Carroll.

12427. Labrador. Governor of Newfoundland.

12421. Young. Labrador. Governor of Newfoundland.

12426. Bedlamer. " " "

13134. Sack made from white fur. Greenland. S. F. Baird.

Hair seal (*Phoca vitulina*), used for coats, caps, linings for shoes.

24771. Labrador. G. R. Renfrew & Co., Quebec.

H. 91. Dyed black. Halifax. C. A. Herpich & Co.

H. 92. Dyed brown. " "

Bison, or buffalo (*Bison americanus*) used for rugs and robes.

H. 82. Full furred winter.

H. 83. Fall robe. Montana. C. A. Herpich & Co.

H. 84. Summer robe. " "

H. 85. Indian painted. " "

H. 86. Yearling calf. " "

H. 87. Medium calf. " "

H. 88. Small calf. " "

Musk ox (*Ovibos moschatus*) used for robes, rugs, and trimmings.

12520. Hudson's Bay Territory.

12519. Calf. Hudson's Bay Territory.

Mountain sheep (*Ovis montana*).

H. 80. Montana. C. A. Herpich & Co.

Antelope (*Antilocapra americana*).

H. 81. Indian Territory. C. A. Herpich & Co.



**Mammal furs**

Elk (*Cervus canadensis*), used for rugs and robes.

H. 78. Montana. C. A. Herpich & Co.

Virginia deer (*Cariacus virginianus*).

12512. Virginia deer, used for trimmings and robes.

Black-tailed deer (*Cariacus columbianus*), used for robes and rugs.

11604-11605. Prepared by McCloud River Indians, California. Livingston Stone.

3565. Puget Sound. Dr. Kennerly.

Mule deer (*Cariacus macrotis*), used for trimmings, robes.

H. 99. Montana. C. A. Herpich & Co.

Woodland caribou (*Tarandus rangifer*, subspecies *caribou*), used for rugs, robes, &c.

24774. Labrador. G. R. Renfrew & Co., Quebec.

Barren ground caribou (*Tarandus rangifer*, subspecies *grænländicus*).

12365. (Albino.) F. Churchill, Hudson's Bay; W. W. Kirkby.

2050. (Young.) Robe from Mackenzie's River, H. B. T. R. Kennicott.

Moose (*Alces malchis*), used for rugs and robes.

24772. Labrador. G. R. Renfrew & Co., Quebec.

Mole (*Scalops* and *Condylura* sp.), used for robes and garments.

H. 72. United States. C. A. Herpich & Co.

Woodchuck or siffleur (*Arctomys monax*) robes, exported to Europe as "white and gray weenusk."

24776. Labrador. G. R. Renfrew & Co., Quebec.

H. 71. United States. C. A. Herpich & Co.

Marmot (*Arctomys caligatus*), used for robes and trimmings.

835. Robe. Indians of Rocky Mountains, west of Fort Good Hope, H. B. T. R. Kennicott.

Chinchilla (*Chinchilla laniger*) of South America, used for muffs, mantles, boas, cloak-linings, and trimmings.

H. 103. Real. Bolivia. C. A. Herpich & Co.

H. 104. Bastard. Chili. "

Parry's marmot (*Spermophilus Parryi*).

20793. Robe. Sitka, Alaska. J. G. Swan.

835. Robe. Indians of Rocky Mountains, west of Fort Good Hope, H. B. T. R. Kennicott.



**Mammal furs.**

Musquash (*Fiber zibethicus*), used for muffs, capes, caps, and linings and imitations of beaver fur.

24779. Labrador. G. R. Renfrew & Co., Quebec.  
 24780. Black variety. Labrador. G. R. Renfrew & Co., Quebec.  
 H. 12. Natural brown. Maine. C. A. Herpich & Co.  
 H. 13. Natural brown. Indiana. “  
 H. 14. Natural black. New Jersey. “  
 H. 15. Plucked and dyed. C. A. Herpich & Co.  
 H. 16. Plucked and colored. “

Neutria, or coypu (*Myopotamus coypus*), used for linings and muffs, and imitations of beaver.

- H. 105. Plucked. Buenos Ayres. C. A. Herpich & Co.

Beaver (*Castor canadensis*), used for linings and muffs.

1230. Spotted albino. Bristol Bay, Alaska.  
 24777. American. Labrador. G. R. Renfrew & Co., Quebec.  
 24778. “ “ “ “ “  
 12506. White.  
 H. 46. Dyed and silver tipped. Hudson's Bay Territory. C. A. Herpich & Co.  
 H. 47. Dyed and silver tipped. Canada. C. A. Herpich & Co.  
 H. 48. Dyed and plucked. Lake Superior. “  
 H. 49. Natural. Lake Superior. “  
 H. 50. Natural, in hair. Kansas. “

Hare (*Lepus*, various species).

- H. 58. United States. C. A. Herpich & Co.  
 19615. Fur blanket. Pi-Ute Indians. Walker Lake, Nevada. Stephen Powers.

Rabbit, or cony (*Lepus cuniculus*), used for children's furs, and imitations of seal, beaver, &c., exported largely to China.

- H. 51. Dyed brown, sheared. United States.  
 H. 52. Natural blue. “  
 H. 53. Natural white. “  
 H. 54. Dyed black. “  
 H. 55. Natural blue. “  
 H. 56. Natural white. “  
 H. 57. Gray. United States. C. A. Herpich & Co.

Possam (*Didelphys virginianus*).

- H. 17. Ohio. C. A. Herpich & Co.

Mountain cat (*Bassaris astuta*).

- H. 66. Montana. C. A. Herpich & Co.  
 H. 11. Missouri. “



**Bird furs.**

Loon (*Colymbus torquatus*).

1302. Used by Makah Indians in manufacture of robes. Nevah Bay, Washington Territory. J. G. Swan.

1296. Robe from down of. Neeah Bay, Washington Territory. J. G. Swan.

Swan's (*Cygnus americanus*) furs and swan's down trimmings.

H. 101. I. United States. C. A. Herpich & Co.

H. 102. II. " "

Brown pelican (*Pelecanus fuscus*).

9559. Tiburon Islands, Sonora. E. Palmer.

Goose (*Anser* sp.).

H. 99. United States. C. A. Herpich & Co.

H. 100. United States. "

7. LEATHER. (See under 20.)

8. TEXTILE FABRICS.

**Prepared from hair of mammals.**

Human hair used in manufacture of watch-chains.

Hair of bats used in felting and in plaiting ropes in Central America and tassels in New Caledonia.

Hair of raccoon used in felting (largely exported to Germany for the use of hatters).

Hair of weasels and sables used in felting.

Hair of fur seal woven with silk in the manufacture of shawls.

Moose hair and its fabrics.

Ox and calf hair used in the manufacture of imitation woolen goods.

Sheep's wool, with specimens of fleeces and stapled wools, from various breeds and localities, short-wool fabrics, broadcloths, merinoes, flannels, mouselins de laine, serges, tweeds, blankets, carpets, and tartans, worsted fabrics, stuffs, bombazines, camlets, shawls, plushes and velvets, hosiery, and yarns, felts, felt-cloths, and felt-hats.

Goats' wool with specimens of mohairs, cashmeres, plushes, velvet-eens, camlets, and shawls. (For manufactured wigs and perukes, see under 21.)

(Yak (*Poëphagus grunniens*) wool with specimens of yak-lace and other fabrics.)

(Camels' hair with specimens of fabrics, plushes, felts, shawls, &c.)

(Hair of llama, paco, guanaco, and vicugna, with specimens of alpaca, guanaco, and other fabrics, and umbrellas and other articles manufactured.)



**Prepared from hair of mammals.**

Hair of horses used in weaving furniture-covers, crinoline-skirts, and bags for pressing oil.

Hair of buffalo used in plaiting ropes, lariats, &c.

Fur of mole used in felting.

Beaver (castor) fur with specimens of the felt cloths, hats, &c. (Neutria-fur used in felting and in the manufacture of hats.)

Musquash fur used in felting.

Possam hair with fabrics of Indian and other manufacture.

Fur of rabbit and hare used in felting, with specimens of hats and cloths.

Whalebone fiber used in weaving cloth covers for telescopes, &c.

**Prepared from feathers of birds.**

Cloths woven from feather (China).

**Prepared from silk of insects.** (This collection should include specimens of the cocoons, the raw silk, the spun silk, and of the various fabrics, plain and figured silks, satins and satinettes, shawls, damasks, brocades, crapes, and ribbons.)

Silk of common silk-worm (*Bombyx mori*).

Silk of *Samia cecropia*, *Samia polyphemus*, and other native American moths.

(Silk of exotic moths other than *Bombyx mori*, such as the tussah (*Bombyx pernyi* and *Bombyx mylitta*), the moonga (*Saturnia assamensis*), the joree (*Bombyx religiosa*), the ena or arindy (*Bombyx cynthia*).

Fabrics woven by the insects themselves, as *Tinea padilla*.

Silk of spiders.

**Prepared from byssus of mollusks.**

(Fabrics woven from byssus of the wing-shell (*Pinna nobilis*) and other mollusks.)



### III. MATERIALS EMPLOYED IN THE ARTS AND MANUFACTURES.

#### *Hard materials.*

#### 9. IVORY AND BONE.

#### **Ivory of mammals.**

Tusks of walrus used for trinkets, handles, jewelry, buttons, paper-knives, counters, &c.

25656. Tusks of walrus (*Rosmarus obesus*). Alaska. C. H. Crandall.  
 15592. Commercial walrus ivory. Poonook, Alaska. H. W. Elliott.  
 16174. Teeth of young walrus (*Rosmarus obesus*). Used in making powder chargers. Nunivak Island, Alaska. W. H. Dall.  
 24819. Ivory of walrus in rough state. Joseph Shardlow, New York.  
 24887. Scrimshawed tooth of walrus (*Rosmarus*). (Figure of lady.) Geo. Y. Nickerson, New Bedford, Mass.  
 24886. Scrimshawed tooth of walrus (*Rosmarus*). (Figure of lady and horse.) Geo. Y. Nickerson, New Bedford, Mass.  
 26896. Scrimshawed tooth of walrus (*Rosmarus Cookii*). Repulse Bay. Capt. H. C. Chester, Noank, Conn.  
 25654. Harpoon head made at sea from walrus tusk. J. H. Bartlett & Sons, New Bedford, Mass.  
 2631. Handle of walrus ivory. Northwest coast, America. United States Exploring Expedition. Capt. Chas. Wilkes, U. S. N.  
 24815-6. Cane handles of walrus ivory. Joseph Shardlow, New York.  
 24812. Chain and cross of walrus ivory. " "  
 24814. Knobs of walrus Ivory. " "  
 24813. Scarf-slide of walrus ivory. " "  
 24817-18. Sword handles of walrus ivory. " "  
 24820-21-22. Knife handles of walrus ivory. " "  
 24823. Crochet-needles of walrus ivory. " "  
 24824. Pool-balls of walrus ivory. " "  
 24825-6-7-8-9-30-31-32. Buttons and studs of walrus ivory. Joseph Shardlow, New York.

Teeth of bears, dogs, wolves, foxes, peccaries, and other large mammals, used as implements, arrow-tips, and ornaments, by Indians.

6226. Bear teeth (used as ornaments). Bloomfield, N. Y. Col. E. Jewett.

Elk ivory (used by Indians for ornamentation).

1874. Ivory of elk (*Cervus canadensis*). Yamp Utah Indians, Utah. Captain Gunnison, U. S. A.

Tusks of mammoth elephant (*Elephas primigenius*) from Northern America and Asia, with Eskimo carvings.<sup>1</sup>

15385. Tusk of mammoth. Alaska. J. G. Swan.  
 11041. Comb. Made from the ivory of fossil elephant. Saint Michael's, Alaska. W. H. Dall.

<sup>1</sup>An interesting series of aboriginal carvings from mammoth ivory is displayed in the Ethnological division.



**Ivory of mammals.**

Teeth of peccary (*Dicotyles* sp.).<sup>1</sup>

Ivory of narwhal (*Monodon monoceros*), used for canes.

- . Tusks of narwhal. Greenland. U. S. Fish Commission.  
13521. Cane made from tusk of narwhal. Eskimos of North Greenland.  
F. T. Commagere.

Teeth of sperm-whale (*Physeter macrocephalus*) and their application to the manufacture of balls, buttons, and trinkets.

25653. Teeth of sperm-whale. J. H. Bartlett & Sons, New Bedford, Mass.  
25710. Teeth of cow whale. Capt. Joseph Fisher, Provincetown, Mass.  
25719. Teeth of sperm-whale. Andrew Kennedy, Provincetown, Mass.  
24906-8. Teeth of sperm-whale, polished. J. H. Clark, Newport, R. I.  
25709. Teeth of the cow whale (scrimshawed). Capt. Joseph Fisher, Provincetown, Mass.  
7428. Tooth of sperm-whale. Scrimshawed with British coat of arms and female figure. J. Varden.  
24905. Tooth of sperm-whale. Scrimshawed and mounted as watch case, figure of American eagle. J. H. Clark, Newport, R. I.  
24904. Tooth of sperm-whale. Scrimshawed with figure of crucifix and flowers. J. H. Clark, Newport, R. I.  
24901. Tooth of sperm-whale. Scrimshawed with figure of whaling-ship. J. H. Clark, Newport, R. I.  
24902. Tooth of sperm-whale. Scrimshawed with figure of America in colors. J. H. Clark, Newport, R. I.  
24903. Tooth of sperm-whale. Scrimshawed with figure of girl dancing. J. H. Clark, Newport, R. I.  
7659. Tooth of sperm-whale. Scrimshawed with this legend: "Taken \* by \* the \* ship \* Montreal \* of \* London \* in \* the \* Pacific \* Ocean \* from \* a \* one \* hundred \* barrel \* whale \*. — \* — 1835 \*." Mrs. Dove, Washington, D. C., 1842.  
24888. Tooth of sperm-whale. Scrimshawed with figure of General Washington and American eagle. Geo. Y. Nickerson, New Bedford, Mass.  
24889. Tooth of sperm-whale. Scrimshawed with figure of General Scott and American eagle. Geo. Y. Nickerson, New Bedford, Mass.  
7660. Tooth of sperm-whale. Scrimshawed with figure of pagoda. ??? Pacific Ocean. United States Exploring Expedition. Capt. Charles Wilkes, U. S. N.  
25792. Tooth of sperm-whale (scrimshawed) Malcolm McFadyn, Gloucester, Mass.  
24836. Balls turned from teeth of sperm-whale. Joseph Shardlow, New York.

Incisors of beaver (*Castor canadensis*) used by Indians for chisels, knives, and ornaments.

2684. Dice. Made from teeth of beaver. Oregon Indians. United States Exploring Expedition. Capt. Charles Wilkes.

<sup>1</sup>Interesting applications of this material may be found in the Ethnological series.



**Ivory of reptiles.**

Teeth of alligator used for jewelry, whistles, cane-handles, buttons, &c.

26895. Jewelry manufactured from teeth of alligator (*Alligator mississippiensis*). E. F. Gilbert, Jacksonville, Fla.

An extensive trade in alligator teeth has sprung up within the last ten years. Ten establishments in Eastern Florida are engaged in their manufacture into fancy articles.

**Ivory of fishes.**

Sharks' teeth used in arming weapons.<sup>1</sup>

Teeth of sharks and other fish used as trinkets.<sup>1</sup>

Jaws of the sleeper-shark (*Scmniusus brevipinna*) used for head-dresses by Indians.

— . Coronet of shark's teeth. Gulf of Saint Lawrence. G. R. Renfrew & Sons, Quebec.

**Bone of mammals.**

Parts of splanchno-skeleton of feræ, used as charms.

— . Os penis of raccoon, used as charm.

9476. "Os mirabilis" of walrus. Alaska. Gen. Geo. H. Thomas, U. S. A.

Bones of bear and other large mammals, used by Indians for implements and as tablets for paintings.<sup>1</sup>

Bones of buffalo and of the domestic ruminants, used as substitute for ivory in the manufacture of buttons, handles, combs, &c.

24855. Bone parasol-handle. Joseph Shardlow, New York.

24854. Bone parasol-handle. " "

24853. Bone parasol-handle. " "

24852. Bone counters. Joseph Shardlow, New York.

24851. Bone shields. " "

24850. Bone cribbage-pins. " "

24849. Bone dice. " "

24843-4-5-6-7-8. Bone brush-handles. Joseph Shardlow, New York.

24842. Bone martingale-rings. " "

24837. Bone napkin-rings. " "

24833-4-5-6. Bone parasol-handle. " "

19513. Bow. Made of bone. Greenland Eskimos. Geo. Y. Nickerson.

10280. Bow. Made of bone. Eskimo. King William's Land.

25673. Bone marlin-spike. Made at sea by Thomas Freeman. Used for splicing trawl-lines. Sanford Freeman, Norwicheport, Mass.

Sperm-whale jaw-bone, used for harness-rings, martingales, &c.

29233-4-5-6-7-8-9-40. Parasol-handles made from sperm-whale's jaw. Harvey & Ford, Philadelphia.

<sup>1</sup> Displayed in Ethnological division.



**Bone of mammals.**

Sperm-whale jaw-bone, used for harness-rings, martingales, &c.

29241. Paper-cutters, made from sperm-whale's jaw. Harvey & Ford, Philadelphia.
24909. Chopping-knife. Made from jaw of sperm-whale. Prof. S. F. Baird.
25791. Sail-thimble. Made from bone of whale. J. W. Foster, Beverly, Mass.
25793. Seam-rubber. Used by sail-makers to rub along seams. Made from jaw-bone of sperm-whale. Frank Westerberger, Beverly, Mass.
25650. Sail-maker's hand-fid. Made at sea from jaw-bone of sperm-whale. A. R. Crittenden, Middletown, Conn.
25655. Saw-frame. Made at sea from bone of sperm-whale. J. H. Bartlett & Sons, New Bedford, Mass.
25801. Pulley. Made from jaw-bone of sperm-whale. E. H. Cook, Provincetown, Mass.
25649. Pulley-block. Made at sea from jaw-bone of sperm-whale. A. R. Crittenden, Middletown, Conn.
25713. Seine-needle. Made from jaw-bone of sperm-whale. N. H. Payne, Wellfleet, Mass.

Horn-cores of ruminants, used in manufacture of assayers' cupels.

**Bone of birds.**

Bones of birds, used by Indians and Eskimos in making awls, needles, flutes, bird-calls, and dress-trimmings.

10333. Gambling-sticks. Made from bones of white crane. Mojave Indians. Dr. E. Palmer.

**Bone of fishes.**

Fish-bones, used by Indians and Eskimos in making implements.<sup>1</sup>

Bone of sword-fish.

25675. Shoemaker's tool. Made from sword of sword-fish (*Xiphias gladius*). Sanford Freeman, Norwichport, Mass.

Sharks' vertebræ, used for canes.

**Waste bone and ivory.**

Use in manufacture of bone-black, ivory-black, and bank-note ink (see under 29).

Use in manufacture of sizes and glues (see under 24).

Use in manufacture of gelatine for food (see under 4).

Use in manufacture of phosphorus, carbonate of ammonia (harts-horn), and sal ammoniac (see under 30).

Use in manufacture of bone-charcoal for filters (see under 30).

Use in manufacture of paper.

Use of shavings in case-hardening gun-barrels and other fine steel.

<sup>1</sup>Displayed in Ethnological series.



**Waste bone and ivory.**

## 10. HORN.

(Embracing the varieties of horn known to commerce, the split and pressed horns, and the various manufactured articles, such as jewelry, combs, and handles.)

**Horn** (employed as a material).

Horns of ox, sheep, and goat, used for handles, buttons, combs, powder-flasks, cups, boxes, stirrups, spoons, and imitations of tortoise-shell, also "sensitive Chinese leaves," and formerly for transparent plates in lanterns and horn-hooks, for trumpets, and for finger-nails in lay figures.

- |                       |  |
|-----------------------|--|
| 25277. Cow's horns.   | Philip R. Woodford, Boston, Mass.            |
| 25274. Steer's horns. | "  " |
| 25276. Bull's horns.  | "  " |

**Horn of buffalo**, used like that of ox.

- |                               |   |
|-------------------------------|---|
| 25278. Horns of buffalo bull. | Philip R. Woodford, Boston, Mass.                                       |
| 25280. Horns of buffalo calf. | "  "                            |
| 25279. Horns of buffalo cow.  | "  "                            |
| 8489. Spoon of buffalo horn.  | Assinaboin Indians. Fort Buford, Dakota.<br>Dr. J. P. Kimball, U. S. A. |
| 11030. Spoon of buffalo horn. | Yellowstone Valley, Dakota. Lieutenant<br>Cusick.                       |

**Horn of musk ox** (*Ovibos moschatus*).

- |  |                                   |
|--|-----------------------------------|
| 11648. Arctic regions.                   | Capt. C. F. Hall.                 |
| 10389. Spoon made from horns of musk ox. | Igloolik. Capt. C. F. Hall.       |
| 25275. Ox horns.                         | Philip R. Woodford, Boston, Mass. |

Series of articles manufactured from horn. Geo. F. Lincoln, Leominster, Mass. :

- |  |
|--|
| 29507. Horn as it comes from the press, cut out preparatory to making combs. |
| 29508. Combs. Cut.   |
| 29509. Unfinished combs.   |
| 29510. Horn cut into small pieces for use in manufacture of jewelry.         |
| 29571. Finished comb.  |
| 29502. Polished jewelry (uncolored).   |

**Horn of mountain sheep and mountain goat**, used by Aleutians in making spoons, bowls, and numerous other implements.

- |  |  |
|--|--|
| 16809. Horns of mountain goat ( <i>Mazama montana</i> ). | Used by Eskimo for making horn spoons. Alaska. W. H. Dall. |
| 20623-4. Spoon made from horn of mountain goat.          | Bella Bella Indians. J. G. Swan.                           |
| 9278. Spoon made from horn of mountain goat.             | Alaska. A. H. Hoff, U. S. A.                               |



**Horn** (employed as a material).

Horns of Rocky Mountain sheep (*Ovis montana*).

704. Spoon made from horn of Rocky Mountain sheep. Northwest coast.  
George Gibbs.
20842. Spoon made from horn of Rocky Mountain sheep. Haidah Indians.  
Prince of Wales Island, Alaska. J. G. Swan.
14455. Spoon made from horn of Rocky Mountain sheep. Pi-Ute Indians.  
Maj. J. W. Powell.

**Antlers.**

Antlers of deer, elk, and moose (stag horn), used in the manufacture of handles for instruments, trinkets, and buttons.

- 26229-23-30. Carving from horn of deer (*Cariacus virginianus*). Harvey & Ford, Philadelphia.
21312. Spoon carved from antler of elk (*Cervus canadensis*). Hoopah Indians, California. S. Powers.

Antlers of deer, elk, moose, and nearly all species of ruminants, employed for ornamental purposes. (A series of these antlers is used in the decoration of the columns in the Government building.)

**Chemical and other applications.**

Burnt horn (*cornu ustum*) used in dentifrices.

Carbonate of ammonia (hartshorn), manufactured from deer horns.  
(See under 30.)

## 11. HOOFS AND CLAWS, &amp;C.

(Embracing the commercial hoof, and the various stages of manufacture represented by specimens.)

**Hoofs.**

Hoofs of ox and bison, used in making buttons, combs, and handles.

26901. Commercial hoof. Philip R. Woodford, Boston, Mass.  
Series of articles made from hoof. Geo. F. Lincoln, Leominster, Mass.:
29516. Dust made from the hoof.
29517. Belt buckle.
29518. Martingale rings.
29519. Breastpin.
29520. Cross for neck wear.
29521. Breastpin.

Hoofs of horse, used like those of ox and bison.

Hoofs of musk ox, deer, and antelope, used by Indians in ornamentation.

7443. Hoofs of musk ox. Used for trimming of garments by Eskimos.  
Mackenzie's River. R. MacFarlane.

Feet of deer, used for knife-handles, stool-feet, &c.



**Claws.**

Claws of bear, puma, wolf, &c., used by Indians in ornamentation.  
(See Ethnological series.)

Human nails, used by Indians for ornamental trimming.

**Chemical application of hoofs and claws.**

Use in manufacture of prussiate of potash (see under 30).

Use in manufacture of glue (see under 24).

## 12. BALEEN.

**Whalebone in an unmanufactured state.**

14042. Baleen of humpback whale (*Megaptera versabilis*). Coast of California, 1873. C. M. Scammon.
12311. Bone of humpback whale (*Megaptera versabilis*). Coast of California. C. M. Scammon.
13893. Baleen of humpback whale (*Megaptera versabilis*). Monterey, Cal. 1873. C. M. Scammon.
13019. Baleen of humpback whale (*Megaptera versabilis*). Monterey, Cal. 1872. C. M. Scammon.
12263. Baleen of humpback whale (*Megaptera versabilis*). San Luis, Cal. C. M. Scammon.
13020. Baleen of humpback whale (*Megaptera versabilis*). San Luis, Cal. C. M. Scammon.
13985. Baleen of sulphur-bottom whale (*Sibbaldius sulfureus*). Monterey, Cal. C. M. Scammon.
13984. Baleen of sulphur-bottom whale (*Sibbaldius sulfureus*). Monterey, Cal. C. M. Scammon.
12052. Bone of the California gray whale (*Rhachianectes glaucus*). Monterey, Cal. 1873. C. M. Scammon.
15402. Baleen. North Pacific. Capt. Henderson.
7494. Whalebone. Anderson River Eskimos. Mackenzie's River district. R. MacFarlane.
1108. Whalebone. Prepared by Anderson River Eskimos. Mackenzie's River district. R. MacFarlane.
1116. Whalebone. Anderson River Eskimos. Mackenzie's River district. R. MacFarlane.
2079. Whalebone. Arctic coast. R. MacFarlane.
24976. Whalebone fiber. Curled for bed-stuffing. J. A. Sevey, Boston, Mass.
24930. Whalebone. Prepared for whip-makers' use. J. A. Sevey, Boston, Mass.
24862. Whip with whalebone stock, knotted, inlaid with whale-tooth's ivory, handle wound with thin whalebone. American Whip Co., Westfield, Mass.
24950. Dress-bone. Whalebone prepared for dress-makers' use. J. A. Sevey, Boston, Mass.
24946. Whalebone. Prepared for suspender-makers' use. J. A. Sevey, Boston, Mass.
24945. Whalebone. Prepared for bonnet-makers' use. J. A. Sevey, Boston, Mass.
24941. Whalebone. Prepared for umbrella-makers' use. J. A. Sevey, Boston, Mass.



**Whalebone in an unmanufactured state.**

24940. Whalebone. Prepared for parasol-makers' use. J. A. Sevey, Boston, Mass.
24951. Gross dress-bone. Whalebone prepared for dress-makers' use. J. A. Sevey, Boston, Mass.
24948. White dress-bone. Whalebone (white) prepared for dress-makers' use. J. A. Sevey, Boston, Mass.
24978. Whalebone. Prepared for brush-makers' use. J. A. Sevey, Boston, [Mass.]
24942. Whalebone. Prepared for ribbon-weavers' use. " "
24943. Whalebone. Prepared for hat-makers' use. " "
24944. Whalebone. Prepared for cap-makers' use. " "
24947. Whalebone. Prepared for neck-stock-makers' use. " "
24952. Whalebone. Prepared for corset-makers' use. " "
24949. Round dress-bone. Whalebone prepared for dress-makers' use. J. A. Sevey, Boston, Mass.
24977. Whalebone fiber. J. A. Sevey, Boston, Mass.
24938. Whalebone cane. Black and white, twisted. J. A. Sevey. Boston, [Mass.]
24973. Whalebone boot-shanks. " "
24937. Whalebone tongue-scrapers. " "
24933. Whalebone probang. " "
24935. Whalebone riding-whip, made of black and white whalebone, twisted. J. A. Sevey, Boston, Mass.
24934. Whalebone riding-whip. J. A. Sevey, Boston, Mass.
24937. Whalebone cane. Plain. " "
24936. Whalebone cane. Twisted. " "
24972. Whalebone graining-comb. Used by painters. J. A. Sevey, Boston, [Mass.]
24935. Whalebone probang. " "
24980. Whalebone caterpillar-brush. " "
24981. Whalebone shavings. " "
24933. Whalebone back-supporter. " "
24979. Whalebone flue-brush. " "
24975. Whalebone fiber shoe-brush. " "
24983. Whalebone. Sample. " "
24959. Whalebone divining-rod. " "
24958. Whalebone angling-rod tip. " "
24956. Whalebone rosettes for harness. " "
24932. Whalebone landing-net rod. " "
24954. Whalebone hip busk bone. " "
24984. Whalebone. Price-list samples. " "
24970. Whalebone penholder. Black and white, twisted. " "
24961. Whalebone busk. " "
24934. Whalebone fore-arm bones. Artificial. " "
24968. Whalebone plait-raiser. " "
24939. Whalebone penholder. " "
24955. Manufactured corset, showing use of whalebone. " "
24953. Whalebone corset-clasps. " "
24960. Whalebone drill-bow. " "
24957. Whalebone billiard-cushion springs. " "
24971. Whalebone paper-cutter. " "
24985. Whalebone rule. " "



**Whalebone in an unmanufactured state.**

24860. Whalebone and rattan whip-stalk. Finished, ready for covering. American Whip Company, Westfield, Mass.
24858. Whalebone. As prepared for use in the whip. American Whip Company, Westfield, Mass.
24859. Whalebone and rattan. Fitted ready for sticking together for whip-stalk. American Whip Company, Westfield, Mass.
24857. Whalebone. In rough state, as sold to whip manufacturers. American Whip Company, Westfield, Mass.
24982. Whalebone. Prepared for whip-makers' use (patent). J. A. Sevey, Boston, Mass.

**13. TORTOISE-SHELL.****Tortoise-shell** (*Eretmochelys squamata* Linn.).

- 12387-8-9-90. Tortoise-shell (*Eretmochelys squamata* Linn.). Pacific hawk's-bill turtle. Pacific coast.
24890. Commercial tortoise-shell. George Y. Nickerson, New Bedford, Mass.
26891. Tortoise-shell jewelry, &c. Charles W. Kennard & Co., Boston, Mass.:

Comb cut and polished.  
 Comb cut before polishing.  
 Brooch and ear-rings.  
 Sleeve-buttons.  
 Necklace and locket.

**14. SCALES.****Scales of fishes** used in ornamental work, with specimens of flowers and other articles manufactured.

Fish-scale jewelry. F. C. Keergaard & Co., Philadelphia, Pa.:

25480. Scales of sheephead (*Archosargus probatocephalus*).
25481. Scales of sheephead (*Archosargus probatocephalus*). Prepared for use.
25482. Brooch and ear-rings. " "
25483. Spray of flowers. " "
25484. Spray of flowers. " "
25485. Spray of flowers. " "
25486. Spray of flowers. " "
25487. Spray of flowers (dyed). " "
25488. Necklace and cross. " "
25489. Brooch and ear-rings. " "
25490. Brooch and ear-rings (dyed) (*Archosargus probatocephalus*).
26892. Jewelry made from scales of mullet, drum, &c. Mrs. C. E. Mott, Jacksonville, Fla.

(Pearl white, or *essence d'Orient*, prepared from scales of *Alburnus lucidus* and other *Cyprinidæ* and *Clupeidæ*, used in making artificial pearls.) (See under 27.)

26893. Essence d'Orient. (Introduced for comparison.) Gustave Bossange, Paris.



## 15. PEARL.

**Pearls and nacre** (embracing the pearl-yielding shells, with the pearls and the mother-o'-pearl in the rough state, with the manufactured buttons, handles, and jewelry, pearl-powder, inlaid work, and papier-maché, ornamented with mother-o'-pearl.

Top-shells (*Turbinidæ*), and their application to manufacture of shell-flowers.<sup>1</sup>

Tower-shells (*Trochidæ*).<sup>1</sup>

Ear-shells (*Haliotidæ*), used in manufacture of buttons, handles, inlaid work, and pearl powder.<sup>1</sup>

Other gasetropods supplying nacre.<sup>1</sup>

Pearl-oysters (*Aviculidæ*), with pearls and nacre.<sup>1</sup>

River-mussels (*Unionidæ*), with pearls and nacre.<sup>1</sup>

Mussels, oysters, and other conchifers supplying pearls and nacre.<sup>1</sup>

Shells of nautilus and argonaut, prepared to exhibit their nacre.<sup>1</sup>

Ornamental pearl-work, imitating sprays of flowers, &c.<sup>1</sup>

Imitation pearls.<sup>1</sup>

## 16. SHELL.

**Cameo shell.**<sup>1</sup>

Shell of conch (*Strombus gigas*), and carvings.<sup>1</sup>

Shell of helmet (*Cassis rufa*, *C. tuberosa*, and *C. madagascariensis*), with carvings.<sup>1</sup>

**Shells used for implements, &c.**<sup>1</sup>

Shells of *Strombus*, *Triton*, *Dolium*, *Fusus*, *Murex*, and *Buccinum*, used for fog-horns, lamps, vases, and ornamental borders in flower-gardens.<sup>1</sup>

Shells of *Busycon*, *Sycotypus*, *Macra*, &c., used by Indians in manufacture of implements, with specimens of implements.<sup>1</sup>

Shells of *Macra*, used for ladles, scoops, and spoons by fishermen.<sup>1</sup>

Shells of *Tridacna*, used for vases, fountains, and in the manufacture of handles and carvings.<sup>1</sup>

Shells of *Pecten*, *Haliotis*, *Dentalium*, *Mercenaria*, &c., used by Indians for trimmings and ornaments.<sup>1</sup>

Shells of *Pecten*, used in making pin-cushions and purses.<sup>1</sup>

Shells of *Mercenaria violacea*, *Purpura lapillus*, and *Buccinum undatum*, used by Indians of eastern coast in manufacture of money, with specimens of wampum (with the modern wampum or shell-beads, manufactured for the Indian trade), and of the hyqua or *Dentalium* shells, employed in a similar manner by the Indians of the Pacific coast.<sup>1</sup>

Specimens of the cowry (*Cypraea moneta*), "live cowry" and dead cowry, used in African trade and for trimmings.<sup>1</sup>

<sup>1</sup> See in Part II of the present catalogue.



**Shells used for implements, &c.**

Shells of *Cypraea*, *Rotella*, *Oliva*, *Turritella*, *Phasianella* (Venetian shells), &c., mounted as buttons and jewelry.<sup>1</sup>

Composition shell-work for box-covers and frames, made by gluing shells in mosaic.<sup>1</sup>

Calcined shells, used by dentifrice and porcelain makers.<sup>1</sup> (See, also, under 32.)

Cuttle-fish bone from *Sepia officinalis*, used as a pounce, as a dentifrice, as polishing powders, for taking fine impressions in counterfeiting, and as food for birds.<sup>1</sup> (See, also, under D 5.)

Concretions from the stomach of *Astacus*, known as "crab's-eyes" and "crab-stones," and used as antacids.<sup>1</sup>

Shell of king-crab (*Limulus polyphemus*), used as a boat-bailer.<sup>1</sup>

Opercula of mollusks, used as "eye-stones."<sup>1</sup>

## 17. CORAL.

**Coral as a material.**

Red coral (*Corallium nobilis*), with specimens of the five commercial grades (1, froth of blood; 2, flower of blood; 3, 4, 5, blood of first, second, and third qualities) of the white variety, and of the round beads, *negligée* beads, bracelets, pins, coronets, armlets, ear-rings, &c.<sup>1</sup>

White coral, *Oculina*, sp., used by jewelers.<sup>1</sup>

Madrepores and other showy corals, used for ornamental purposes.<sup>1</sup>

Horny axis of black flexible coral (*Plexaura crassa*), used for canes and whips in the Bermudas.<sup>1</sup>

Axis of fan coral (*Rhipidogorgia*), used for skimmers and strainers in the Bermudas.<sup>1</sup>

Coral, used for building purposes.<sup>1</sup>

Coral rock of recent formation (Coquina), used in Florida in manufacture of ornamental vases and carvings.<sup>1</sup>

Calcined coral, used for dentifrices, as an antacid, &c.<sup>1</sup>

Imitations of red coral in celluloid, rubber, and other substances.<sup>1</sup>

## 18. INFUSORIAL EARTHS.

**Polishing powders** (used for polishing metals, cabinet-ware, and stone).

Specimens of polishing slate, tripoli, and other foreign polishing powder.<sup>1</sup>

Specimens of American infusorial deposits.<sup>1</sup>

<sup>1</sup> See under Part II of this catalogue.



**Infusorial earths employed in manufactures.**

Infusorial earth, used in making window and plate glass.<sup>1</sup>

Infusorial earth, used in making soluble glass.<sup>1</sup>

Infusorial earth, used in making mortar.<sup>1</sup>

Infusorial earth, used in making molds for metal casting.<sup>1</sup>

Infusorial earth, used in making filters.<sup>1</sup>

Infusorial earth, used in making dynamite.<sup>1</sup>

Infusorial earth, used in making fire-proof packing.<sup>1</sup>

Infusorial earth, as an absorbent for oils and liquids.<sup>1</sup>

## 19. OTHER MATERIALS FROM INVERTEBRATES.

**From insects.**

Brazilian diamond-beetles, used in jewelry.

Wings of beetles, used in embroidery.

**From echinoderms.**

Spines of echinoids, used for slate-crayons.

*Flexible materials.*

20. LEATHERS. (Embracing the hides in a rough state, in the various stages of dressing, and manufactured into shoe-leather, parchment, vellum, binders' leather, thongs, &c.)

**Leather prepared from mammal skins.**

Leather prepared from human skin.

26070. Boots made from skin of man. H. & A. Mahrenholz, New York.

Sea-lion leather, used by Eskimos to cover bidarkas, and for garments and beds.

11371. Leather of sea-lion (*Eumetopias stelleri*). Used by Aleutian Islanders for manufacture of canoe. Alaska. Vincent Colyer.

Walrus leather, used by Eskimos for harness, tables, thongs, seal-nets, and for covering polishing-wheels.

15617. Harpoon-line of walrus leather. Alaska. H. W. Elliott.

Seal leather, used for fine shoes and in the manufacture of "patent leather," and by Eskimos for numerous purposes.

10186. Seal-skin bleached by hot water. Innuits, Eskimos. Arctic Ocean. Capt. C. F. Hall.

1103. Seal-skin leather tanned by Eskimos. Mackenzie's River district. R. MacFarlane.

24785. Indian moccasins made from skin of seal (*Phoca vitulina?*) G. R. Renfrew & Co., Quebec.

<sup>1</sup> See under Part II of this catalogue.



**Leather prepared from mammal skins.**

## Bison leather (and buffalo leather, buff-leather).

25951. Imitation buckskin. Manufactured from skin of American bison (*Bison americanus*). Wilcox Tannery, Elk County, Pennsylvania.
25952. Collar leather. Manufactured from skin of American bison (*Bison americanus*). Wilcox Tannery, Elk County, Pennsylvania.
25954. Sole leather. Manufactured from skin of American bison (*Bison americanus*). Wilcox Tannery, Elk County, Pennsylvania.
25953. Whang leather. Manufactured from skin of American bison (*Bison americanus*). Wilcox Tannery, Elk County, Pennsylvania.

Ox leather, with specimens of sole leather, split leather, grain leather, rawhide thongs, whips, leather belts and saddles, and of calf-skins, prepared for binders' and bootmakers' use, as Russia leather and vellum, and tawed, as parchment.<sup>1</sup>

Sheep leather, with specimens of binders' leather, imitation chamois leather, wash leather, buff leather, roan, imitation morocco and parchment, with vellum made from skins of dead-born lambs, and manufactured gloves, &c.<sup>1</sup>

Goat leather, with specimens of shagreen leather, morocco leather, as used for linings, upholstery, bindings, and pocket-books, parchment, drum-heads, &c., with kid leather, used in manufacture of shoes and gloves, under-clothing, and vellum made from skin of young kids, also skin bottles used in Asia.<sup>1</sup>

Horse and ass leather, used in manufacture of shagreen, sole leather, harness-leather, saddles, trunks, water-hose, pump-valves, military accouterments, ladies' shoe-uppers.<sup>1</sup>

8871. Tanned ox-skin, used for sole leather. Cheyenne Indians, Kansas.  
Dr. G. M. Sternberg, U. S. A.

## Rawhide.

29549. Rawhide prepared for belting. Darrow Manufacturing Company.
29546. Coil of rope. Made from rawhide. “
29548. Basket. “ “
29547. Doll's head. “ “
29545. Powder-flasks. “ “

Deer leather, dressed as buff leather, chamois-imitation leather, Indian dressed (buckskin), and for the finer moroccas, also manufactured into gloves, gaiters, under-garments, polishers, &c.

25282. Buck-tanned skin of mule deer (*Cariacus macrotis*). Indians.
6977. Leather from skin of deer (*Cariacus macrotis?*). Tanned by Caddo Indians. E. Palmer.
5554. Buck-tanned deer-skin (*Cariacus macrotis*). Apache Indians. E. Palmer.
14383. Buck-tanned skin of deer (*Cariacus macrotis*). J. W. Powell.

<sup>1</sup>In view of the extensive exhibition of leathers in the Shoe and Leather Building, no special effort has been made to complete this part of the collection.



**Leather prepared from mammal skins.**

## Deer leather, &amp;c.

6978. Buck-tanned skin of deer (*Cariacus macrotis*). Comanche Indians. E. Palmer.
11606. Buckskin (*Cariacus columbianus*). Dressed by McCloud Indians. Shasta County, California. Livingston Stone.
11605. Buckskin (*Cariacus columbianus*). Tanned by McCloud Indians. Shasta County, California. Livingston Stone.
11604. Buckskin (*Cariacus columbianus*). Tanned by McCloud Indians. Shasta County, California. Livingston Stone.
8540. Buckskin for moccasins. Nebraska. Dr. S. M. Horton, U. S. A.
26885. Skin of Virginia deer (*Cariacus virginianus*). Seminole Indians of Florida. G. Brown Goode.
24800. Tanned skin of young Virginia deer (*Cariacus virginianus*). J. H. Henderson, Big Coon, Ala.

## Moose leather in ordinary and buckskin finish.

24781. Moccasins made from skin of moose (*Alces malchis*). Huron Indians. G. R. Renfrew & Co., Quebec.
24787. Rubber-sole moccasins made from skin of moose (dyed). G. R. Renfrew & Co., Quebec.
24782. Indian moccasins made from skin of moose. Iroquois tribe. G. R. Renfrew & Co., Quebec.
24773. Indian buck-tanned skin of moose (*Alces malchis*). Labrador. G. R. Renfrew & Co., Quebec.
24786. Indian moccasins made from skin of moose. "Lady's size." G. R. Renfrew & Co., Quebec.
838. Smoke-tanned skin of moose (*Alces malchis*). Slave (Lake?) Indians. R. Kennicott, Fort Liard.

## Caribou leather in ordinary and buckskin finish.

24775. Indian buck-tanned skin of caribou (*Tarandus rangifer*). Labrador. G. R. Renfrew & Co., Quebec.
24783. Indian moccasins made from skin of caribou. "Man's size." G. R. Renfrew & Co., Quebec.
24784. Indian moccasins made from skin of caribou. "Woman's size." G. R. Renfrew & Co., Quebec.

Reindeer leather.<sup>1</sup>

836. Smoke-tanned skin of barren-ground caribou (*Tarandus rangifer*, subspecies *grænlandicus*). Mackenzie's River district. R. Kennicott.

## Elk leather in ordinary and buckskin finish.

8536. Elk-skin tanned with smoke. Nebraska. Dr. S. M. Horton, U. S. A.

## Mountain-sheep leather.

8548. Buck-tanned skin of mountain sheep (*Ovis montana*). Nebraska. Dr. S. M. Horton, U. S. A.

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<sup>1</sup>See garments in Ethnological division.



**Leather prepared from mammal skins.**

Series of different leathers illustrating the manufacture of gloves:

25286. Raw skin of "Maranham jack" deer (*Cariacus* sp.) from South America. S. G. Hutchinson & Co., Johnstown, N. Y.
25287. Skin of "Maranham jack" deer, dressed by glove manufacturer, ready for cutting. S. G. Hutchinson & Co., Johnstown, N. Y.
25288. Gloves manufactured from skin of "Maranham jack" deer. S. G. Hutchinson & Co., Johnstown, N. Y.
25289. Raw skin of deer (*Cariacus* sp.). From Central America. S. G. Hutchinson & Co., Johnstown, N. Y.
25290. Skin of deer dressed by glove manufacturers. Central America. S. G. Hutchinson & Co., Johnstown, N. Y.
25291. Raw skin of mule deer (*Cariacus macrotis*). S. G. Hutchinson & Co., Johnstown, N. Y.
25292. Skin of mule deer (*Cariacus macrotis*). Fat or liquor dressed. S. G. Hutchinson & Co., Johnstown, N. Y.
25293. Skin of mule deer (*Cariacus macrotis*). Oil dressed. S. G. Hutchinson & Co., Johnstown, N. Y.
25294. Gloves made from skin of mule deer (*Cariacus macrotis*). S. G. Hutchinson & Co., Johnstown, N. Y.
25295. Raw skin of African "bles bok." S. G. Hutchinson & Co., Johnstown, N. Y.
25296. Skin of African "bles bok" (dressed). S. G. Hutchinson & Co., Johnstown, N. Y.
25297. Gauntlet gloves made from skin of African "bles bok." S. G. Hutchinson & Co., Johnstown, N. Y.
25298. Raw skin of prong-horn or antelope (*Antilocapra americana*). S. G. Hutchinson & Co., Johnstown, N. Y.
25299. Skin of prong-horn or antelope (*Antilocapra americana*). Dressed and colored. S. G. Hutchinson & Co., Johnstown, N. Y.
25300. Gloves made from skin of prong-horn or antelope (*Antilocapra americana*). S. G. Hutchinson & Co., Johnstown, N. Y.
25301. Raw skin of south American peccary (*Dicotyles labiatus*). S. G. Hutchinson & Co., Johnstown, N. Y.
25303. Gloves made from skin of South American peccary (*Dicotyles labiatus*). S. G. Hutchinson & Co., Johnstown, N. Y.
25302. Skin of South American peccary (*Dicotyles labiatus*). Dressed for glove manufacturer. S. G. Hutchinson & Co., Johnstown, N. Y.
25304. Buck-tanned skin of sheep. " " "
25305. Dressed skin of sheep, tanned like kid leather, but smoked instead of colored. S. G. Hutchinson & Co., Johnstown, N. Y.
25306. Sheep-skin made into "kid leather." S. G. Hutchinson & Co. Johnstown, N. Y.
25307. Gloves made from "kid-dressed" sheep-skin. S. G. Hutchinson & Co., Johnstown, N. Y.
25308. "Kid"-dressed lamb-skin, ready for coloring. S. G. Hutchinson & Co., Johnstown, N. Y.
25309. Lamb-skin "kid-dressed," colored. S. G. Hutchinson & Co., Johnstown, N. Y.
25310. Gloves made from "kid-dressed" lamb-skin. S. G. Hutchinson & Co., Johnstown, N. Y.
25311. Lamb-skin dressed in Germany. S. G. Hutchinson & Co., Johnstown, N. Y.



**Leather prepared from mammal skins.**

Series of different leathers illustrating the manufacture of gloves.

The following account of the glove trade in North America is from the pen of Mr. S. G. Hutchinson:

“The manufacture of gloves and mittens from leather was started in Fulton County, New York (according to best information), in the year 1809, by people from Connecticut, who first engaged in the manufacture of tinware and in exchanging their tinware for the products of the country. They thus obtained deer-pelts, which they learned to tan according to the Indian process, and, using paper patterns, cut and made them into rough mittens and gloves. Subsequently they learned a better process of tanning, and also have made great improvements in manufacturing gloves; and from apparently insignificant and accidental beginnings has originated an industry which is estimated to produce over \$4,000,000 worth of manufactured goods, and which business has never as yet been successfully transplanted elsewhere.

“The skins used in the manufacture of gloves and mittens are the different varieties of deer-skins and sheep and lamb skins. The deer-skins are gleaned from the entire United States, Mexico, Central and South America, and Africa, and there is as much difference in the quality of the skins from the different countries as in the climate of the countries or localities from which they come. The heaviest and most valuable skins come from under the equator.

“Sheep-skins are extensively used in the manufacture of gloves as well as deer-skins. It is estimated that over 100,000 dozen are used annually. The quality of these varies as much as deer-skins, and depends as much upon the section of country from which they come, the coarse-wool skins making the best leather. A part of the sheep-skins are dressed in a similar manner to the deer-skins, and are finished to resemble buckskin. Many sheep and lamb skins are by a very different process made into what is called kid leather, the lamb-skins, especially, making a very nice glove; in fact, some of the lined fur-trimmed gloves made from this kid leather excel any of foreign manufacture.

“To give a more definite idea of where the deer-skins come from, I will give a little item of statistics of arrivals of deer-skins at the port of New York in the years 1868 to 1872, inclusive:

Whence.	1868.	1869.	1870.	1871.	1872.
	<i>Pounds.</i>	<i>Pounds.</i>	<i>Pounds.</i>	<i>Pounds.</i>	<i>Pounds.</i>
Central America.....	254, 200	249, 000	252, 900	230, 700	249, 000
Para.....	288, 500	214, 900	185, 700	150, 900	141, 800
Angostura.....	100, 000	89, 600	173, 000	157, 500	65, 000
Puerto, Cal.....	60, 000	210, 300	115, 000	31, 500	154, 400
Sisal.....	105, 000	62, 000	84, 000	67, 700	125, 500
Honduras.....	60, 800	52, 300	61, 500	57, 900	62, 500
Vera Cruz.....	30, 000	26, 700	19, 000	19, 500	21, 000
Campeachy.....	24, 000	12, 500	19, 400	21, 000	12, 500
Total.....	923, 000	917, 300	909, 600	736, 700	832, 200

“And to give you something of an idea of how these deer-skins are converted into leather ready for cutting into gloves, I will copy a poem written by Horace Sprague in 1859. However, the operation has been somewhat changed and much improved since:

““And be it mine in brief to comprehend,  
From the inception to the final end,  
Through every process, how the routine moves  
From unwrought hides to manufactured gloves.



**Leather prepared from mammal skins.**

Series of different leathers illustrating the manufacture of gloves:

First into vats, low sunken in the ground,  
 The rattling skins are thrown with husky sound,  
 And there for days are suffered to remain,  
 Until the water permeates the grain,  
 And their whole yielding form and texture make  
 Pliant and supple, fitting them to break.  
 Prone o'er the slanting beam the breaker plies,  
 With long two-handled knife, his energies  
 All the adhering flesh to clean away.  
 His is the hardest work and poorest pay.  
 Flesh-liming, or the hairing process called,  
 Is next in order and is next installed.  
 Upon the flesh-side of the broken skin  
 Quick-lime is spread and safely folded in;  
 Then in the soak or water vat with care  
 'T is placed ten days for loosening the hair,  
 And when the beam and knife again are proved  
 The hairy coat is easily removed.  
 In lime-vats next the skins are put to lime;  
 From one to six weeks is the allotted time.  
 This process, perfected by low degrees,  
 Thickens the skins and smooths the surfaces.  
 Frizing requires the beam and knife again,  
 To shave clean off the cuticle or grain.  
 Parching is used for heavy skins alone.  
 The meaning of the term is drying down;  
 Not in the fervors of the scorching sun,  
 But in the shade alone, 't is safely done.  
 A soaking then ensues until  
 They 're softer made and fitted for the mill.  
 Milling in order next succeeds, of course.  
 Placed in the stock, by steam or water force  
 The skins are briskly run six hours or more  
 To supple them and open every pore,  
 Then taken out to air. With oil imbued,  
 Replaced again, and milling is renewed.  
 Each half hour afterward alternately  
 They 're in the stocks or out to air and dry,  
 Until throughout the substance of the skin  
 The oil commingles with the gelatine  
 Or glue, and leaves the other parts together  
 The true and genuine product we call leather.  
 The beam and scudding-knife again are plied  
 For scudding on the grain or facial side.  
 The mucous substance or reticular  
 Tissue of the skin is shaved off bare.  
 The process then, to perfect and to crown,  
 Requires a day at most for drying down.  
 Next in lye-liquor vats they 're placed awhile,  
 In vulgar parlance, 'for to cut the ile';  
 But by the chymie law affinity  
 The oil gelatinous and alkali  
 Combine, without a figure or a trope,  
 And form the useful product we call soap.  
 A half hour in the stocks the skins being run,  
 The soap washed out, and thus the scouring 's done.  
 To soften, to give shape, and natural size,  
 Duly the stacking process next applies.  
 Fast in the perch the pendent skin being placed,  
 Grasped by the hand and firmly shoulder-braced,  
 The arm-stake then is vigorously applied  
 To supple and extend the leathery hide,  
 While the knee-stake is more suitably found  
 Fitted to stretch and smooth the edges round.  
 Ocher with water mixed, when dried enough  
 And into square blocks fashioned, is called buff,



**Leather prepared from mammal skins.**

Series of different leathers illustrating the manufacture of gloves.

Which by the hand is rubbed upon the skin.  
Perch hung until the ocher's well wrought in  
And deeply set, producing a soft, mellow,  
Golden, enduring, inerasive yellow.  
This buffing named. The process next to bring  
The manufacture through is finishing.  
A horizontal shaft, firm overlaid  
With emery, and by machinery made  
To turn, elaborates the skin placed on  
To perfect smoothness, and the work is done.'

"The manufacture of the different kinds and styles of gloves is becoming divided up so that many of our leading manufacturers are making a specialty of some particular kind of gloves. Some make exclusively heavy buckskin gloves and mittens; others make exclusively sheep-skin gloves and gauntlets; others, lined kid gloves of various kinds and styles; others, unlined kid and antelope or castor gloves and ladies' gauntlets, thus enabling them to pay strict attention to their particular branch, and reaching the highest degree of perfection attainable at this age and stage of the business.

"Marked progress is yearly made in this industry, and it is predicted that in no distant future the finest gloves made in the world will be made here in the two villages of Johnstown and Gloversville, N. Y."

Porpoise leather.

Beluga leather dressed as kid, sole, harness, velvet, plush, boot, mail-bag, belt, and patent (varnished) leather.

26018. Tanned skin of beluga (*Delphinapterus catodon*). G. R. Renfrew & Co., Quebec.

26019. Lace leather, "Rivière du Loup en bas." Manufactured from the skin of beluga (*Delphinapterus catodon*), by the Gulf Porpoise Fishing Company.

Beaver leather, used in manufacture of saddles, shoes, gloves, and trunks.

Rat leather, used for thumbs of kid gloves.

Leather trimmings, used as stuffing for balls, &c.

**Prepared from intestines of mammals.**

Parchment from viscera of seals, used by Eskimos for clothing, bags, and blankets.

6559. Intestine of seal. Used for waterproof clothing. Cook's Inlet. Dr. T. T. Minor.

5570. Intestine of seal. Used for waterproof clothing. Yukon River. W. H. Dall.

6559. Intestine of seal. Prepared and used for clothing. Dr. T. T. Minor.

20802. Prepared seal-gut for waterproof dresses. Sitka, Alaska. J. G. Swan.  
See also numerous garments of this material displayed in the Ethnological division.



**Prepared from intestines of mammals.**

Leather from pharynx of seal and walrus, used by Eskimo for boot-soles.

Parchment from viscera of bears, used in Kamtchatka for masks and window-panes.

Viscera of ox, used in manufacture of gold-beaters' skin.

Bladders of animals, used for pouches, parchment, bottle and jar covers, and by Eskimo for oil-bottles.

Viscera of sheep, used in manufacture of "cat-gut," with specimens of whip-cord, hatters' cord, for bowstrings, clockmakers' cord, filandre, guitar, violin, and harp strings, angling-lines, &c.

Viscera of hog, used as envelopes for minced meat, sausages, &c.

Throat of sea-lion (*Eumetopias Stelleri*), dressed as parchment envelopes to preserve valuable papers.

20803. Sitka Indians, Alaska. J. G. Swan.

Sinews of sheep, deer, goat, buffalo, seal, walrus, and other animals, used in manufacture of threads, lines, nets, and snow-shoes, in strengthening bows, &c.; the babiche of the Eskimos of the Northwest coast.

5185. Babiche. Siccane Indians. British Columbia. J. T. Rothrock.

2034. Mackenzie's River. R. Kennicott.

849. Mackenzie's River. "

842. Moose sinew. Fort Good Hope. Mackenzie's River. R. Kennicott.

2036. Sinews of moose and caribou. Fort Liard Indians. "

5546. Deer sinew. Apache Indians. Dr. E. Palmer.

2200. Babiche. Undressed skin of mountain sheep.

843. Babiche from mountain sheep. Mackenzie's River. R. Kennicott.

1882. Bow covered with sinew of mountain sheep (*Ovis montana*). Digger Indians. California. Captain Gunnison, U. S. A.

24788. Snow-shoes made from sinew of caribou (man's size). G. R. Renfrew & Co., Quebec.

24789. Snow-shoes made from sinew of caribou (woman's size). G. R. Renfrew & Co., Quebec.

**Prepared from bird-skins (Eskimos).**

Eider leather.<sup>1</sup>

Auk leather.<sup>1</sup>

7453. Oil-bag. Made from skin of loon's foot. Fort Anderson. R. MacFarlane.

**Prepared from reptile skins.**

Alligator leather.

16810. Salted skin of alligator (*Alligator mississippiensis*). Upper Saint John's River, Florida. G. Brown Goode.

16810. Tanned skin of alligator. Upper Saint John's River, Florida. G. Brown Goode.

<sup>1</sup> See garments in Ethnological series.



**Prepared from reptile skins.**

## Alligator leather.

25283. Tanned skin of alligator (*Alligator mississippiensis*). Upper Saint John's River, Florida. G. Brown Goode.
24791. Tanned skin of alligator (*Alligator mississippiensis*). "Russet finish." Schayer Bros., Boston, Mass.
24796. Cigar-case, made from skin of alligator (*Alligator mississippiensis*). "Russet finish." Schayer Bros., Boston, Mass.
24792. Lady's satchel, made from skin of alligator (*Alligator mississippiensis*). "Russet finish." Schayer Bros., Boston, Mass.
24795. Match-case, made from skin of alligator (*Alligator mississippiensis*). "Russet finish." Schayer Bros., Boston, Mass.
24793. Slippers, made from the skin of alligator (*Alligator mississippiensis*). "Russet finish." Schayer Bros., Boston, Mass.
24794. Slippers, made from skin of alligator (*Alligator mississippiensis*). "Black finish." Schayer Bros., Boston, Mass.
26068. Riding-boots, made from skin of alligator (*Alligator mississippiensis*). H. & A. Mahrenholz, New York City.

## Rattlesnake leather.

24797. Dressed skin of rattlesnake (*Crotalus durissus*). Big Coon, Ala. J. H. Henderson.
24799. Dressed skin of rattlesnake (*Crotalus durissus*). Big Coon, Ala. J. H. Henderson.
24798. Shoes made from skin of rattlesnake (*Crotalus durissus*). Big Coon, Ala. J. H. Henderson.
9043. Bow covered with skin of rattlesnake. Used by Flathead Indians. Fort Colville, W. T. Dr. J. T. Ghisslin, U. S. A.

## Other snake leather.

26069. Boots made from skin of boa (*Boa constrictor*). H. & A. Mahrenholz, New York.

**Prepared from fish-skins.**

## Leather prepared from scaled fish by Indians.

16091. Salmon-skins dressed as leather and used in making waterproof shirts and boots by Magemut Eskimo. Nunivak Island, Alaska. W. H. Dall.
10347. Parky, or upper garment, made from the skin of codfish (?). Nunivak Island, Alaska. W. H. Dall.

## Eel leather, made for pigtails, queues, flail-thongs.

Skins of eels (*Anguilla vulgaris*).

25285. Eel-skins. Market, Washington, D. C. G. Brown Goode.  
These eel-skins are highly esteemed by the Virginia negroes as a cure for rheumatism.

## Sturgeon leather.

26013. Tanned skin of sturgeon (*Acipenser rubicundus*). Wernich & Wandel, Waukegan, Ill.



**Prepared from fish-skins.**

Shark leather (shagreen used for coverings, and by the Alaska Indians for boot-soles).<sup>1</sup>

**Leather waste.**

Paper manufactured from waste.

Glue manufactured from waste. (See under 24.)

Prussian blue made from leather waste. (See under 30.)

## 21. HAIR AND WOOL.

**Hair used in weaving and felting.** (See under 8.)

**Hair used for wigs and ornaments.**

Human hair as an article of commerce, with specimens of switches and wigs, and also of the trade imitations of hair in jute, horse-hair, &c.

Goat's wool as employed in manufacture of wigs and perukes.

Human scalp locks as Indian trophies.<sup>2</sup>

Scalps of animals as trophies.<sup>2</sup>

**Hair and bristles used for brushes** (embracing the commercial hair and bristles, assorted and unassorted, and specimens of the manufactured articles).

Hair of skunk, used for fine brushes.

29340.	Gilders' and varnishers' brushes (black hair; flat).	Miles Bros. & Co.
29341.	“ “ “ “ “ “	“
29342.	“ “ “ “ “ “	“
29343.	“ “ “ “ “ (round).	“
29344.	Dusting-brush (white hair; flat).	“

Hair of bear used for varnishing-brushes.

29338. Varnish or dusting brush. Miles Brothers & Co.

29339. “Mottler” brush. “

Hair of American badger used for fine shaving, graining, gilding, and dust brushes.<sup>3</sup>

Hair of American badger (*Taxidea americana*) adapted to the manufacture of brushes.

Hair of squirrel, especially the tail, used in making fine artists' pencils.

29320. “Camel's-hair” varnish-brush. French style. Miles Brothers & Co.

29321. “Camel's-hair” coach-painters' color-brush. “

<sup>1</sup> See garments in Ethnological series.

<sup>2</sup> See specimens in the Ethnological division.

<sup>3</sup> The badger-hair brushes sold in America are almost exclusively manufactured from the hair of the European badger. The hair of the American badger is quite as well adapted to the purpose.



**Hair and bristles used for brushes.**

Hair of squirrel, especially the tail, used in making fine artists' pencils.

29322. "Camel's-hair" varnish or copying brush. English style. Miles Brothers & Co., New York.  
 29322. "Camel's-hair" gilders' brush. Miles Brothers & Co., New York.  
 29324-5. "Camel's-hair" lacquering brush. " "  
 29326. "Camel's-hair" pencil, quill handles. " "  
 29353. Series of scrolling and ornamenting brushes. " "

These brushes are made chiefly from the tail of the gray squirrel (*Sciurus carolinensis*), and are known to the trade as "camel's-hair" brushes.

Bristles of hog and peccary used in making coarse brushes for varnishing, scrubbing, &c.

26020. Series of bristles (black). B Nos. 1-12. William Wilkens & Co., Baltimore.  
 26021. " " " (white). B Nos. 1-13. " "  
 26026. " " " (yellow). B Nos. 1-12. " "  
 26027. " " " (red). B Nos.  $\frac{1}{2}$ -11. " "  
 26028. " " " (black). D B Nos.  $\frac{1}{2}$ -12. " "  
 26022. " " " (black). ("Casings") Nos. 1-12. " "  
 26023. " " " (natural black). ("Casings") Nos. 1-11. William Wilkens & Co.  
 26024. Series of bristles (white). ("Casings") Nos. 1-12. William Wilkens [ & Co.  
 26025. " " " (white). Medium stiff, Nos. 1-12. " "  
 26029. " " " (union). William Wilkens & Co.  
 26030. " " " (blue). "  
 26031. " " " (unbleached). "

Brushes made from bristles:

29327. Flat copying-brush, No. 1. Miles Brothers & Co.  
 29328. " " " No. 3 $\frac{1}{2}$ . "  
 29329. " " " No. 2. "  
 29330. " " " No. 2 $\frac{1}{2}$ . "  
 29331. " " " No. 3. "  
 29332. Round paint-brush, No. A  $\frac{1}{6}$ . "  
 29333. " " " No. A  $\frac{2}{6}$ . "  
 29334. " " " No. A 1. "  
 29335. " " " No. A 2. "  
 29336. " " " No. A 3. "  
 29337. Shaving-brush. "

Sheep's wool (on skin) used for blackboard-rubbers.<sup>1</sup>

Hair of deer and antelope (on skin) used by Indians for hair-brushes.<sup>2</sup>

Deer-hair brushes.

Brushes made from white hair in tail of deer (*Cariacus macrotis* and *C. virginianus*):

29354. Flat brush. 1 inch Miles Brothers & Co.  
 29355. " 1 $\frac{1}{2}$  " "  
 29356. " 2 " "  
 29357. Round brush. "

<sup>1</sup>See exhibit in Educational Bureau.

<sup>2</sup>See Ethnological series.



**Hair and bristles used for brushes.**

Hair of horses, used for fly-brushes.

- |        |  |                       |
|--------|--|-----------------------|
| 26032. | Series of samples of horse-hair (dyed blue). | William Wilkens & Co. |
| 26033. | “ “ “ “ “ (dyed red).                        | “                     |
| 26034. | “ “ “ “ “ (dyed white).                      | “                     |

Ox-hair from the inside of cows' ears used for striping and lettering brushes.

- |                   |   |                      |
|-------------------|---|----------------------|
| 29345-6-7-8-9-50. | Fresco-painters' brushes, 1-6.                                    | Miles Brothers & Co. |
| 29351.            | Series of ox-hair striping-pencils, sold as camel's-hair pencils. | Miles Brothers & Co. |

**Hair used in other manufactures.**

Bristles used in shoemakers' wax ends.

Bristles used in anatomical instruments.

Hair and bristles used in artificial flies. (See under B, 45.)

Hair of cattle used in strengthening mortar and plaster.

**Hair used for stuffing.**

Horse-hair, straight and curled, used for mattresses and cushions.

Refuse hair of beaver and musquash, cut from felting-hair, used for cushions.

(Down of rabbits used for cushions.)

**Wool used as a medium for pigments.**

Wool-flocking used in the manufacture of wall-paper, colored felts, and rubber cloth.

**Chemical products.**

Refuse human and other hair used in manufacture of prussiate of potash, with specimens of manufactured product.

## 22. QUILLS.

**Quills of mammals.**

Quills of American hedge-hog used by Indians in embroidering.

**Quills of birds.**

Quills of swan and turkey for engrossing-pens.

Quills of goose and eagle for writing-pens.

Quills of crow and duck for fine pens.

Quills used in making tooth-picks, fishing-floats, color-bottles, pencil-handles, needle-holders, &c.

## 23. FEATHERS.

**Feathers used for clothing.** (See under Furs, D 10.)



**Feathers used for implements** (including manufactured articles).

29528. Fan.
26596. Fan made from feathers of roseate spoonbill (*Platalea ajaja*). Mrs. C. E. Mott, Jacksonville, Fla.
26597. Fan made from feathers of white tern (*Sterna* sp.). Mrs. C. E. Mott, Jacksonville, Fla.
26598. Fan made from feathers of white crane (*Garzetta candidissima*). Mrs. C. E. Mott, Jacksonville, Fla.
26599. Fan made from feathers of blue heron (*Florida cærulea*). Mrs. C. E. Mott, Jacksonville, Fla.
- 26601-26605. Fan made from feathers of water-turkey (*Plotus anhinga*). Mrs. C. E. Mott, Jacksonville, Fla.
26602. Fan made from feathers of fish-crow (*Corvus ossifragus*) and blue heron (*Florida cærulea*). Mrs. C. E. Mott, Jacksonville, Fla.
26603. Fan made from feathers of wood ibis (*Tantalus loculator*) and parakeet (*Psittæus carolinensis*). Mrs. C. E. Mott, Jacksonville, Fla.
26605. Fan from miscellaneous feathers. Mrs. C. E. Mott, Jacksonville, Fla.
26812. Domestic turkey-feather dusters. 5 sizes. Chicago Feather-Duster Company. Chicago, Ill.

**Feathers used for plumes and ornaments** (including plumes, head-dresses, cockades, hat and dress trimmings, &c.)

26604. Bouquet made from feathers of Florida birds. Mrs. C. E. Mott, Jacksonville, Fla.
29529. Flowers made from feathers of Florida birds.

**Feathers used in other manufactures.**

Feathered arrow-shafts. (See under B, 18.)

Feathers used in making artificial flies.

Feathers used in manufacture of textile fabrics. (See under D, II, C.)

**Down of birds.**

Down of eider-duck used in bed-stuffing, with specimens of balls in which it is packed for transportation.

Down of other ducks.

Down of geese and swans used as stuffing for beds, and as electrical non-conductor in manufacture of philosophical instruments.

## 24. GELATINE AND ISINGLASS.

**Gelatine.**

Gelatine made from leather-shavings, bones, hoofs, and horns of bison, cattle, sheep, and other domestic animals, used in manufacture of glue, size, court-plaster, *papier glacé* for tracing, imitation glass, artificial flowers, and ornamental work, wrappings for confections, table-jelly (see under D 1), &c.

**Glue.**

25315. No. 1. Manufactured from horns and hoofs. Wm. H. Brown, Peabody, Mass.
25316. No. 2. Manufactured from horns and hoofs. Wm. H. Brown, Peabody, Mass.



**Gelatine.**

Size, or frozen glue.

25317-18. "A. A. E." Manufactured from horns and hoofs. Wm. H. Brown, Peabody, Mass.

Gelatines made from bone and ivory shavings.

**Bird gelatine.**

(Nests of esculent swallows (*Calocalia esculenta*, *C. fuciphaga*, *C. indifica*, &c.) exported from Indian Archipelago to China.)

**Isinglass.**

Isinglass (ichthyocolla), made from air-bladders and skins of fishes and used in the manufacture of fine glues and sizes, adhesive and court plasters, diamond cement, imitation glass, and table-jelly and confectionery (see under D 1, D), in refining wines and liquors, in adulterating milk, in fixing the luster of artificial pearls, and in lustering silk ribbons (embracing the dried bladders and the manufactured products) in their grades of "lyre," "heart-shaped," "leaf," and "book" isinglass.

Isinglass from sounds of cod and hake.

12123. Isinglass. (First quality.) Manufactured from sounds of cod, hake, &c. Cape Ann. Cape Ann Isinglass and Glue Company, Rockport, Mass.
12124. (Second quality.) Manufactured from sounds of hake, cod, &c. Cape Ann Isinglass and Glue Company, Rockport, Mass.
12126. Dried sound of cod (*Gadus morrhua*). Used in the manufacture of isinglass. George's Banks. Cape Ann Isinglass and Glue Company, Rockport, Mass.
12125. Dried sound of hake (*Phycis chuss*). Used in manufacture of isinglass. Bay of Fundy. Cape Ann Isinglass and Glue Company, Rockport, Mass.
16683. Sound of hake (*Phycis chuss*), used in the manufacture of isinglass. Portland, Me. H. Trefethern.
16684. Sound of hake (*Phycis chuss*), used in the manufacture of isinglass. Portland, Me. H. Trefethern.
25264. Isinglass. Manufactured from sounds of cod, hake, &c. Cape Ann Isinglass and Glue Company, Rockport, Mass.
25263. Air-bladder of cod (*Gadus morrhua*), used in manufacture of isinglass. Cape Ann Isinglass and Glue Company, Rockport, Mass.
25796. Isinglass made from skins of cod (*Gadus morrhua*). By a new method, by the Gloucester Isinglass and Glue Company. Wm. N. Le Paiz, agent, Boston, Mass.
25268. Air-bladder of "foreign crab" (species unknown), used in manufacture of isinglass. Cape Ann Isinglass and Glue Company, Rockport, Mass.
- Air-bladder of foreign "sea trout" (an unknown fish), used in the manufacture of isinglass. East Indies. Cape Ann Isinglass and Glue Company, Rockport, Mass.



**Isinglass.**

Isinglass from sounds of cod and hake.

25794. Prepared glue made from skins of cod (*Gadus morrhua*). By Gloucester Isinglass and Glue Company. Wm. N. Le Paiz, agent, Boston, Mass.
25797. "Court-plaster" glue made from skins of cod (*Gadus morrhua*). By the Gloucester Isinglass and Glue Company. Wm. N. Le Paiz, agent, Boston, Mass.
25795. Glue made from skins of cod (*Gadus morrhua*). By Gloucester Isinglass and Glue Company. Wm. N. Le Paiz, agent, Boston, Mass.
20744. Dried tongues of fish (probably cod), used by Sitka Indians in making glue. Sitka, Alaska. J. G. Swan.

Isinglass from the squeteague family (*Sciænidae*), principally used by confectioners.

25265. Air-bladder of "beluga" (an unknown sciænoid fish), used in the manufacture of isinglass. Cape Ann Isinglass and Glue Company, Rockport, Mass.
25269. Air-bladder of hake (*Phycis chuss*), used in manufacture of isinglass. Cape Ann Isinglass and Glue Company, Rockport, Mass.
25312. Air-bladder of sciænoid fish, known to the trade as "tongue." East Indies. Cape Ann Isinglass and Glue Company, Rockport, Mass.
25267. Air-bladder of squeteague (*Cynoscion regalis*), used in manufacturing isinglass. Cape Ann Isinglass and Glue Company, Rockport, Mass.
12127. Dried sound of squeteague (*Cynoscion regalis*), used in the manufacture of isinglass. Long Island Sound. Cape Ann Isinglass and Glue Company, Rockport, Mass.

**Isinglass.**

12120. Isinglass made from sound of lake sturgeon (*Acipenser rubicundus*). Lake Erie. Schacht & Bros., Sandusky, Ohio.

**25. FLEXIBLE MATERIALS DERIVED FROM INVERTEBRATES.<sup>1</sup>****Insect productions.**

Silk-worm "gut" used in making leaders for fish-lines.

(Nest of Cayenne-ant (*Formica bispinosa*), used as a mechanical styptic.)

Spiders' web used as a mechanical styptic and for the cross-lines in optical instruments. (See, also, under D, 8).

*Papier maché* of hornets' nests used for gun-wadding.

**Mollusk productions.**

Byssus of mollusks (see under D, 8).

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<sup>1</sup> See under Part II of the present catalogue.



26. SPONGES.<sup>1</sup>**Specimens of American commercial sponges** (with the different grades, and bleached sponges).

(Specimens of Mediterranean sponges.)

Surgical apparatus, probangs, aurilaves, "sponge-tents," and other instruments manufactured.

Spongeo-piline used as a substitute for poultices.

Sponges used in stuffing mattresses and cushions.

## 27. OILS AND FATS.

**Mammal oils.**

Bear-oil and bear-fat used as a cosmetic and in the manufacture of pomatums.

Dog-oil used in the manufacture of kid gloves.

Seal-oil, in its various grades, used for lubricating.

25059-60. Oil of seals (*Cystophora*, *Pagophylus*, *Pusa*, and *Phoca*, sp.). Newfoundland. Walter Grieve & Co., St. John's, N. F.

25061-3. Oil of seals (*Cystophora*, *Pagophilus*, *Pusa*, and *Phoca*, sp.). J. Munn & Co., Harbor Grace, N. F.

25979. Oil of harbor seal (*Phoca vitulina*). Capt. N. E. Atwood, Provincetown, Mass.

**Sea-elephant oil.**

25057. Oil of sea-elephant (*Macrorhinus*, sp.). Haven, Williams & Co., New London, Conn.

25058. Oil of sea-elephant (*Macrorhinus leonina*). South Georgia Island. Haven, Williams & Co., New London, Conn.

**Sea-lion oil.****Manatee-oil.****Dugong-oil.**

Oil and fat from domestic animals, (tallow, suet, lard, oil used in lamps, for lubricating, and neat's-foot oil used in dressing leather; also, manufactured into various substances (see D, 30), and tallow candles and night-lights.)

Oil from body of whales, grampuses, and porpoises used in the arts, for lubricating, painting, &c.

25054. Oil of humpback whale (*Megaptera*, sp.). Atlantic Ocean. Haven, Williams & Co., New London, Conn.

25055. Oil of right-whale. Haven, Williams & Co., New London, Conn.

25056. Oil of sulphur-bottom whale (*Sibbaldius*, sp.). Haven, Williams & Co., New London, Conn.

26038. Oil of beluga (*Delphinapterus catodon*). Renfrew & Co., Quebec.

24894. Crude Arctic whale oil. George Delano & Co.

24895. Bleached "winter" sperm-oil, from the sperm-whale (*Physeter macrocephalus*). George Delano & Co., New Bedford, Mass.

<sup>1</sup> See under Part II of the present catalogue.



**Mammal oils.**

## Oil from whales and porpoises.

25743. Oil of grampus (*Grampus griseus*). Extracted by exposure to the sun. E. E. Small, Provincetown, Mass.
25067. Oil of grampus (*Grampus griseus*). Extracted by exposure to the sun. Capt. Caleb Cook, New Bedford, Mass.
25067. Double refined oil of grampus (*Grampus griseus*). Cape Cod. Capt. Caleb Cook, Provincetown, Mass.
25737. "Pressed" oil of grampus (*Grampus griseus*). E. E. Small, Provincetown, Mass.
25967. Oil of cowfish. Capt. N. E. Atwood, Provincetown, Mass.
25958. Oil of porpoise. Marvin Brothers & Bartlett, Portsmouth, N. H.
25738. Oil of porpoise (*Lagenorhynchus leucopleurus*). Extracted by exposure to the sun. E. E. Small, Provincetown, Mass.
25974. Oil of porpoise (*Delphinus erebennus?*). Capt. N. E. Atwood, Provincetown, Mass.
12116. Oil of harbor porpoise (*Phocæna americana*). Prepared by the Passamaquoddy Indians. Eastport, Me. Dr. E. Palmer.
12115. Oil of harbor porpoise (*Phocæna americana*). Eastport, Me. Dr. E. Palmer.
26037. Oil of harbor porpoise (*Phocæna americana*). Passamaquoddy Bay, Maine. George H. Peabody, Eastport, Me.
25739. Oil of snuffer (*Phocæna americana*). Extracted by exposure to the sun. E. E. Small, Provincetown, Mass.
24893. Crude "body"-oil from sperm-whale (*Physeter macrocephalus*). George Delano & Co., New Bedford, Mass.
26076. Oil of black-fish (*Globicephalus intermedius*). North American Oil Company, Wellfleet, Mass.
25741. Oil of black-fish (*Globicephalus melas*). E. E. Small, Provincetown, Mass.
25064. Refined oil of black-fish (*Globicephalus intermedius*). Cape Cod. Capt. Caleb Cook, Provincetown, Mass.
25065. Double refined oil of black-fish (*Globicephalus intermedius*). Cape Cod. Capt. Caleb Cook, Provincetown, Mass.
25977. Oil from body of black-fish (*Globicephalus melas*). Capt. N. E. Atwood, Provincetown, Mass.

## Black-fish and porpoise-jaw oil used in lubricating fine machinery, watches, clocks, and guns, with specimens of blubber.

25742. Oil from head of black-fish (*Globicephalus melas*). Extracted by exposure to the sun. E. E. Small, Provincetown, Mass.
25968. Oil from head of black-fish (*Globicephalus melas*). Sold as "porpoise-jaw oil." Capt. Caleb Cook, Provincetown, Mass.
25984. Oil from head of black-fish (*Globicephalus melas*). Sold as "porpoise-jaw oil." Capt. N. E. Atwood, Provincetown, Mass.
25969. Oil from jaw of porpoise. Capt. N. E. Atwood, Provincetown, Mass.
- 26035-6. Oil from head of harbor-porpoise (*Phocæna americana*). Passamaquoddy Bay. Geo. A. Peabody, Eastport, Me.
26075. Head-oil of black-fish (*Globicephalus intermedius*). North American Oil Company, Wellfleet, Mass.
26035. Jaw-oil of porpoise (*Phocæna americana*). Passamaquoddy Bay. G. A. Peabody, Eastport, Me.
25066. Jaw-oil of black-fish (*Globicephalus intermedius*). Cape Cod. Capt. Caleb Cook, Provincetown, Mass.



**Mammal oils.**

## Black-fish and porpoise jaw oil, &amp;c.

26042. "Jaw-marrow" of black-fish (*Globicephalus melas*). E. E. Small, Provincetown, Mass.
25040. Blubber of black-fish and grampus (*Globicephalus melas* and *Grampus griseus*). E. E. Small, Provincetown, Mass.
26041. "Melon" blubber of black-fish (*Globicephalus melas*). E. E. Small, Provincetown, Mass.
25069. "Melon blubber" of black-fish (*Globicephalus intermedius*). Cape Cod. Capt. Caleb Cook, Provincetown, Mass.

## Grampus-oil used for lubricating fine machinery.

25068. "Melon" blubber of grampus (*Grampus griseus*). Cape Cod. Capt. Caleb Cook, Provincetown, Mass.
25733. Oil from head of grampus (*Grampus griseus*). Extracted by exposure to the sun. E. E. Small, Provincetown, Mass.

## Sperm-oil used in lamps, for lubricating, as an emollient in medicine, for lip-salves, and in the manufacture of spermaceti.

24892. Crude "head" sperm-oil from sperm-whale (*Physeter macrocephalus*). George Delano & Co., New Bedford, Mass.
25745. Crude sperm-oil from sperm-whale (*Physeter macrocephalus*). E. E. Small, Provincetown, Mass.

## Spermaceti, with specimens of candles.

24896. Plain refined spermaceti from sperm-whale (*Physeter macrocephalus*). George Delano & Co., New Bedford, Mass.
24897. Spermaceti candles. George Delano & Co., New Bedford, Mass.

## Manufactured glycerines, used as a preservative and antiseptic, as a cosmetic, as an emollient, as a substitute for cod-liver oil, in the manufacture of nitro-glycerine, dynamite, dualine, lithofracteur, coloniamite, and other explosives, soap, &amp;c.

26798. Pure inodorous glycerine. Manufactured by H. Bower, Philadelphia. John Wyeth & Bro., Philadelphia.

## Manufactured stearines, with candles and other manufactured articles.

## Soaps manufactured from mammal-oil, soda-soaps (hard, toilet, and resin soaps), potash-soaps (washing, shaving, and soft soaps), diachylon plaster, &amp;c.

## Butter made from milk of cows, goats, and horses.

## Oleomargarines, with specimens of imitation butter.

## Brains of buffalo used in tanning by Indians.

**Bird-oils.**

## (Oil of petrels and other sea-birds used by Eskimos and in the Azores for lamp-oil.)



**Bird-oils.**

Goose-oil used by watch-makers, and as an emollient.

Oil of pigeon (*Ectopistes migratorius*), used as food by Indians and frontiersmen.

**Reptile-oils.**

Alligator-oil manufactured in Florida.

24898. Oil of alligator (*Alligator mississippiensis*). Prepared by Col. L. A. Harden, Jacksonville, Fla. Dr. W. H. Babcock.

Turtle-oil made from turtle-eggs, used in dressing leather and in manufacture of soap.

Rattlesnake and other snake oils.

**Fish-oils.**

Sun-fish oil used by fishermen for cure of rheumatism.

25724. Oil from liver of sun-fish (*Mola rotunda*). Extracted by exposure to the sun. E. E. Small, Provincetown, Mass.

25959. Oil from liver of sun-fish (*Mola rotunda*). Marvin Brothers & Bartlett, Portsmouth, N. H.

25966. Oil from liver of sun-fish (*Mola rotunda*). Capt. N. E. Atwood, Provincetown, Mass.

Oil from liver of the cod family.

25982. Oil from liver of cod-fish (*Gadus morrhua*), crude. Capt. N. E. Atwood, Provincetown, Mass.

25960. Liver-oil of cod-fish (*Gadus morrhua*). Marvin Brothers & Bartlett, Portsmouth, N. H.

26550. Oil from liver of cod-fish (*Gadus morrhua*). Herbert M. Rodgers & Co., 11 Fulton Market, New York.

26551. Oil from liver of cod-fish (*Gadus morrhua*). Herbert M. Rodgers & Co., New York.

26707. Pure cod-liver oil. Prepared for medicinal use only, by Marvin Brothers, Portsmouth, N. H. John Wyeth, Philadelphia.

25985. Medicinal oil from livers of cod-fish (*Gadus morrhua*). Capt. N. E. Atwood, Provincetown, Mass.

25961. Stearine from liver-oil of cod-fish (*Gadus morrhua*). Marvin Brothers & Bartlett, Portsmouth, N. H.

25970. Oil from liver of cusk (*Brosmius vulgaris*). Capt. N. E. Atwood, Provincetown, Mass.

25736. Oil from liver of hake (*Phycis chuss*). Extracted by exposure to the sun. E. E. Small, Provincetown, Mass.

25732. Oil from liver of haddock (*Melanogrammus aeglefinus*). Extracted by exposure to the sun. E. E. Small, Provincetown, Mass.

25978. Oil from liver of haddock (*Melanogrammus aeglefinus*). Capt. N. E. Atwood, Provincetown, Mass.

25971. Oil from liver of pollock (*Pollachius carbonarius*). Capt. N. E. Atwood, Provincetown, Mass.

25740. Oil from liver of pollock (*Pollachius carbonarius*). Extracted by exposure to the sun. E. E. Small, Provincetown, Mass.



**Fish-oils.**

Herring-oil.

White-fish oil.

Sturgeon-oil.

Menhaden-oil used in currying leather, in rope making, for lubricating, for adulterating linseed-oil, as a paint-oil, and exported to Europe for use in the manufacture of soap and for smearing sheep.

26060. Oil of menhaden (*Brevoortia tyrannus*). Geo. W. Miles, Milford, Conn.

25744. Oil of pogie or menhaden (*Brevoortia tyrannus*), kettle-rendered. E. E. Small, Provincetown, Mass.

26077. Oil of pogie or menhaden (*Brevoortia tyrannus*). North American Oil Company, Wellfleet, Mass.

**Oil of other fishes.**

25973. Oil of horse-mackerel (*Oreynus secundidorsalis*). Capt. N. E. Atwood, Provincetown, Mass.

12117. Oil of herring (*Clupea harengus*). Capt. U. S. Treat, Eastport, Me.

12118. Oil from lake sturgeon (*Acipenser rubicundus*). Lake Erie. Schacht & Bros., Sandusky, Ohio.

25980. Oil from liver of mackerel-shark (*Isuropsis Dekayi*). Capt. N. E. Atwood, Provincetown, Mass.

25975. Oil from liver of thresher-shark (*Alopias vulpes*). Capt. N. E. Atwood, Provincetown, Mass.

25956. Oil from liver of dog-fish (*Squalus americanus*). Marion Bros. & Bartlett, Portsmouth, N. H.

25981. Oil from liver of dog-fish (*Squalus americanus*). Capt. N. E. Atwood, Provincetown, Mass.

25957. Oil from liver of skates (*Raia laevis*, &c.). Marion Bros. & Bartlett, Portsmouth, N. H.

25975. Oil from liver of cramp-fish (*Torpedo occidentalis*). Capt. N. E. Atwood, Provincetown, Mass.

25735. Oil from liver of cramp-fish (*Torpedo occidentalis*). E. E. Small, Provincetown, Mass.

26978. Sword-fish oil. Capt. N. E. Atwood, Provincetown, Mass.

26979. Mackerel-oil. " "

26980. Skate-oil. " "

26981. Halibut-oil. " "

Oulachan oil used by Indians of Northwest coast for food and illumination.

Soaps made from fish-oil.

**28. PERFUMES.****Mammal perfumes.**

Musk of musk-ox.

Musk of the musquash.

Castoreum of the beaver, including the various commercial grades, the Canadian, Hudson's Bay, and Russian castoreum, and specimens of castorine.

26037. Scent-glands of beaver (*Castor canadensis*). Nebraska. E. R. Squibb, M. D., Brooklyn, N. Y.



**Mammal perfumes.**

Hyraceum of the daman (*Hyrax capensis*).

Ambergris of sperm-whale, with specimens of ambreine.

26894. Ambergris (commercial). Weeks Potter, Boston.

**Reptile perfumes.**

Musk of alligator.

Oil of hawksbill and loggerhead turtles, used in perfumery.

## 29. COLORING MATERIALS.

**Derived from mammals.**

Bone-black.

Ivory-black (*noire d'ivoire*), used in fine painting, and in the manufacture of bank-note ink.

Prussiates, prussian blue, ferrocyanide of potassium, made from hoofs and refuse human and other hair.

26093. Red prussiate of potassa (*Potassium ferrocyanide*). E. R. Squibb, M. D., Brooklyn, N. Y.

26094. Yellow prussiate of potassa (*Potassium ferrocyanide*). E. R. Squibb, M. D., Brooklyn, N. Y.

26794. Yellow prussiate of potash. Manufactured by H. Bower, Philadelphia. John Wyeth, Philadelphia.

Gall of animals used in dyeing.

Dung of animals used in calico-printing.

Hæmatin made from blood, and used in turkey-red dyeworks, and for the red liquor of printers.

Wool-flocking (see under D, 21).

**Derived from birds.**

Shell of eggs used for white pigment.

Series of murexides or purpurate of ammonia dyes, made from guano.

26065. Murexid. Prepared by E. Merck, Darmstadt. E. R. Squibb, M. D., Brooklyn, N. Y.

**Derived from fishes.**

Essence d'Orient, or fish-scale pearl, used as a pigment.

26893. Essence d'Orient. Introduced for comparison. Gustave Bossange, Paris.

(Gall of carp, used in Turkey as a green paint and in staining paper.)

**Derived from insects.**

(Cochineal dye, from *Coccus cacti* of Mexico, used in manufacture of rouge, of carmine, and lake pigments, and in coloring tinctures.)

26064. Honduras silver cochineal. E. R. Squibb, Brooklyn, N. Y.



**Derived from insects.**

Canadian cochineal.

(Kermes and other cochineals of commerce, *Coccus ilicis*.)

Lac dye and lac lake, from *Coccus lacca*, *C. polonicus*, *C. uva-ursi*, and *Ophis fabæ*.

Dye prepared from bed-bug (*Cimex lectularius*).

(Dye prepared from *Trombidium*, in Guinea and Surinam.)

Nut-galls produced by insects, and used in tanning for black dyes, for woolen cloth, silk, and calico, and in manufacture of ink and gallic and pyrogallic acid, employed in photography.

**Derived from mollusks.<sup>1</sup>**

(*Sepia* from *Sepia officinalis*.)

Purple dyes from gasteropods, *Murex*, *Purpura*, &c.

Purple dyes from nudibranch mollusks.

## 30. CHEMICAL PRODUCTS AND AGENTS EMPLOYED IN ARTS AND MEDICINES.

**Derived from mammals.**

Secretion of skunk.

*Album græcum* of dogs used as a depilatory in tanning hides.

Albumen of blood, employed in sugar-refineries, in certain cements and pigments, and as an antidote and emollient.

Dung, used in calico-printing.

Gall of animals, used in mixing colors, in fixing the lines of crayon and pencil drawings, in preparing the surface of ivory for painting, in removing grease, and in medicine.

Pepsine and pancreatin, prepared from stomach of hogs and calves.

26796. Saccharated pepsin. John Wyeth & Bro., Philadelphia.

26795. Pancreatin, saccharated. " "

25964. Saccharine pepsin. E. Schaffer, Louisville, Ky.

25963. Dry pepsin (concentrated). E. Schaffer, Louisville, Ky.

25962. Pure pepsin. E. Schaffer, Louisville, Ky.

29262. Acid phospho-lactate or milk-phosphate. Prepared directly from milk, by Gail Borden & Co. New York Condensed Milk Company, New York.

**Derived from insects.**

Coccinella, used as remedy for toothache.

(Trehala, made from nests of beetles (*Larinas nidificans*), of East Indies, and used for a substitute for tapioca.)

Formic acid.

Carbazotic acid and its derivatives, made from sewing-silk scraps, and used as a substitute for quinine.

<sup>1</sup> See in Part II of the present catalogue.



**Derived from insects.**

Beeswax, used in manufacture of candles, cerates, plasters, and artificial flowers, in modeling and casting, and in medicine.

Honey, used as a preservative, a food, and in medicine as an aperient and demulcent.

19076. Sugar made of cane-lice. Prepared by the Cooyuwee Indians, Pyramid Lake, Nevada. Stephen Powers.

(Wax, used in Chinese pharmacy, secreted by the *Coccus pehlah*.)

(*a'*. Manna from the *Tamarix mannifera*, used as food, and in medicine as a purgative.

*b'*. Cedar-manna from Mount Lebanon, from *Pinus cedrus*.

*c'*. Arabian manna, of *Hedysarum alliagi*.)

(Eye-powder, made by Chinese from the Telini fly (*Mylabris cichorii*) of India.)

**Derived from mammals.**

(Koumiss, a fermented liquor, prepared from mare's and cow's milk, and employed in medicines.)

Phosphorus, prepared from bones, with specimens of matches, vermin poisons, and other products.

Vaccine lymph, derived from cows.

Ammonia, prepared from bones and horn.

Sal ammoniac, prepared from bones and dung.

Prussiates, prepared from hoof, horn, and leather waste, dried blood, hair, and wool, with specimens of blue cyanide of potassium. (See under Coloring Materials.)

Lime from bones and bone phosphates. (See, also, under 32.)

Punk and tinder, made from droppings of camel and bison.

Animal charcoal, used as a decolorizer.

**Derived from birds.**

Albumen of eggs, used in photography, in clarifying liquors, by physicians as emollients and antidotes, and by apothecaries in suspending oils and other liquids in water.

Egg-shells, employed as an antacid.

**Derived from reptiles.**

Crotalin of rattlesnake and copperhead.

(*Scincus officinalis* of Egypt, used by European practitioners as sudorific and stimulant.)

**Derived from fishes.**

Propylamine, made from fish-brine.

26066. Propylamine (manufactured by E. Merck, Darmstadt). E. R. Squibb, M. D., Brooklyn, N. Y.



**Derived from fishes.**

(Intestines of grayling, used by Laplanders as a substitute for rennet.)

Skins of eels, used by negroes for rheumatism.

**Derived from insects.**

Vesicatory preparations from American beetles, *Cantharis cinerea* and *C. vittata*.

Vesicatory preparations derived from foreign beetles, cantharides or Spanish flies (*Cantharis vesicatoria*), and other species, and substitutes, *Mylabris cichorii*, *Cercoma Schæfferi*, *Meloe*, sp., var., &c.

Vesicatory preparations from American spiders, such as *Tegenaria medicinalis*.

Gall-nuts, used in medicine (see under 29).

**Derived from crustacea.**

Salve-bug of fishermen of Banks (*Caligus curtus*), parasite on cod-fish.

Crabs' eyes, or concretions from stomach of astacus, used as an antacid.

**Derived from worms.**

American leech (*Macrobdeella decora*), used in surgery.

(European leech (*Hirudo medicinalis*), introduced into America.)

(African leech (*Hirudo trochina*), introduced.)

Leeches used as barometers.

**Derived from mollusks.**

(Cuttle-fish bone of *Sepia officinalis*.) (See under D, III, H.)

Calcined shells, used for building-lime and in manufacture of dentifrices and enamel. (See under D, III, H.)

**Derived from radiates.**

a. Limes, derived from calcining coral and coral rock.

**Derived from protozoans.**

Burnt sponge, formerly used in medicine.

Infusorial earth and its applications. (See above under K.)

## 31. FERTILIZERS.

**Natural guanos.**

Bat guano from caves.

Bird guano from oceanic islands.



**Artificial guanos.**

## Menhaden guano.

Series of preparations illustrating the manufacture of soluble Pacific guano. Soluble Pacific Guano Company, Wood's Holl, Mass.<sup>1</sup>

- 26104. Crude South Carolina phosphate.
- 25213, 26103. Crushed South Carolina phosphates.
- 26102. Ground South Carolina phosphate.
- 26100. Crude Navassa phosphate. Navassa Island, W. I.
- 26101. Sicily sulphur, used in manufacture of sulphuric acid, used in factory.
- 26099. Stassfurth kainite, used in preservation of scrap.
- 26095. Crude menhaden scrap.
- 26097. Menhaden scrap, dried by the Hogle patent drying-machine.
- 26095. Soluble Pacific guano (unscreened).
- 26098. Soluble Pacific guano (screened).

Other preparations.<sup>1</sup>

- 26062. Island guano. Geo. W. Miles, Milford, Conn.
- 26061-3. Ammoniated bone superphosphate. Geo. W. Miles, Milford, Conn.
- 22246. Leopoldshall kainite. Winfield S. Dunan, Baltimore, Md.

## Dried meat and blood.

## Dried blood.

- 22239. Black dried blood. Contains 16 per cent. ammonia. Winfield S. Dunan, Baltimore, Md.
- 22240. Black blood-dust. Contains 12 per cent. ammonia. Winfield S. Dunan, Baltimore, Md.
- 22241. Red blood-dust. Contains 14 per cent. of ammonia. Winfield S. Dunan, Baltimore, Md.
- 22242. Mixed dried blood. Contains about 13 per cent. of ammonia. Winfield S. Dunan, Baltimore, Md.
- 22243. Blood, bone, and meat tankage. Contains about 9.50 per cent. of ammonia and 24 per cent. bone-phosphate of lime. Winfield S. Dunan, Baltimore, Md.
- 22244. Azotin. Contains about 14 per cent. of ammonia, and is made from what are known as "butcher's cracklings"—the grease having been pressed out, the scrap is dried and ground. Winfield S. Dunan, Baltimore, Md.
- 22245. Sulphate of ammonia. Contains about 25 per cent. of ammonia. Winfield S. Dunan, Baltimore, Md.

## Poudrettes.

## Other animal fertilizers.

32. LIMES. (See under 30.)

33. OTHER MATERIALS NOT MENTIONED.

<sup>1</sup> An elaborate model of the works of the Soluble Pacific Guano Company of Wood's Holl, Mass., and Charleston, S. C., is on exhibition in the grounds of the Exposition.



## SECTION E.

# PROTECTION AND CULTURE.

## I. INVESTIGATION.

### 1. METHODS OF THE UNITED STATES FISH COMMISSION.

#### Methods of work.

Apparatus for collecting specimens. (See under B.)

Apparatus for physical research.

Appliances for working up results.

This should include a model of coast laboratory with all its fittings.

#### Photographs.<sup>1</sup>

- 401. Headquarters of the United States Fish Commission, Wood's Holl, Mass.
- 400. Little Harbor of Wood's Holl, Mass., with headquarters of U. S. Fish Commission.
- 399. Harbor of Wood's Hole, Mass., from the wharf of the Fish Commission laboratory.
- 398. Harbor of Wood's Holl, Mass., with U. S. Fish Commission fleet for 1871.
- 397. Village of Wood's Holl, Mass., with the Pacific Soluble Guano Company's Works.
- 404. Yacht "Mazeppa," employed in the service of the U. S. Fish Commission.
- 403. U. S. steamer "Blue Light" at the wharf of the U. S. Fish Commission, Wood's Holl, Mass.
- 402. Village of Wood's Holl, Mass., showing laboratory of U. S. Fish Commission.

#### Results of work.

##### 1. Reports of the Commission.

(UNITED STATES COMMISSION OF FISH AND FISHERIES. PART I.—REPORT ON THE CONDITION OF THE SEA-FISHERIES OF THE SOUTH COAST OF NEW ENGLAND IN 1871 AND 1872. By Spencer F. Baird, Commissioner. With supplementary papers. Washington: Government Printing-Office. 1873. 8vo, xlvii, 852 pp., 40 pl., with \*38 explanatory (to pl. 1-38). 1 folded map.)

I. REPORT OF THE COMMISSIONER (S. F. Baird). pp. vii-xlvii.<sup>2</sup>

II. GENERAL PLAN OF INQUIRIES PROSECUTED. (1. MEMORANDA OF INQUIRY RELATIVE TO THE FOOD-FISHES OF THE UNITED STATES. 2. QUESTIONS RELATIVE TO THE FOOD-FISHES OF THE UNITED STATES.) pp. 1-6.

<sup>1</sup>The photographs here enumerated were on exhibition. Many others are in the possession of the Commission.

<sup>2</sup>This portion, with general title-page (pp. i-xlvii), was issued in advance separately.



**Results of work.**

## 1. Reports of the Commission.

(UNITED STATES COMMISSION OF FISH AND FISHERIES. PART I.)

- III. TESTIMONY IN REGARD TO THE PRESENT CONDITION OF THE FISHERIES, TAKEN IN 1871. pp. 7-72.
- IV. SPECIAL ARGUMENTS IN REGARD TO REGULATING THE SEA-FISHERIES BY LAW. pp. 73-103.
- V. REPORTS OF STATE COMMISSIONS IN REGARD TO REGULATING THE SEA-FISHERIES. pp. 104-124.
- VI. REPORT OF CONFERENCE OF THE UNITED STATES COMMISSIONER WITH THE COMMISSIONERS OF RHODE ISLAND AND MASSACHUSETTS, held October 5, 1871. pp. 125-131.
- VII. DRAUGHT OF LAW PROPOSED FOR THE CONSIDERATION OF, AND ENACTMENT BY, THE LEGISLATURES OF MASSACHUSETTS, RHODE ISLAND, AND CONNECTICUT. pp. 132-134.
- VIII. MISCELLANEOUS CORRESPONDENCE AND COMMUNICATIONS ON THE SUBJECT OF THE SEA-FISHERIES. pp. 134-138.
- IX. EUROPEAN AUTHORITIES ON THE SUBJECT OF REGULATING THE FISHERIES BY LAW. pp. 139-148.
- X. NOTICES IN REGARD TO THE ABUNDANCE OF FISH ON THE NEW ENGLAND COAST IN FORMER TIMES. pp. 149-172.
- XI. STATISTICS OF FISH AND FISHERIES ON THE SOUTH SHORE OF NEW ENGLAND. pp. 173-181.
- XII. SUPPLEMENTARY TESTIMONY AND INFORMATION RELATIVE TO THE CONDITION OF THE FISHERIES OF THE SOUTH SIDE OF NEW ENGLAND, TAKEN IN 1872. pp. 182-195.
- XIII. PLEADINGS BEFORE THE SENATE COMMITTEE ON FISHERIES OF THE RHODE ISLAND LEGISLATURE, AT ITS JANUARY SESSION OF 1872. pp. 196-227.
- XIV. NATURAL HISTORY OF SOME OF THE MORE IMPORTANT FOOD-FISHES OF THE SOUTH SHORE OF NEW ENGLAND, (viz: the Scup (*Stenotomus argyrops*), and the Blue-fish (*Pomatomus saltatrix*). pp. 228-252.
- XV. DESCRIPTION OF APPARATUS USED IN CAPTURING FISH ON THE SEA-COAST AND LAKES OF THE UNITED STATES. pp. 253-274, with 19 (1-19) figs., and pl. (maps) xxxix and xl, and large folded map.
- XVI. LIST OF PATENTS GRANTED BY THE UNITED STATES TO THE END OF 1872 FOR INVENTIONS CONNECTED WITH THE CAPTURE, UTILIZATION, OR CULTIVATION OF FISH AND MARINE ANIMALS. pp. 275-280.
- XVII. LIST OF THE SEA-WEEDS OR MARINE ALGÆ OF THE SOUTH COAST OF NEW ENGLAND. By W. G. Farlow, M. D. pp. 281-294.
- XVIII. REPORT UPON THE INVERTEBRATE ANIMALS OF VINEYARD SOUND AND THE ADJACENT WATERS, WITH AN ACCOUNT OF THE PHYSICAL CHARACTER OF THE REGION. By A. E. Verrill. pp. 295-778, with pl. i-xxxviii.



**Results of work.**

## 1. Reports of the Commission.

(UNITED STATES COMMISSION OF FISH AND FISHERIES. PART I.)

XIX. CATALOGUE OF THE FISHES OF THE EAST COAST OF NORTH AMERICA. By Theodore Gill. pp. 779-822.

XX. LIST OF FISHES COLLECTED AT WOOD'S HOLL (between June 20 and October 4). By S. F. Baird. pp. 823-827.

XXI. TABLE OF TEMPERATURES OF THE LITTLE HARBOR, WOOD'S HOLL, MASS., FROM JANUARY 1, 1873, TO DECEMBER 31, 1873. pp. 828-831.

XXII. LIST OF ILLUSTRATIONS. p. 833.

XXIII. GENERAL INDEX. pp. 835-852.

UNITED STATES COMMISSION OF FISH AND FISHERIES. PART II.—REPORT OF THE COMMISSIONER FOR 1872 AND 1873. A.—INQUIRY INTO THE DECREASE OF FOOD-FISHES. B.—THE PROPAGATION OF FOOD-FISHES IN THE WATERS OF THE UNITED STATES. By Spencer F. Baird, Commissioner. With supplementary papers. Washington: Government Printing-Office. 1874.

REPORT OF THE COMMISSIONER. (Table of contents precedes report.)

APPENDIX A.—THE FISHERIES OF THE GREAT LAKES AND THE SPECIES OF COREGONUS OR WHITEFISH.

I. REPORTS ON THE FISHERIES OF THE GREAT LAKES; THE RESULT OF INQUIRIES PROSECUTED IN 1871 AND 1872. By James W. Milner. (Table of contents on p. 77.)

II. MISCELLANEOUS NOTES AND CORRESPONDENCE RELATIVE TO THE WHITEFISH. pp. 79-88.

APPENDIX B.—THE SALMON AND THE TROUT (species of the *Salmo*). p. 89.

III. ON THE NORTH AMERICAN SPECIES OF SALMON AND TROUT. By George Suckley, Surgeon United States Army (written in 1861). p. 91. Tabulated list of species, pp. 92-159.

IV. THE SALMON OF THE DANUBE, OR THE HUCHO (*Salmo hucho*), AND ITS INTRODUCTION INTO AMERICAN WATERS. By Rudolph Hessel. p. 161.

V. IMPROVEMENT IN THE SALMON-FISHERIES OF SWEDEN. (Extract from the report of the Royal Swedish Intendant of Fisheries, 1868.) p. 166.

VI. REPORT OF OPERATIONS DURING 1872 AT THE UNITED STATES HATCHING ESTABLISHMENT ON MC CLOUD RIVER, AND ON THE CALIFORNIA SALMONIDÆ GENERALLY, WITH A LIST OF SPECIMENS COLLECTED. By Livingston Stone.

A. Introductory remarks. pp. 168-174.

B. The Salmonidæ of the Sacramento River. pp. 175-197.

C. Catalogue of natural-history specimens collected on the Pacific slope in 1872, by Livingston Stone, for the United States Fish Commission.

VII. NOTES ON THE SALMON OF THE MIRAMICHI RIVER. By Livingston Stone; p. 216. Fragmentary notes. p. 217.

VIII. THE SALMONIDÆ OF EASTERN MAINE, NEW BRUNSWICK, AND NOVA SCOTIA. By Charles Lanman. pp. 219-225.

IX. ON THE SALMON OF EASTERN NORTH AMERICA, AND ITS ARTIFICIAL CULTURE. By Charles G. Atkins. (Table of contents on p. 336.) p. 226.



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- X. ON THE SALMON OF MAINE. By A. C. Hamlin. pp. 338-356.
- XI. THE LAKE TROUTS. By A. Leith Adams, M. A., &c. p. 357.
- XII. ON THE SPECKLED TROUT OF UTAH LAKE. By Dr. H. C. Yarrow, U. S. A., Surgeon and Naturalist, &c. pp. 358-363.
- XIII. MISCELLANEOUS NOTES AND CORRESPONDENCE RELATIVE TO SALMON AND TROUT. pp. 364-378.
- XIV. ADDITIONAL REPORTS RELATIVE TO THE HATCHING AND PLANTING OF THE PENOBSCOT SALMON. p. 380.
- A. New Hampshire. p. 380.
- B. New Jersey. p. 381.
- C. Pennsylvania. p. 382.
- D. Ohio. p. 382.
- E. Wisconsin. p. 383.
- APPENDIX C.—THE SHAD AND ALEWIFE (species of *Clupeidæ*). p. 385.
- XV. LETTERS REFERRING TO EXPERIMENTS OF W. C. DANIELL, M. D., IN INTRODUCING SHAD INTO THE ALABAMA RIVER. pp. 386, 387.
- XVI. LETTERS REFERRING TO SHAD IN THE RIVERS TRIBUTARY TO THE GULF OF MEXICO. pp. 388-391.
- XVII. REPORT OF A RECONNAISSANCE OF THE SHAD-RIVERS SOUTH OF THE POTOMAC. By H. C. Yarrow, M. D. pp. 396-401.
- XVIII. REPORT ON SHAD-HATCHING OPERATIONS. pp. 403-417.
- XIX. REPORT ON THE PROPAGATION OF THE SHAD (*Alosa Sapidissima*), AND ITS INTRODUCTION INTO NEW WATERS BY THE UNITED STATES COMMISSIONER, IN 1873. By James W. Milner. pp. 419-450.
- XX. NOTES ON THE NATURAL HISTORY OF THE SHAD AND ALEWIFE. pp. 452-462.
- APPENDIX D.—FISH CULTURE (THE HISTORY, THEORY, AND PRACTICE OF FISH-CULTURE). pp. 463, 464.
- XXI. THE HISTORY OF FISH-CULTURE. p. 465.
- A. The history of fish-culture in Europe, from its earlier record to 1854. By Jules Haime. pp. 465-492.
- B. Report on the progress of pisciculture in Russia. By Theodore Soudakèvicz. pp. 493-512.
- C. Report on the state of pisciculture in France and the neighboring countries. By M. Bouchon-Brandley, assistant secretary of the College of France. pp. 513-522.
- D. The progress of fish-culture in the United States. By James W. Milner. pp. 523-558.
- E. Alphabetical list of American fish-culturists and of persons known as being interested in fish-culture. pp. 558-566.



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(UNITED STATES COMMISSION OF FISH AND FISHERIES. PART II.)

## XXII. PAPERS RELATING TO PRACTICAL FISH-CULTURE.

- A. Method of treating adhesive eggs of certain fishes, especially of the Cyprinidæ, in artificial propagation. By Rudolph Hessel. pp. 567-570.
- B. On the so-called "dry" method of impregnating spawn. By Alexander Stenzel, inspector of fisheries in Silesia, Germany. pp. 571-574.
- C. Fish-culture in salt or brackish waters. By Theodore Lyman, Fish Commissioner of Massachusetts. pp. 575-577.
- D. Descriptions of improved apparatus in fish-hatching. pp. 578-587.

APPENDIX E.—OBSTRUCTIONS TO THE UPWARD MOVEMENT OF FISHES IN STREAMS, AND THE REMEDY. pp. 588, 589.

XXIII. ON FISH-WAYS. By Charles G. Atkins. pp. 591-615.

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- A. Obstructions in the rivers of Maine. By E. M. Stillwell. pp. 617-621.
- B. Obstructions in the tributaries of Lake Champlain. By M. C. Edmunds. pp. 622-627.
- C. Obstructions in some of the rivers of Virginia. By M. McKennie. pp. 628-629.
- D. Character of the streams on the northern shore of Lake Michigan. By J. F. Ingalls. pp. 630-632.
- E. Characters of some of the northern tributaries of Lake Michigan. By James W. Milner. pp. 632-634.

APPENDIX F.—NATURAL HISTORY. pp. 635-636.

XXV. THE CRUSTACEA OF THE FRESH WATERS OF THE UNITED STATES. By Sidney I. Smith.

- A. Synopsis of the higher fresh-water Crustacea of the Northern United States. pp. 637-657.
- B. The crustacean parasites of the fresh-water fishes of the United States. pp. 661-665.

XXVI. SYNOPSIS OF THE NORTH AMERICAN FRESH-WATER LEECHES. By A. E. Verrill. pp. 666-689.

XXVII. SKETCH OF THE INVERTEBRATE FAUNA OF LAKE SUPERIOR. By Sidney I. Smith. pp. 690-706.

XXVIII. FOOD OF FRESH-WATER FISHES. By Sidney I. Smith. pp. 708-709.

XXIX. NATURAL AND ECONOMICAL HISTORY OF THE GOURAMI (*Osphromenus goramy*). By Theodore Gill. p. 710.

- A. Natural history. pp. 710-717.
- B. The introduction and attempts to introduce the gourami into foreign countries. pp. 718-723.
- C. Rules for transportation and introduction. p. 727.

XXX. NOTES ON THE GRAYLING (*Thymallus*) OF NORTH AMERICA. By James W. Milner. pp. 729-742

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- XXXI. TEMPERATURE IN THE GULF OF MEXICO, FROM RECORDS OF THE UNITED STATES COAST SURVEY. pp. 745-748.
- XXXII. CORRESPONDENCE WITH COMPANIES RELATIVE TO FACILITIES IN TRANSPORTATION, ETC. pp. 749-756.
- XXXIII. REPORTS OF SPECIAL CONFERENCES WITH AMERICAN FISH-CULTURISTS' ASSOCIATION AND STATE COMMISSIONERS OF FISHERIES. p. 757.
- A. Meeting at Boston, June 13, 1872. pp. 757-762.
- B. Meeting at New York, October 17, 1872. pp. 763-773.
- XXXIV. BIBLIOGRAPHY OF REPORTS OF FISHERY COMMISSIONS. By Theodore Gill. pp. 764-773.
- A. Names of Commissioners. p. 774.
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APPENDIX A.—SEA-FISHERIES AND THE FISHES AND INVERTEBRATES USED AS FOOD.

- I. HISTORICAL OBSERVATIONS ON THE CONDITION OF THE FISHERIES AMONG THE ANCIENT GREEKS AND ROMANS AND THEIR MODE OF SALTING AND PACKING FISH. By J. K. Smidlo. pp. 1, 2.
- II. STATISTICS OF THE MOST IMPORTANT FISHERIES OF THE NORTH ATLANTIC. By Carl Dambeck. pp. 3-24.
- III. ON THE FISHERIES OF NORWAY. pp. 24-30.
- IV. STATISTICAL DATA REGARDING THE SWEDISH FISHERIES. pp. 31-34.
- V. ACCOUNT OF THE FISHERIES AND SEAL-HUNTING IN THE WHITE SEA, THE ARCTIC OCEAN, AND THE CASPIAN SEA. By Alexander Schultz. pp. 35, 96.
- VI. THE NORWEGIAN HERRING-FISHERIES. By A. J. Breck and A. Fadderin. pp. 97-122.
- VII. PRELIMINARY REPORT FOR 1873-'74 ON THE HERRING AND THE HERRING-FISHERIES ON THE WEST COAST OF SWEDEN. By Axel Vilhelm Springman. pp. 123-168.
- VIII. THE HALIBUT FISHERIES OF THE UNITED STATES. By Lieut. P. De Broca. pp. 169-172.
- IX. THE FISHING VILLAGES SNIKKERSTUN AND SKOLTERUP, AND THE COLLECTION OF FISHING IMPLEMENTS EXHIBITED BY THEM AT ELSINORE, DENMARK, DURING THE SUMMER OF 1872. pp. 173-182.
- X. ON THE HERRING AND ITS PREPARATION AS AN ARTICLE OF TRADE. By Hjalmar Widigner. pp. 183-192.
- XI. NEW CONTRIBUTIONS TO THE HERRING QUESTION—THE DISPUTE BETWEEN AXEL BECK AND OSSIAN SARS REGARDING THE NORWEGIAN SUMMER HERRING—SARS' RECENT OBSERVATIONS AND HIS NEW THEORY ON THE MIGRATION OF THE HERRING. pp. 193-194.



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- XIII. THE NORWEGIAN LOBSTER FISHERY AND ITS HISTORY. By Axel Broeck. pp. 223-252.
- XIV. TRANSPORTATION OF LOBSTERS TO CALIFORNIA. pp. 253-257.
- XV. ON THE ARTIFICIAL PROPAGATION OF THE LOBSTER. pp. 258-266.
- XVI. ON THE OYSTER INDUSTRIES OF THE UNITED STATES. By Lieut. P. De Broca. pp. 267-320.
- APPENDIX B.—THE RIVER FISHERIES. pp. 321-322.
- XVII. THE PROPAGATION AND DISTRIBUTION OF THE SHAD. pp. 323-350.
- XVIII. REPORT OF THE TRIANA TRIP. By J. W. Milner. pp. 351-362.
- XIX. ON THE TRANSPORTATION OF SHAD FOR LONG DISTANCES. pp. 363-371.
- XX. REPORT OF OPERATIONS IN CALIFORNIA IN 1873. By Livingston Stone. pp. 372-427.
- XXI. HATCHING AND DISTRIBUTION OF CALIFORNIA SALMON. pp. 428-436.
- XXII. REPORT OF OPERATIONS DURING 1874 AT THE UNITED STATES SALMON-HATCHING ESTABLISHMENT ON THE MCCLOUD RIVER, CALIFORNIA. By Livingston Stone. pp. 437-476.
- XXIII. CORRESPONDENCE RELATING TO THE SAN JOAQUIN RIVER AND ITS FISHES. pp. 477-484.
- XXIV. THE ATLANTIC SALMON (*Salmo Salar*). By A. G. Atkins. pp. 485-539.
- APPENDIX C.—FISH-CULTURE, RELATING MORE ESPECIALLY TO SPECIES OF (*Cyprinidæ*). pp. 540.
- XXV. NOTES ON PISCICULTURE IN KIANG SI. By H. Kopsch. pp. 543-548.
- XXVI. ON THE CULTURE OF THE CARP. pp. 549-558.
- XXVII. THE GOLD ORFE (*Cyprinus orfus*). pp. 559-562.
- XXVIII. DIRECTIONS FOR USING TABLES FOR RECORDING THE PROPAGATION AND DISTRIBUTION OF FISH. pp. 563-568.
- APPENDIX D.—THE RESTORATION OF THE INLAND FISHERIES. pp. 569-570.
- XXIX. FISHERIES AND FISHING LAWS IN AUSTRIA AND THE WORLD IN GENERAL. By Carl Peyrer. pp. 571-680.
- XXX. HOW CAN OUR LAKES AND PONDS BE STOCKED WITH FISH IN THE SHORTEST POSSIBLE TIME? By Mr. Von dem Borne. pp. 681-684.
- APPENDIX E.—NATURAL HISTORY. pp. 685-686.
- XXXI. PRELIMINARY REPORT ON A SERIES OF DREDGINGS MADE ON THE UNITED STATES COAST SURVEY STEAMER BACHE IN THE GULF OF MAINE. By A. S. Packard, jr., M. D. pp. 687-690.
- XXXII. LIST OF THE MARINE ALGÆ OF THE UNITED STATES. By W. G. Farlow. pp. 691-718.



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XXXIV. THE FOOD AND MODE OF LIVING OF THE SALMON, THE TROUT, AND THE SHAD. By D. Barfurth. pp. 735-758.

UNITED STATES COMMISSION OF FISH AND FISHERIES. PART IV.—REPORT OF THE COMMISSIONER FOR 1875-1876. A.—INQUIRY INTO THE DECREASE OF THE FOOD-FISHES. B.—THE PROPAGATION OF FOOD-FISHES IN THE WATERS OF THE UNITED STATES. Washington: Government Printing-Office. 1878. 8vo., pp. ix, 50, 1029, plates vi (Hist. of whale fishery).

## I. REPORT OF THE COMMISSIONER.

## A.—GENERAL CONSIDERATIONS.

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## B.—INQUIRY INTO THE DECREASE OF FOOD-FISHES.

2. INVESTIGATIONS AND OPERATIONS OF 1875. p. 4.

3. INVESTIGATIONS AND OPERATIONS OF 1876. p. 7.

## C.—THE PROPAGATION OF FOOD-FISHES.

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## APPENDIX B.—THE INLAND FISHERIES.

II. FISHERIES OF CHICAGO AND VICINITY. By E. W. Nelson. p. 783.

III. THE SALMON FISHERIES OF THE COLUMBIA RIVER. By Livingston Stone. p. 801.

IV. NOTES ON SOME FISHERIES OF THE DELAWARE RIVER. By Dr. C. C. Abbott. p. 825.

V. METHOD OF PURIFYING THE RESIDUUM OF GAS-WORKS BEFORE ALLOWING IT TO PASS OFF INTO THE WATER. By J. R. Shotwell. p. 847.

VI. TABLES OF TEMPERATURES OF AIR AND WATER AT SUNDRY STATIONS OF THE UNITED STATES SIGNAL-OFFICE, FROM MARCH, 1874, TO FEBRUARY, 1875, AND FROM MARCH, 1876, TO FEBRUARY, 1877, INCLUSIVE. p. 851.



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VII. THE CARP AND ITS CULTURE IN RIVERS AND LAKES, AND ITS INTRODUCTION INTO AMERICA. By Rudolph Hessel. p. 865.

VIII. THE PROPAGATION AND DISTRIBUTION OF SHAD. Jas. W. Milner. p. 901.

IX. ON THE COLLECTION OF EGGS OF SCHOODIC SALMON IN 1875 AND 1876. By Charles G. Atkins. p. 910.

X. OPERATIONS ON THE MCCLOUD RIVER IN SALMON-BREEDING IN 1875. By Livingston Stone. p. 921.

XI. OPERATIONS ON THE MCCLOUD RIVER IN SALMON-BREEDING IN 1876. By Livingston Stone. p. 935.

XII. CORRESPONDENCE RELATING TO THE EXPORTATION OF FISH-HATCHING APPARATUS TO NEW ZEALAND, GERMANY, &C. p. 959.

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## 2. COLLECTIONS. (See under A, V to VIII.)

**Photographs.**

See series of photographs and color-sketches of North American fishes.

**Upwards of four hundred casts** of coast and fresh-water species.

(See under A, V to VIII.)

**II. PROTECTION.**

## 2. PRESERVATION OF GAME, FISH, ETC.

\* *From man.*

**Game laws.**

\*\* *From artificial obstructions.*

**Fish-ways.**

Gap fish-ways.

French, ditch, or "Cape Cod" fish-ways.

Oblique groove fish-ways.

Single groove.

15355. Model of fish-way. James D. Brewer, inventor, Muncy, Lycoming County, Pa.

15356. Model of fish-way. James D. Brewer, Muncy, Pa.



**Fish-ways.**

Step fish-ways.

Box or pool fish-ways.

26108. Model of fish-way. Jas. D. Brewer, Muncy, Pa. Patented by Daniel Steck.

Steps contrived by arrangement of rocks and bowlders.

25701. Model of Duncanson fish way. J. T. Rothe.

Inclined plane without steps.

29283. Model of old Pennsylvania fish-way. Built at Columbia, on the Susquehanna River, in 1866. Designed by James Worrall. Scale,  $\frac{1}{8}$  inch to the foot. C. G. Atkins, Bucksport, Me.
29284. Model of old Pennsylvania fish-way. Built at Columbia, on the Susquehanna River, in 1873. Designed by James Worrall. Scale,  $\frac{1}{8}$  inch to the foot. C. G. Atkins, Bucksport, Me.

With partitions at right angles.

29291. Model of rectangular return fish-way. Scale,  $\frac{1}{4}$  inch to the foot. C. G. Atkins, Bucksport, Me.

Brackett's patent fish-way.

29285. Brackett's patent fish-way. Scale,  $\frac{1}{4}$  inch to the foot. C. G. Atkins, Bucksport, Me.
29287. Model of the fish-way at Holyoke, Mass., on the Connecticut River. Scale,  $\frac{1}{8}$  of an inch to the foot ( $\frac{1}{96}$ ). C. G. Atkins.

This fish-way is on the Brackett plan. A submerged piece of cob-work surmounted by a grating serves to turn the fish into the fish-way. It carries a column of water 2 feet wide and 2 feet deep which reaches the bottom with no perceptible increase in velocity, the current being less than 2 miles an hour. Height of the dam, 30 feet; length of the fish-way, 440 feet; the incline, 1 in 15.

With oblique partitions.

29287. An adaptation of Foster's fish-way. Designed by C. G. Atkins, and built at Pembroke, Me. Scale,  $\frac{1}{4}$  inch to the foot. C. G. Atkins, Bucksport, Me.
29286. Model of Foster's fish-way. Invented by H. H. Foster, E. Machias, Me. Scale,  $\frac{1}{4}$  inch to the foot. C. G. Atkins, Bucksport, Me.
29288. Model of oblique fish-way. Invented by Alfred Swazey, Bucksport, Me., in 1876. Scale,  $\frac{1}{4}$  inch to the foot. C. G. Atkins, Bucksport, Me.
29289. Swazey's oblique fish-way. Invented by Alfred Swazey, Bucksport, Me., in 1874. Scale,  $\frac{1}{4}$  inch to the foot. C. G. Atkins, Bucksport, Me.
29290. Model of Swazey & Atkins's fish-way. Invented by Alfred Swazey and C. G. Atkins, Bucksport, Me., in 1874. Scale,  $\frac{1}{4}$  inch to the foot. C. G. Atkins, Bucksport, Me.
- . Model of the McDonald fish-way. M. McDonald, Lexington, Va.
26939. No. 15. Model of the fish-way at Lawrence, Mass., on the Merrimack River. Scale,  $\frac{1}{8}$  inch to the foot ( $\frac{1}{96}$ ). C. G. Atkins.



**Fish-ways.**

With rectangular compartments.

26937. Model of rectangular compartment fish-way on the inclined-plane system, in an extended arrangement. Scale,  $\frac{1}{2}$  inch to the foot ( $\frac{1}{24}$ ). C. G. Atkins.

Spiral fish-ways.

26949. No. 11. Model of rectangular compartment fish-way on the inclined-plane system, in spiral arrangement, devised by Charles G. Atkins, of Bucksport, Me., in imitation of Pike's spiral fish-way. Scale,  $\frac{1}{2}$  inch to the foot ( $\frac{1}{24}$ ). C. G. Atkins.

This model represents a fish-way precisely the same capacity and slope, and adapted to a dam of the same height as No. 10, showing the great economy of space and material effected by the spiral arrangement. Further advantages of the spiral arrangement are the facility with which water can be admitted at different heights of the river, and contiguity of the outlet to the dam secured, so that the fish will readily find it.

26931. Model of Pike's spiral fish-way, devised by Hon. R. G. Pike, of Connecticut. Scale,  $\frac{1}{2}$  inch to the foot ( $\frac{1}{24}$ ). C. G. Atkins.

The advantages of this, the first spiral arrangement invented in America, are the same as those claimed for that arrangement in Pike's spiral fish-way.

Moving float fish-ways.

26930. Model of Everleth's fish-way, devised by F. M. Everleth, M. D., of Waldorboro', Me. Scale,  $\frac{1}{4}$  inch to the foot ( $\frac{1}{48}$ ). C. G. Atkins.

The peculiarity of this fish-way is the movable attachment at the upper end, which, by its own buoyancy, rises and falls with the fluctuations of the river, thus insuring that the entrance shall always be at the right height to admit the requisite quantity of water.

\*\*\**From natural enemies.*

**Apparatus for destroying injurious species.**

Oyster-bed tangles. (See under B, 12.)

**Tethers and hopples.****Cages and pens.**

Kennels for dogs, &c.

Cages for animals.

Cages for birds.

Cages for insects.

5631. Cages for fire-flies. West Indies. Miss Septimia Randolph.



**Fish-cars and other floating cages for aquatic animals.**

29539. Model of fish-marketman's car. For preservation of living fish. J. M. K. Southwick, Newport, R. I.
22221. Model of Providence River fish-car. These are towed by the smack, and as fast as fish are caught they are put into it, and so kept for Providence market. D. D. Almy.
29397. Model of Noank lobster-car. Capt. H. C. Chester.
29538. Model of fisherman's car for transporting living fish to market. J. M. K. Southwick, Newport, R. I.
26933. Model of a boat used in transporting living salmon at the United States salmon-breeding station at Bucksport, Me. Scale, 1 inch to the foot ( $\frac{1}{12}$ ). C. G. Atkins.

When in use the boat is depressed until full of water, a number of salmon, sometimes as many as 30, are placed in it, and it is then towed after another boat, the motion insuring a constant change of water, which passes in at the forward ports and out at the after ports. The net and grating prevent the escape of the salmon, and the cloth shuts out the sight of anything that might frighten them.

**Aquaria.**

Globes.

Aquaria.

**Hives and other cages for insects.****Live-boxes, troughs, &c., for microscopists' use.****Fish-ponds, fish-farms (models).**

29278. Parlor trout-brook. Stone & Hooper, Charlestown, N. H.
29380. Rearing-box. Stone & Hooper, Charlestown, N. H.

## 4. ENEMIES OF USEFUL ANIMALS.

**Intestinal worms and other internal parasites.<sup>1</sup>****Fish-lice, barnacles, and other external parasites.<sup>1</sup>****Predatory animals not elsewhere exhibited.**


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### III. PROPAGATION.

## 5. PROPAGATION OF MAMMALS.

**Methods of mink culture.****Methods of culture of domesticated animals.**

## 6. PROPAGATION OF BIRDS.

**Methods of ostrich culture.****Methods of culture of domesticated birds, fowls, &c.**

<sup>1</sup> See in Part II of the present catalogue.



## 7. PROPAGATION OF REPTILES.

**Methods of terrapin culture.**

## 8. PROPAGATION OF AMPHIBIANS.

**Methods of frog culture.**9. PROPAGATION AND CULTURE OF FISHES.<sup>1</sup>**Accessories of obtaining and impregnating ova.**

Pans, pails, &c.

Strait-jackets used in spawning salmon.

Spawning-race (Ainsworth).

Roller spawning-screen (Collins).

Spawning-vat (Bond).

**Hatching-apparatus.**

26940. No. 19. Model of hatching-house at United States salmon-breeding station at Bucksport, Me. Scale,  $\frac{1}{4}$  inch to the foot ( $\frac{1}{48}$ ). C. G. Atkins.

The hatching-troughs are arranged in sets of four across the building, and fitted with Brackett trays. The water enters them from a feed-trough along the side of the room and escapes by pipes through the floor.

**Troughs:**

Plain.

Gravel-bottomed.

With sieve-bottom trays.

26933. No. 20. Model of hatching-troughs and trays in use at the United States salmon-breeding stations at Bucksport and Grand Lake Stream, Me. Scale, full size. C. G. Atkins.

The eggs to be hatched are placed on the wire-cloth trays.

26935. Model of hatching-frame in use at Grand Lake Stream, adapted to use in a trough or in an open stream. Devised by C. G. Atkins. Scale, full size. C. G. Atkins.

The eggs are placed on all of the trays except the upper one.

The interstices, though too small for the escape of the eggs, permit a change of water, and when the frame is shut it confines the trays securely in place.

26970. Model of hatching-apparatus for black-bass. John Roth, Duncan, Pa.

Brackett's.

Williamson's.

Clark's.

**Vats or cases:**

Holton's.

Roth's.

<sup>1</sup> Many of these articles cannot conveniently be exhibited.



**Hatching-apparatus.**

Glass-grilled boxes (Coste's).

26995. Coste hatching-tray. Mrs. J. H. Slack, Troutdale, N. Y.

Jars and tin vessels.

22247. Shad-hatching can. Invention of Fred. Mather. U. S. Fish Commission.

26909. Ferguson aquarium-jar. T. B. Ferguson, Baltimore, Md.

22250. Ferguson's fish-hatching can. " "

26998. Ferguson's hatching jar. " "

Hatching-boxes (floating).

26903. Shad-hatching box. Seth Green's patent. U. S. Fish Commission.

26997. Shad-hatching box. Seth Green's patent. Seth Green, Rochester, N. Y.

26904. Shad-hatching box. Brackett's patent. U. S. Fish Commission.

26962. Shad-hatching box. Brackett's patent. E. A. Brackett, Winchester, Mass.

26905. Shad-hatching box (No. 2). Brackett's patent. U. S. Fish Commission.

26906. Shad-hatching box. Bryant's patent. U. S. Fish Commission.

26907. Shad-hatching box. Stillwell & Atkins's patent. U. S. Fish Commission.

26908. Shad-hatching box. Bannister's design. U. S. Fish Commission.

26955. Hatching apparatus. N. W. Clark, Clarkston, Mich.

— Shad hatching-box (model). J. C. House & O. A. McClain, Washington, D. C.

Adhesive eggs apparatus:

Vertical wire-cloth trays.

Hatching-basket.

26956. Salmon egg hatching-baskets. McCloud River, California. Livingston Stone.

Brook-shanty (Furman's).

(Bay or cove barriers, Professor Rasch's.)

Accessories:

Tanks.

Nests.

Trays.

Grilles.

Gravel-filters.

Flannel screens.

Shallow troughs or tables (for picking eggs).

Egg-nippers.

26915. Wooden nippers. Fred. Mather, Honeoye Falls, N. Y.

25955. Brass egg-nippers. Frank N. Clark, Northville, Mich.

Cribbles.

Pipettes.

Skimmer-nets.



**Hatching-apparatus.**

## Accessories:

- Feathering quills and brushes.
- Rose-nozzles (for washing eggs).
- Syringes, bulb, &c.
- Shallow pans.
- Aerating-pipe.

**Transporting apparatus.**

## Apparatus for transporting eggs:

- Cans.
- Case of cups (Wilmot's).
- Case of cups (Clark's).
- Case of trays (Clark's).
- Moss-crates (Stone's).

25025. Moss-crates for transportation of eggs of Sacramento salmon across the continent. Livingston Stone, Charlestown, N. H.

## Apparatus for transporting fish:

- Barrels.
- Cans, plain.

26911. Milk-can, used in transportation. U. S. Fish Commission.  
 29377. Conical tank. Stone & Hooper, Charlestown, N. H.  
 26910. Conical can. Livingston Stone, Charlestown, N. H.

## Cans with aerating accessories:

26914. Tank for ocean transportation. Invention of Fred. Mather. U. S. Fish Commission.  
 29379. Transporting-tank. Stone & Hooper, Charlestown, N. H.  
 26881. Transporting-can. C. W. Rogers, Waukegan, Ill.  
 26932. Model of box used in the transportation of living salmon at the United States salmon-breeding station at Bucksport, Me. Scale, 2 inches to the foot ( $\frac{1}{6}$ ). C. G. Atkins.  
 When in use the box is filled with water and from 5 to 7 salmon placed in it and carted a mile.

- Slack's.
- Clark's.
- M. A. Green's.

Tanks, with attachment of band-wheel to car-axle (Stone's).  
 (Tanks, with Freiburg aerating apparatus.)

- Aquarium-car (Stone's).
- Live-box (Atkins's).

## Accessories:

- Air force-pumps.
- Siphon-tubes.

26912. Rubber siphon-tube. U. S. Fish Commission.  
 26913. Aerating-rose, with siphon. U. S. Fish Commission.



## **Transporting apparatus.**

Accessories:

Bellows.

Dipping apparatus.

26934. Model of dipping-bag used instead of a dip-net in handling salmon at the United States salmon-breeding station at Bucksport, Me. Scale, 1 inch to the foot ( $\frac{1}{12}$ ). C. G. Atkins.

## 10. PROPAGATION OF INSECTS.

### **Propagation of silk-worm.**

Specimens of plants used for food.

Model of house and its appliances.

### **Propagation of cochineal insect.**

### **Propagation of bees.**

For hives see under E, 3.

## 11. PROPAGATION OF WORMS.

### **Propagation of leeches.**

## 12. PROPAGATION OF MOLLUSKS.

### **Methods of oyster culture.**

Stools for receiving spat, natural and artificial.

Other apparatus.

## 13. PROPAGATION OF CORALS.

## 14. PROPAGATION OF SPONGES.