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U. S. NATIONAL MUSEUM.

— 14 —

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OF THE

UNITED STATES NATIONAL MUSEUM.

No. 14.

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PUBLISHED UNDER THE DIRECTION OF THE SMITHSONIAN INSTITUTION.

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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.



## LIST OF PERSONS ENGAGED IN THE PREPARATION OF THE COLLECTION.

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JOSEPH HENRY,  
*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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*Taxidermist.*—JULIUS STOERZER.  
*Photographer.*—T. W. SMILLIE.



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 A REVIEW OF A PORTION OF THE REPORT OF THE CHIEF OF THE  
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 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. Tehnantepec, 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 ( $\div$ ), 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  $\div$  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**, Exl.—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 mephitis**, (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 zorrilla**, (Linn.) Coes.—LITTLE STRIPED SKUNK.—Western United States and Pacific Slope.

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

**Conepatus mapurito**, (Gmelin) Coes. — 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 1835 to 1874.)

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

12380. Mounted. Northern Michigan. John Wallace.

**Thalarcctos 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.

### OTARIDÆ.

**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.

12411. 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 Cones, 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.  
 11835. Mounted. Lake Superior. J. Barnston.  
 3259. 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.  
 905. Antlers. North Greenland. S. Sternberg.  
 6782. Antlers. Plover Bay. Capt. C. M. Scammon, U. S. R. M.  
 7539. Antlers. Yukon River. W. H. Dall.  
 4633. 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**, (Boddart) Gray.—VIRGINIA DEER.—United States east of the Missouri.

12461. Mounted. Cumberland, Md. D. P. Welpley. Dec. 23, 1875.  
 1589—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**, (Boddart) 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. Cones.  
 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. Seammon.

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

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

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

12339. 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.

**ZIPHIDÆ.**

**ZIPHINÆ.**

**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.

**BALENOPTERIDÆ.**

**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.—HUMBACK WHALE.—Pacific Coast.

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

**Megaptera osphya**, Cope.—HUMBACK WHALE.—Atlantic Coast.

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

**BALENOPTERINÆ.**

**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 fossor**, Peale.—CALIFORNIA GRAY SQUIRREL.—Pacific  
Slope.

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

**Sciurus Aberti**, 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. Hemman.

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

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

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

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

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

**Spermophilus Richardsons**, (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.

**GOMYIDÆ.**

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

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

**Geomys tuza**, (Ord.) Cones.—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**, Cones.—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.

1331. 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.

1030. 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**, Exl., *var. americanus*, Allen.—NORTHERN HARE; WHITE HARE.—Northeastern North America.

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

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

1130. 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. Cones, 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. Cones, 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. 25,  
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.  
2971—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.—MARSII 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 AMARSUPIALL.

### 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, CROCODYLIA.

## CROCODYLIDÆ.

**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÷15265. 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.  
500. 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.

20653. 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.

1338. Alcoholic specimen. Watch Hill, R. I. U. S. Fish Commission. Sept. 1<sup>st</sup>, 1874.

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

—, Alcoholic specimen. Beesly's Point, N. J. Prof. S. F. Baird. 1851.

**TETRODONTIDÆ.**

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

11867. 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.

**OSTRACIIDÆ.**

**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 Aquarium 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.

11909. Cast. Wood's Holl, Mass. U. S. Fish Commission. Oct. 8, 1873.  
11380. Photograph. U. S. Fish Commission.



**Balistes capricus,**

15233. Alcoholic specimen. East Coast. John Sutherland.

**Stephanolepis setifer,** (Bennet) Gill.—STOREY'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.

29873. Cast. Portland, Me. Tarleton H. Bean.

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

24. Photograph. U. S. Fish Commission.  
12625. 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.  
10632. Cast. Wood's Holl, Mass. U. S. Fish Commission.  
25, 23. Photographs. U. S. Fish Commission.  
750-1. Color sketch. (Richard.) U. S. Fish Commission.

**Chenopsetta 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.

**Chenopsetta 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.

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

18043. 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.

14839. Cast. (upper side.) Newfoundland. E. G. Blackford. Feb., 1874.

14839. 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.

331-2. 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.

**Ancylosetta 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 &amp; Co.

35, 391. Photograph. U. S. Fish Commission.

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

12512. Cast. England. Middleton, Carman &amp; 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.

2104. 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.  
757. 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.  
16603. Cast. Wood's Holl, Mass. U. S. Fish Commission. Sept. 27, 1875.  
46. Photograph. U. S. Fish Commission.  
692. 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.

21540. Alcoholic specimen. (Type.) Gulf of Maine. U. S. Fish Commission. Aug. 27, 1878.

**Urophycis regius**, (Wallb.) 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**, (Storey) 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.—CUSB.—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.  
129. 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.

15649. Cast. New York. E. G. Blackford.  
16638. New York. E. G. Blackford.  
53, 54, 55. Photographs. U. S. Fish Commission.  
128. Color sketch. (Richard.) U. S. Fish Commission.  
191. Color sketch. (Rötter.) Prof. Alex. Agassiz.

**MERLUCIDÆ.****Merluccius 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. 22, 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.

332. 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.**

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

13847. Alcoholic specimen. Eastport, Me. U. S. Fish Commission.

182. Color sketch. Prof. Alex. Agassiz.

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

639. Color sketch. (Agassiz.) Ft. Roberts, Gulf of Georgia, Wash. Terr. Prof. Alex. Agassiz. July, 1879.

**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.

779. 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.) Simialimoo, 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.

574. Color sketch. (Burkhardt.) Pensacola, Fla. Prof. Alex. Agassiz; Dr. Jeffeys. 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.) Lacép.—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 monopterygius**, (Bloch.) Storer.—Polar Seas and south to Connecticut.

21700. Alcoholic. Massachusetts Bay. U. S. Fish Commission.  
 Bull. N. M. No. 14—3

**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.**

**Hemitripterus 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.

**SCORPENIDÆ.**

**Sebastes marinus**, (Linn.) Lütken.—NORWAY HADDOCK; HEMDURGAN; 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.  
7-9. Color sketch. Prof. Alex. Agassiz.

**Sebastomus 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 clongatus**, (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.

**Sebastes 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.

9733. 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 coruleus**.—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.

**Tautoglabrus adpersus**, (Walb.) Gill.—CUNNER; CHOGSET.—  
Newfoundland to Cape Hatteras.

14594. 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.

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

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

**Lachnolemus 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.) Schm.—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  $1\frac{1}{2}$  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.

- 164B. Cast. New York market. E. G. Blackford. Sept. 10, 1875.  
 19601. 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, 333, 335. 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.

**Oreynus 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.

**Oreynus 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.

**Oreynus 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.

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

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

**Oreynus 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.

16322. 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-FISII.—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.

**Argyreosus vomer**, Lac.—SILVER-FISII.—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.

16529. 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; MEDREGAL.—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.  
15300. Cast. New York market. E. G. Blackford. October 12, 1875.  
106, 107. Photographs. U. S. Fish Commission.  
472-4. 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.  
15231. 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.  
799. Color sketch. (Richard.) U. S. Fish Commission.

**Cynoscion nothus**, Holbrook.—SILVER SQUETEAGUE.—Southern  
Coast.

21180. 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**, Lacép.—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 aculeatus**, (Cuv. & Val.) Gill.?<sup>2</sup>—BASTARD SNAPPER.—Southern Coast.

20951. Cast. Charleston, S. C. G. Brown Goode.

**PRISTIPOMATIDÆ.**

**Hæmulum arcuatum**, Cuv. & Val.—BLUE-CHECKED RED-MOUTH.  
—South Atlantic Coast of United States.

14907. Cast. Florida. E. G. Blackford.

**Hæmulum formosum**, (Linn.) Cuv.—SQUIRREL RED-MOUTH.—  
South Atlantic Coast of United States.

15846. Cast. Florida. E. G. Blackford.

**Hæmulum**, sp.—South Atlantic Coast of United States.

15840. Cast. Florida. E. G. Blackford.

**Hæmulum chrysopterum**, (Linn.) Cuv.?—YELLOW-FINNED  
GRUNT.—South Atlantic Coast of United States.

15918. Cast. Florida. E. G. Blackford.

**Hæmulum 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.

**Hæmulum arara**, Poey?—ARARA RED-MOUTH.—West Indian  
Fauna.

552. Water-color sketch. (Burkhardt.) Florida. Prof. Alex. Agassiz. Alive  
in Boston Aquarial Garden. June, 1860.

**Orthopristis 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.  
 Bull. N. M. No. 14—4

**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 GROUPE.—Coast of Florida.

21239. Cast. Pensacola, Fla. Silas Stearns.

**Epinephelus striatus**, (Bloch.) Gill.—HAMLET; GROUPE.—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 GROUPE.—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.  
 15985. 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, 181. 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.

**EPIHIPPIIDÆ.****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 Id 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.

**SPHYREXIDÆ.**

**Sphyrena borealis**, De Kay.—NORTHERN BARRACUDA.—Cape Cod to Florida.

14978. Cast. Florida. E. G. Blackford.  
 201, 205. Photographs. U. S. Fish Commission.  
 407. Color sketch. (Richard.) U. S. Fish Commission. Probably identical with *Sphyrena spt* (Hauy) Goode, the common species of the Mediterranean.

**Sphyrna 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.

21110. Alcoholic. Bermudas. G. Brown Goode. Mar., 1872.

**Exocætus noveboracensis**, Mitch.<sup>2</sup>—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.

13956. 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.

223-353. Photographs. U. S. Fish Commission.

13974. Alcoholic. Noank, Conn. U. S. Fish Commission.

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

ISOSPONDYLLI.

**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.

20534. 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. Elibu 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 Winnepiscogee, Me. U. S. Fish Commission.

**Prosopium quadrilaterale**, (Rich.) Milner.—“SHAD-WATER.”  
—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 OF 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. Mooshead Lake, Me. E. M. Stillwell.

16670-71. Casts. Lake Winnepiscogee. 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. Sylladobsis 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. Sylladobsis 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  $7\frac{1}{4}$  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**, (Sehn.) 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.

**DUSSUMERIDÆ.**

**Etrumeus teres**, (DeKay) Brevoort.—ROUND HERRING.—Cape Cod to Cape Hatteras.

20216. Alcoholic. Newport, R. I. S. Powell.

**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 medioeris**, (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. Galians 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.*

**Ichthæurus 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 APÓDES.

## 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.  
 15336. 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 CHONDROSTEL.

## ACIPENSERIDÆ.

**Acipenser sturio**, Linn.—SHARP-NOSED STURGEON.—North Atlantic; ascending rivers.

15715. 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.

#### CHIMERIDÆ.

**Chimara plumbea**, Gill.—BROWN CHIMERA.—Deep waters of Western Atlantic.

21904. Cast. Banquerean. Capt. Joseph W. Collius.

**Hydrolagus Collicei**, (Bennett) Gill.—PACIFIC CHIMERA.—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 macfura**, 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.

16347. 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.

365, 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**, (Reinl.) 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 cælolepis**, Boeage & 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. L. 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.

21577. 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.

29403. 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.

29435. 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).

24459. Fish-knife. Heavy. 12-inch blade. John Russell Cutlery Co., Turner's Falls, Mass.  
 24496. 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.  
 29425. 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.

25365. 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 lode 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.  
 32665. 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, Nuniwak Islands, Alaska. W. H. Dall.  
 2178. Bone knife. Eskimos.  
 1328. Bone knife. Eskimos.

**Harpoon-knives.**

16348. Harpoon-knife, with sheath. Magemut Eskimos, Nuniwak Islands, [Alaska. W. H. Dall.  
 16110. Harpoon-knife, with sheath. " "  
 16105. Harpoon-knife, with sheath. " "  
 16103. 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. Tamer's knife. 12-inch blade. John Russell Cutlery Co., Turner's [Falls, Mass.  
 26195. Tamer's knife. 14-inch blade. " "

**4. AXES.****Axes, proper.****Head-axes for whalemen.**

Used in cutting off head of whale.

25913. Head-axe. E. B. & F. Macy, New Bedford, Mass.

**Whalemen's boat-hatchets.**

Used for cutting harpoon-line at the bow, when it becomes tangled in "paying out."

21880. 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.

10271. 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. " " "  
 2189. 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.

**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-scrapers.**

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.  
2665. Gaff-hook. U. S. Fish Commission.  
29328. 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.  
29399. 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.  
27331. 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.  
32713. "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.  
32739. 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.  
32681. 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. Alicut 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).

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<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.

25543. 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. " " "
25653. 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.
- , "Couch" 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.]
25555. 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. Igloodik. Capt. C. F. Hall.
10400. Head of seal-harpoon. Eskimos. Igloodik. Capt. C. F. Hall.
10407. Bone harpoon-head. Eskimos. King William's Sound. Capt. C. F. Hall.
10404. Part of ancient Inuit 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. Inuit 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 throats. 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.
- 20396-7. 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. NOOSSES.

† *Stationary nooses.*

**Bird-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 Missonri 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.  
9531. Bird-sling. Greenland. S. F. Baird. " "  
7444. Bird-sling. McKenzie's River. Fort Anderson, H. B. T. R. McFarlane.  
9531. 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.  
 509. 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.  
 29202. 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. Phœnix 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. Nuniyak 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. Alien Eskimos. Unnalashka. 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. Yarden.
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.

Whiffling-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.

26653. 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. Lemmel 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 tantog-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, flattened, 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, flattened, 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.
25501. 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 east-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. Chilkat 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. Chilkah 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.
20356. 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. Nuniyak, Alaska. W. H. Dall.
16311. Fish-hooks. Nuniyak 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.
32060. 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.

26390. 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. MacIarg'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.* Whiteher.  
*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.* Hollan 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.* Pronty.

*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.

*cc. Highlander.**cf. Lady of Merton.*

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. Topsy.*

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.

*cj. Jock Scott.*

Body—In two joints, gold-colored floss the lowest, and black floss the upper; from the joint are tied two short tuncan 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.* Mooshead.

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.* Whiteher.
- df.* Langrin.
- dg.* Emmet.
- dh.* Captain.
- di.* Major.
- dj.* Darling.
- dk.* Durham Ranger.
- dl.* Goldinch.
- dm.* Britannia.
- dn.* Poplan.
- 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.

*ee.* 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.

*ff.* Green Mackerel, with water-color sketch of original.

*fk.* Brown Mackerel, with water-color sketch of original.

*fl.* Marlow Burz, 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.* Inquichin.

*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 whiskers 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.

Bull. N. M. No. 14—8

**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.  
 630. 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. Mac-  
 Farlane.  
 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.  
 8788. 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.  
 20821. Harpoon-line, cedar bark. Makah Indians. J. G. Swan.

## Kelp lines.

656. Fishing-lines of sea-weed. (*Nereocystis luteana*.) Northwest coast of America. G. Gibbs.  
 6561. Fish-line of kelp. (*Nereocystis luteana*.) With halibut-hooks. Haidah Indians. Prince of Wales Archipelago. Dr. T. T. Minor.  
 1052. Fish-line. (*Nereocystis luteana*.) Northwest coast. Lieut. J. W. White.  
 26818. Halibut-line of kelp. (*Nereocystis luteana*.) Makah Indians. Neah Bay, W. T. J. G. Swan.  
 26819. Fish-line of kelp with halibut-hooks. Cloyquot 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. Catfish 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. Poroook 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.) Clyoquot Indians, Vancouver's Island. J. G. Swan.
26823. Seal-skin buoy. (Used in whale fisheries.) Clyoquot 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. Neceh 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, nicked 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. (170 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.
26663. 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. Bent 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.
26885. 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. Harpoon-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-gauge. 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.

**V. NETS.****ENTANGLING-NETS.****Meshing-nets** (entangling in meshes). $\frac{1}{4}$  *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. " " "  
 12958. Small rabbit-net. " " "  
 12051, 53. Large rabbit-net. " " "  
 11247. Large rabbit-net. " " "  
 14430-31. Large rabbit-net. " " "  
 14401-2-3. Large hunt net (for rabbits). " "  
 19049. Rabbit-net. Cooynewee 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 crooked 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. *artemisia*), and the mule or jackass hare (*Lepus callosus*).

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,  $\frac{1}{2}$  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  $2\frac{1}{2}$  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. 2684S-2685O.

**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 7 $\frac{1}{2}$  (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 35 to 50 meshes in depth. The size of mesh varies with the season: in July 3 $\frac{1}{4}$ , 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 ( $\frac{1}{8}$  and  $\frac{1}{6}$  to  $\frac{2}{6}$ ) nets on the Gulf coast from 30 to 40 meshes in depth, 3 $\frac{1}{4}$  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 :

26848.	Depth 15 meshes, size of mesh $1\frac{1}{4}$ inch, No. 20 (3) thread.
26849.	" 35 " " " $2\frac{1}{4}$ " " 40 (2) "
26850.	" 100 " " " $2\frac{1}{4}$ " " 25 (3) "
26851.	" 35 " " " $2\frac{1}{2}$ " " 30 (3) "
26852.	" 50 " " " $2\frac{3}{4}$ " " 25 (3) "
26853.	" 22 " " " $2\frac{3}{4}$ " " 35 (2) "
26854.	" 50 " " " $2\frac{3}{4}$ " " 13 (3) "
26855.	" 100 " " " $2\frac{7}{8}$ " " 25 (3) "
26856.	" 100 " " " 3 " " 25 (3) "
26857.	" 100 " " " $3\frac{1}{4}$ " " 25 (3) "
26858.	" 16 " " " $3\frac{1}{2}$ " " 25 (2) "
26859.	" 16 " " " $3\frac{1}{2}$ " " 30 (2) "
26860.	" 40 " " " $3\frac{3}{8}$ " " 18 (3) "
26861.	" 50 " " " 4 " " 20 (3) "
26862.	" 17 " " " 4 " " 35 (3) "
26863.	" 35 " " " 4 " " 40 (3) "
26864.	" 16 " " " $4\frac{1}{2}$ " " 35 (3) "
26865.	" 45 " " " $4\frac{1}{8}$ " " 40 (3) "
26866.	" 14 " " " $4\frac{1}{4}$ " " 35 (3) "
26867.	" 14 " " " $4\frac{1}{4}$ " " 50 (3) "
26868.	" 14 " " " $4\frac{1}{2}$ " " 35 (2) "
26869.	" 14 " " " $4\frac{1}{2}$ " " 35 (2) "
26870.	" 16 " " " $4\frac{1}{2}$ " " 35 (3) "
26871.	" 16 " " " $4\frac{1}{2}$ " " 50 (3) "
26872.	" 18 " " " $4\frac{1}{2}$ " " 50 (3) "
26873.	" 16 " " " $4\frac{3}{4}$ " " 35 (3) "
26874.	" 45 " " " 5 " " 30 (2) "
26875.	" 12 " " " 5 " " 30 (2) "
26876.	" 60 " " " 5 " " 35 (2) "
26877.	" 65 " " " 5 " " 40 (2) "
26878.	" 35 " " " $5\frac{1}{8}$ " " 35 (3) "
26879.	" 75 " " " $5\frac{1}{4}$ " " 35 (3) "
26880.	" 11 " " " 6 " " 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.

26121-28-38. 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 "habiche." 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.). Hooch-norre 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.).

25308. 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.
27038. Braided linen landing-net (waterproofed). Bradford & Anthony, Boston, Mass.
25639. Braided cork landing-net. Bradford & Anthony, Boston, Mass.
678. Dip-net. Used in the capture of the oolachan (*Gadomus pallasii*) 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. Alient 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-scraper.  
(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 pursuing 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  $2\frac{1}{4}$  fine Sea-Island twine. Wings, 9 to 12; bag, 15 to 21, coarse.

25179. Snatch-block used in pursuing-seine. Higgins & Gifford, Gloucester, Mass.

25186. Ring or thimble for pursuing-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.

1432. 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" " " 12 " " 1 " " 2 " "

25047.  $1\frac{1}{4}$  " " " 12 " " 1 " " 2 " "

25051. 1" " " 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. Magemut 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. Parmelee.
- , 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,  $\frac{1}{4}$  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 Com-  
 mission.

## 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,  $4\frac{1}{2}$  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,  $4\frac{1}{4}$  inches; strong enough to hold an otter. Oneida Community, N. Y.

**Jawed traps.**

"Steel traps:"

## Newhouse traps.

25258. Newhouse trap. No. 3, for otters. Double spring; spread of jaws,  $5\frac{1}{2}$  inches. Oneida Community, N. Y.
25256. Newhouse trap. No. 4, for deer. Double spring; spread of jaws,  $6\frac{1}{2}$  inches. Oneida Community, N. Y.
25257. Newhouse trap. No. 4, for beavers. Double spring; spread of jaws,  $6\frac{1}{2}$  inches. Oneida Community, N. Y.
25255. Newhouse trap. No. 5, for bears. Spread of jaws,  $11\frac{1}{4}$  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 Moran.
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.

25550. Five bait-boxes. Bradford &amp; Anthony, Boston, Mass.

26394. Bait-box. Forest & Stream Publishing Company. Property of John  
[A. Nichols, Syracuse, N. Y.]

26395. Munow-pail. " "

26392. Crab-can. " "

23391. 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.

<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. Moustone (*Streptilas 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  $8\frac{1}{2}$  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 (*Marcca 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 (*Berniela 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 Barritt, South Norwalk, Conn.

25034. " " A. Stevens, Weedsport, N. Y.

26051. Pin-tail duck (*Dafila acuta*). John Krider, Philadelphia.

26054. Bald-pate duck (*Marcca 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 ( <i>Querquedula discors</i> ).	Female.	John Krider, Philadelphia.
25246.	"	Male.	" "
25244.	Green-wing teal ( <i>Nettion carolinensis</i> ).	"	" "
25243.	"	Female.	" "
25039.	Broad-bill duck ( <i>Fuligula marila</i> ).	P. Bracher,	New York City.
26058.	"	Male.	John Krider, Philadelphia.
26059.	"	Female.	" "
29541.	"	"	Francis Barritt, South Norwalk, Conn.
25029.	Scamp duck ( <i>Fuligula affinis</i> ).	Henry A. Stevens,	Weedsport, N. Y.
25032.	Red-head duck ( <i>Fuligula ferina</i> , var. <i>americana</i> ).	Henry A. Stevens,	[Weedsport, N. Y.
26056.	"	"	Male. John Krider, Philadelphia.
26057.	"	"	Female. "
25033.	Canvas-back duck ( <i>Fuligula vallisneria</i> ).	Henry A. Stevens,	Weedsport, N. Y.
25037.	"	Male.	John Krider, Philadelphia.
26053.	"	Female.	" "
25036.	Whistle-wing duck ( <i>Bucephala americana</i> ).	Henry A. Stevens,	Weedsport, N. Y.
25030.	Butter-ball duck ( <i>Bucephala albeola</i> ).	Henry A. Stevens,	Weedsport, N. Y.

## Decoy swimming-birds (stamped in tin, with wooden bottoms and head balance weights).

26047.	Mallard ( <i>Anas boschas</i> ).	Male.	Herman Strater & Sons, Boston.
25905.	"	Female.	" "
26048.	Black duck ( <i>Anas obscura</i> ).	Male.	" "
26049.	"	Female.	" "
26045.	Red-head duck ( <i>Fuligula ferina</i> , var. <i>americana</i> ).	Male.	Herman Strater & Sons, Boston.
26046.	Red-head duck ( <i>Fuligula ferina</i> , var. <i>americana</i> ).	Female.	Herman Strater & Sons, Boston.
26043.	Canvas-back duck ( <i>Fuligula vallisneria</i> ).	Male.	Herman Strater & Sons, Boston.
26044.	"	Female.	" "
25901.	Whistle-wing duck ( <i>Bucephala americana</i> ).	Male.	" "
25902.	"	Female.	" "
25903.	Sheldrake ( <i>Mergus americanus</i> ).	Male.	" "
25904.	"	Female.	" "
25900.	Surf duck ( <i>Edemia perspicillata</i> ).	"	" "
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.
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**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.
- Paek-saddles.
- Aparejos.
- Riding-pads (for buffalo hunting).
- Fur paek-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.) Ihlinket 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. "  
 11971. 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.) Unabekt 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, Tusiaek, 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 tul6 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.; Waccaman 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. J. 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. Liv-  
[ingston Stone.  
22214. Italian fishing-boat. (Model; felucca rig.) " "  
22215. Italian fishing-boat. (Model; felucca rig.) " "  
22217. Italian fishing-boat. (Model.) Chinese fishing-boat. San Fran-  
cisco. 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.  
25631. 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. Ansaible 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.) Cra-  
gin & Sheldon, makers, Boston, Mass.  
Used in harbor, lake, and river fisheries.  
25001. Whitehall boat (18 feet). (Model; scale, 2 inches to the foot.) Cra-  
gin & Sheldon, Boston, Mass.  
25000. Ship's yawl. (Model; scale, 2 inches to the foot.) Cragin & Shel-  
don, 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.
25023. Nantucket Harbor boat. (Model; scale, 1 inch to the foot.) W. H. Chase.  
Used in harbor fishing.

## Oyster-canoes.

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.

25653. 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, surferman, 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,  $\frac{1}{3}$  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,  $\frac{1}{3}$  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. McFadyen.  
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,  $\frac{1}{2}$  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 Cole-  
man & Sons, Providence, R. I.
25820. Two double iron-sheaved, plain-hook tackle blocks. Walter Cole-  
man & 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 Cole-  
man & 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 Cole-  
man & Sons, Providence, R. I.
25818. One double iron-sheaved, sister-hook tackle block. Walter Cole-  
man & 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 Cole-  
man & 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-thim-  
bles. Wilcox, Crittenden & Co., Middletown, Conn.
25136. Improved heart-clew. Wilcox, Crittenden & Co., Middletown, Conn.
25142. Tack-ring. " "
25137. Series of topsail clew-haws. " "
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. " "
25763. 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. [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, Crittenden & Co., Middletown, Conn.
25119. Series of metallic grommets. First used in America. Wilcox, Crittenden & Co., Middletown, Conn.
25120. Series of brass grommets. First patented in America. Wilcox, Crittenden & 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, Crittenden & Co., Middletown, Conn.
25122. Galvanized-iron ring grommet, with worked holes showing mode of use. Wilcox, Crittenden & Co., Middletown, Conn.
25123. Series of huntline leaders and earing grommets. Wilcox, Crittenden & Co., Middletown, Conn.
25124. Series of eyelet grommets. Used to line worked holes and couplings to Wilcox's patent grommets. Wilcox, Crittenden & Co., Middletown, Conn.
25125. Setting-die. Used for inserting eyelets. Wilcox, Crittenden & Co., Middletown, Conn.
25126. Cutting-punch. Used for cutting grommet-holes. Wilcox, Crittenden & Co., Middletown, Conn.
25127. Series of heavy grommet-rings. Used for earings. Wilcox, Crittenden & Co., Middletown, Conn.
25131. Series of light iron sail-thimbles. Wilcox, Crittenden & Co., Middletown, 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 smack-men. 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.

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## Boat-builders' materials.

25170.	Ring-bolts.	Wileox, 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.	Wileox, 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.	“
29492.	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.	Wileox, 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-skiif. 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-skiif. Wilcox, Critten-  
 den & Co., Middletown, Conn.  
 25106-7-8. Side-plate rowlock used on gunning-skiif. Wilcox, Crittenden  
 & Co., Middletown, Conn.

**Apparatus accessory to rigging fishing-vessels.**

## Rowlocks.

25185. 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  $\frac{1}{2}$  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. " "  
22927. "Aeme" 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.  
Lient, Wilkes, U. S. N.  
2652. Indian paddles. Northwestern coast. Exploring Expedition.  
Lient, 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.

29332.	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 kyak.

**Stretchers for kyak-line.**

9336. Stretchers for kyak-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. " " "  
 25323. 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.  
 23651. 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.

23665. 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 Rao 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.

26662. Hunter's compass. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.

## Scales.

26381. Scales. Property of J. A. Nichols, Syracuse, N. Y. Contributed by Forest & Stream Publishing Company.

## Game and fish baskets and slings.

## Walters 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 haren-gus*). 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 BAITS.

**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 curriers.**

“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,  
TAXIDERMY.

**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 APPA-  
RATUS.

**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 (*Tautoglabrus adspersus*).
- Parrot-fish (*Pseudoscarus* sp.).
- Sergeant-major (*Glyphidodon saxatilis*).
- Lump-fish (*Cyclopterus lumpus*).
- Mackerel (*Scomber scombrus*).

**Fishes** (eastern coast):

- Bonito (*Sarda pflumys*).  
 Spanish mackerel (*Cybius maculatum*).  
 Cero (*Cybius caballa*).  
 Striped cero (*Cybius regale*).  
 Crevalle (*Carangus hippos* and *Paratractus pisquetos*).  
 Pompano (*Trachinotus carolinus*).  
 Big-eyed sead (*Trachurops erumenophthalmus*).  
 South Carolina rudder-fish (*Seriola fasciata*).  
 Silver-fish (*Argyrosus vomer*, &c.).  
 Thread-fish (*Blepharis erinitus*).  
 Dolphin (*Coryphæna Sæuri* 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 (*Haemylum 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 (*Elucate canadus*).  
 Sucker-fish (*Leptenchencis naucratcoides*).  
 Striped mullet (*Mugil lineatus*).  
 Silver gar-fish (*Belone longirostris*).  
 Skipper (*Scomberesox scutellatus*).  
 Salmon (*Salmo salar*).  
 Tarpum (*Megalops thrissoides*).  
 Menhaden (*Brecoortia 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 oxyrinchus* and *A. brevirostris*).
- Spoonbill (*Polyodon folium*).
- Ray, or skate (*Raia* sp.).
- Spotted-fin shark (*Isogomphodon maculipinnis*).
- Dog-fish (*Mustelus laevis*).

**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 (*Stizostedion americanum*).
- White bass, or striped bass (*Roccus chrysops*).
- Lake pike (*Esox lucius*).
- Masquallonge (*Esox nobilior*).
- Pickereel (*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 aurcolus*).
- 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.

14231. 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.

12233. 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 Abgy 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 *Schizotharus* 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.

26743. 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 Sardinen." 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 scollops.  
 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 (*Colocalia 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 weasel (*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 luseus*), 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 zorrilla*).

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. Bedlammer (1 year old). Labrador. Governor of Newfoundland.

12423. Labrador. Governor of Newfoundland.

Harp seal (*Pagophilus græulandicus*), 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. Bedlammer. " " "

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 (*Oribos moschatus*) used for robes, rugs, and trimmings.

12520. Hudson's Bay Territory.

12549. 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 Skins**

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 *granlandicus*).

12365. (Albino.) F. Churchill, Hudson's Bay; W. W. Kirkby.

2050. (Young.) Robe from Mackenzie's River, H. B. T. R. Kennicott.

Moose (*Alces alces*), used for rugs and robes.

24772. Labrador. G. R. Renfrew & Co., Quebec.

Mole (*Scalops* and *Codylura* 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.

Possum (*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. H. " " "

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, monselins 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.

Possum 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 cythia*.)

Fabrics woven by the insects themselves, as *Tinca 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.

25655. 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. Nuniyak 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. Popl-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.  
24903-8. 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 \* 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 McFadyen, 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 (*Somniosus 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 fere, 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.

25073. Bone marlin-spike. Made at sea by Thomas Freeman. Used for splicing trawl-lines. Sanford Freeman, Norwich; c. r., Mass.

Sperm-whale jaw-bone, used for harness-rings, martingales, &c.

29233-4-5-6-7-8-9-10. 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-lid. 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. Scine-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' vertebrae, 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, caps, 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.  
 Dr. J. P. Kimball, U. S. A.  
 11030. Spoon of buffalo horn. Yellowstone Valley, Dakota. Lieutenant  
 Cusick.

**Horn of musk ox (*Oribos moschatus*).**

11648. Arctic regions. Capt. C. F. Hall.  
 10389. Spoon made from horns of musk ox. Igloodik. 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 (*Mazama montana*). 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.  
 29842. 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.

- 26229-27-30. 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.)

## II. HOOPS AND CLAWS, &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.

23901. 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 sulfuscus*). Monterey, Cal. C. M. Scammon.
13981. Baleen of sulphur-bottom whale (*Sibbaldius sulfuscus*). 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. " "
24953. 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.
24955. Whalebone probang. " "
24980. Whalebone caterpillar-brush. " "
24981. Whalebone shavings. " "
24953. Whalebone back-supporter. " "
24979. Whalebone flue-brush. " "
24975. Whalebone fiber shoe-brush. " "
24983. Whalebone. Sample. " "
24959. Whalebone divining-rod. " "
24958. Whalebone angling-rod tip. " "
24953. 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. " "
24951. Whalebone busk. " "
24954. 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.).

- 1337-8-9-90. Tortoise-shell (*Eretmochelys squamata* Linn.). Pacific hawk-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 *Cyprinida* and *Clupeida*, used in making artificial pearls.) (See under 27.)

26893. Essence d'Orient. (Introduced for comparison.) Gustave Bossange, Paris.

## 15. PEARL.

**Pearls and naere** (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 (*Turbinidae*), and their application to manufacture of shell-flowers.<sup>1</sup>

Tower-shells (*Trochida*).<sup>1</sup>

Ear-shells (*Haliotida*), used in manufacture of buttons, handles, inlaid work, and pearl powder.<sup>1</sup>

Other gasetropods supplying naere.<sup>1</sup>

Pearl-oysters (*Aviculida*), with pearls and naere.<sup>1</sup>

River-mussels (*Unionida*), with pearls and naere.<sup>1</sup>

Mussels, oysters, and other conchifers supplying pearls and naere.<sup>1</sup>

Shells of nautilus and argonaut, prepared to exhibit their naere.<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 *Buayaea*, *Sycotypus*, *Maetra*, &c., used by Indians in manufacture of implements, with specimens of implements.<sup>1</sup>

Shells of *Maetra*, 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. Inuit 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 moroccos, 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 *gronlandicus*). 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 "Maranhm jack" deer (*Cariacus* sp.) from South America. S. G. Hutchinson & Co., Johnstown, N. Y.
25287. Skin of "Maranhm jack" deer, dressed by glove manufacturer, ready for cutting. S. G. Hutchinson & Co., Johnstown, N. Y.
25288. Gloves manufactured from skin of "Maranhm 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 \$1,000,000 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.....	254,300	249,000	252,900	230,700	249,000
Panama.....	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	730,700	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.  
 Pronc 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 stoek, 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 gluc, 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. Laco 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 Magenut 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, quenes, 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. 1-11. " "  
 26028. " " " (black). D B Nos. 1-12. " "  
 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. 3½. "  
 29329. " " " No. 2. "  
 29330. " " " No. 2½. "  
 29331. " " " No. 3. "  
 29332. Round paint-brush, No. A ½. "  
 29333. " " " No. A ⅓. "  
 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. " 1½ " "  
 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, 1-5. 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 (*Grus candidissima*). Mrs. C. E. Mott, Jacksonville, Fla.  
 26599. Fan made from feathers of blue heron (*Florida carulea*). Mrs. C. E. Mott, Jacksonville, Fla.  
 26601-26605. Fan made from feathers of water-turkey (*Plotus anhingia*). Mrs. C. E. Mott, Jacksonville, Fla.  
 26602. Fan made from feathers of fish-crow (*Corvus ossifragus*) and blue heron (*Florida carulea*). Mrs. C. E. Mott, Jacksonville, Fla.  
 26603. Fan made from feathers of wood ibis (*Tantulus localator*) and parakeet (*Psittacus carolinensis*). Mrs. C. E. Mott, Jacksonville, Fla.  
 26606. 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 (*Colocalia esculenta*, *C. fuciphaga*, *C. indifca*, &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 (*Sciaenidae*), principally used by confectioners.

25265. Air-bladder of "beluga" (an unknown sciaenoid 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 sciaenoid 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, S).
- Papier maché* of hornets' nests used for gun-wadding.

**Mollusk productions.**

Byssus of mollusks (see under D, S).

<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.

25031-3. 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 ercbennus?*). Capt. N. E. Atwood, Provincetown, Mass.
12116. Oil of harbor porpoise (*Phocaena americana*). Prepared by the Passamaquoddy Indians. Eastport, Me. Dr. E. Palmer.
12115. Oil of harbor porpoise (*Phocaena americana*). Eastport, Me. Dr. E. Palmer.
26037. Oil of harbor porpoise (*Phocaena americana*). Passamaquoddy Bay, Maine. George H. Peabody, Eastport, Me.
25739. Oil of snuffer (*Phocaena americana*). Extracted by exposure to the sun. E. E. Small, Provincetown, Mass.
24893. Crude "body"-oil from sperm-whale (*Physcter 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 (*Phocaena 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 (*Phocaena 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, &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, &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, &c.

Butter made from milk of cows, goats, and horses.

Oleomargarines, with specimens of imitation butter.

Brains of buffalo used in taming by Indians.

**Bird-oils.**

(Oil of petrels and other sea-birds used by Eskimos and in the Azores for lamp-oil.)

Bull. N. M. No. 14—15

**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.

25969. 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 (*Brosimius vulgaris*). Capt. N. E. Atwood, Provincetown, Mass.

25735. 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 (*Orcynus sccondidorsalis*). 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 (*Raja 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.

26057. 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 hawkbill 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. ura-ursi*, and *Ophis faba*.

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 woollen 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 graveum* 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 (*Larinus 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 pekhal.*)

(a'. Manna from the *Tamarix mannifera*, used as food, and in medicine as a purgative.

b'. Cedar manna from Mount Lebanon, from *Pinus cedris*.

c'. Arabian manna, of *Hedysarum alliagi*.)

(Eye-powder, made by Chinese from the Telini fly (*Mylabris eichorii*) 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 Schaefferi*, *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 (*Maerobdella 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. Duman, Baltimore, Md.

## Dried meat and blood.

## Dried blood.

- 22239. Black dried blood. Contains 16 per cent. ammonia. Winfield S. Duman, Baltimore, Md.
- 22240. Black blood-dust. Contains 12 per cent. ammonia. Winfield S. Duman, Baltimore, Md.
- 22241. Red blood-dust. Contains 14 per cent. of ammonia. Winfield S. Duman, Baltimore, Md.
- 22242. Mixed dried blood. Contains about 13 per cent. of ammonia. Winfield S. Duman, 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. Duman, 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. Duman, Baltimore, Md.
- 22245. Sulphate of ammonia. Contains about 25 per cent. of ammonia. Winfield S. Duman, 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 "Mazepa," 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. (I. 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. Foulow, 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.

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## 1. Reports of the Commission.

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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.

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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.)

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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 McCLLOUD RIVER, AND ON THE CALIFORNIA SALMONIDE 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 MIRAMICH 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.
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- XIII. MISCELLANEOUS NOTES AND CORRESPONDENCE RELATIVE TO SALMON AND TROUT. pp. 364-378.
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- 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.
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- C. Fish-culture in salt or brackish waters. By Theodore Lyman, Fish Commissioner of Massachusetts. pp. 575-577.
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- B. Obstructions in the tributaries of Lake Champlain. By M. C. Edmunds. pp. 622-627.
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XXVI. SYNOPSIS OF THE NORTH AMERICAN FRESH-WATER LEECHES. By A. E. Verrill. pp. 666-689.

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- 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.
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- APPENDIX D.—THE RESTORATION OF THE INLAND FISHERIES. pp. 569-570.
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## 1. Reports of the Commission.

(UNITED STATES COMMISSION OF FISH AND FISHERIES. PART IV.)

## APPENDIX C.—THE PROPAGATION OF FOOD-FISHES.

- 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. JES. W. Milner. p. 901.
- IX. ON THE COLLECTION OF EGGS OF SCIOODIC 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.

ALPHABETICAL INDEX. p. 1025.

## 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.

Bull. U. S. M. No. 14—16

**Fish-ways.**

## Step fish-ways.

## Box or pool fish-ways.

23108. Model of fish-way. Jas. D. Brewer, Muncy, Pa. Patented by Daniel Steek.

## Steps contrived by arrangement of rocks and boulders.

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,  $\frac{1}{4}$  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,  $\frac{1}{4}$  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.
29237. Model of the fish-way at Holyoke, Mass., on the Connecticut River. Scale,  $\frac{1}{2}$  of an inch to the foot ( $\frac{1}{6}$ ). 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.
26339. No. 15. Model of the fish-way at Lawrence, Mass., on the Merrimack River. Scale,  $\frac{1}{4}$  inch to the foot ( $\frac{1}{6}$ ). C. G. Atkins.

**Fish-ways.**

With rectangular compartments.

23937. Model of rectangular compartment fish-way on the inclined-plane system, in an extended arrangement. Scale,  $\frac{1}{2}$  inch to the foot ( $\frac{1}{2}$ ). 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 ( $\frac{1}{2}$ ). 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.

26934. Model of Pike's spiral fish-way, devised by Hon. R. G. Pike, of Connecticut. Scale,  $\frac{1}{2}$  inch to the foot ( $\frac{1}{2}$ ). 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,  $\frac{1}{2}$  inch to the foot ( $\frac{1}{2}$ ). 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.
29541. 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.
29597. 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 ( $\frac{1}{2}$ ). 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).**

29275. Parlor trout-brook. Stone & Hooper, Charlestown, N. H.
29350. 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>2</sup>****Predatory animals not elsewhere exhibited.**

## 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 ( $\frac{1}{4}$ ). 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, Duncannon, 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.

26907. 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 &amp; 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 &amp; 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 ( $\frac{1}{5}$ ). 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 ( $\frac{1}{2}$ ). 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.



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PART II.

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CATALOGUE OF ILLUSTRATIONS  
OF THE  
ECONOMICAL INVERTEBRATES  
OF  
THE AMERICAN COASTS.  
BY  
W. H. DALL.

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# CATALOGUE OF ILLUSTRATIONS OF THE ECONOMICAL INVERTEBRATES OF THE AMERICAN COASTS.

## MOLLUSCA.

### **Mollusca cephalopoda.**—SQUIDS AND CUTTLES.

32905. Sepia "bone," or endosteum, in natural condition. East coast of the United States. Uses: Fed to cage-birds requiring lime.
- 32905a. Pounce: Powdered sepia-bone; used in rewriting over erasures to prevent blotting, in medicine as an antacid.
33005. Cuttle-fish (*Octopus punctatus*, Gabb). California to Alaska. Used for bait in the cod-fishery, and by the natives for food. W. H. Dall.
25972. Oil of squid (*Ommastrephes illecebrosa*). Capt. N. E. Atwood, Provincetown, Mass.

### **Mollusca gasteropoda.**—SEA-SNAILS, &c.

#### A. Useful:

##### 1. Used for food or bait:

32885. Velvet chiton (*Cryptochiton stelleri*). Alaska to California. Indian food. W. H. Dall.
32886. Coat-of-mail shell (*Katherina tunicata*). Alaska to California. Indian food. W. H. Dall.
32883. Limpet (*Acmia testudinalis*). Connecticut to Labrador. W. H. Dall.
32904. Western limpet (*Acmia patina*). Alaska to California. W. H. Dall.
32880. Rockwinkle (*Litorina subtenebrosa*). Alaska to Oregon. W. H. Dall.
32882. Periwinkle (*Purpura canaliculata*). Alaska to California. W. H. Dall.
32884. Periwinkle (*Purpura ostrina*). California. W. H. Dall.
32903. Periwinkle (*Purpura lapillus*). Cape Cod to Labrador. W. H. Dall.

##### 2. Useful by producing pearl-shell, &c.:

32830. Turban-shell (*Trochiscus norrissii*). California. H. Hemphill.
32832. Top-shell (*Pomaulax undosum*), in natural state. California. H. Hemphill.
32831. Top-shell, prepared to show pearly layers. California. H. Hemphill.
29301. Manufactured state of various kinds of American pearl-shells derived from gasteropods or sea-snails. Furnished by A. B. De Freece & Co., 428 Broadway, New York.
32838. Sea-ears (*Haliotis Kamchatkana*), affording pearl-shell and food. Alaska. J. G. Swan.

32890. Rough sea-ear (*H. corrugata*). Southern California. Used for pearl-shell and for food. Specimen in natural condition. W. H. Dall.
- , Rough sea-ear. Specimen ground and polished to show pearly layers. J. T. Ames.
32900. Red sea-ear or abalone (*H. rufescens*). Monterey, Cal. Used for pearl-shell and for food. Specimens in natural condition. H. Hemphill.
- , Red sea-ear. Polished specimen showing pearly layers. J. T. Ames.
- , Red sea-ear. Fleishy portion prepared and dried for food by California Chinese. Chinese market, California. H. Hemphill.
32823. White abalone (*H. cracherodii*), producing pearl-shell and food. Natural slate. California. Paul Schumacher.
32899. White abalone. Natural state. Monterey, Cal. H. Hemphill.
- , White abalone. Polished to show pearly layers. Jas. T. Ames.
4792. White abalone. Polished specimens.
32821. Splendid sea-ear (*H. splendens*) affording food and pearl-shell. California. Paul Schumacher.
32898. Splendid sea-ear. Natural condition. Southern California. H. Hemphill.
- , Splendid sea-ear. Polished to show pearly layers. J. T. Ames.
- , Splendid sea-ear. Young specimen polished. J. T. Ames.
29302. Manufactures of *Haliotis* shell, showing application in the arts. Furnished by A. B. De Free & Co., 428 Broadway, New York.
29248. Ditto. Parasol-handles. Furnished by Harvey & Ford, Philadelphia, Pa.

### 3. Affording cameo and porcelain stock:

6965. Cameo-shell (*Cassia rufa*), used for cameo cutting. Florida. Dr. Wm. Stimpson.
- , Queen conch (*Strombus gigas*), exported to Liverpool in great numbers and ground up for making porcelain.<sup>1</sup> West Indies.

### 4. Used in Indian trade:

2705. Hyqua shell (*Dentalium indianorum*), used in Indian trade. In this case the shells have been made into a belt by the purchaser. West coast of America. U. S. Exploring Expedition.

### 5. Affording dyestuffs:

32907. Sea-hare (*Aplysia*). Affording purple dye. Florida. F. B. Meek.
32896. Sea-hare. Specimen of the purple fluid. F. B. Meek.
32911. Purple shells (*Phyllonotus radix*). Ornamental and producing dye. Lower California. W. H. Dall.
32912. Purple shells (*Phyllonotus bicolor*). Used for ornaments and affording dye. West coast of America. W. H. Dall.

### 6. Affording bird-lime:

33080. Giant slug (*Ariolimax columbianus*), affords a thick tenacious slime, which is used by the Indians to lime humming-birds. California to Alaska. H. Hemphill.

<sup>1</sup>The sea-ears and queen conchs are also largely used in Indian trade in a manufactured state.

## B. Injurious:

## 1. By destroying food-producing mollusks or shell fish, such as clams, mussels, oysters, and razor-fish:

32860. Ribbon whelk (*Fulgur carica*). Florida. T. A. Conrad.  
 32859. Reversed whelk (*Fulgur perversa*). Carolinas. Dr. Wm. Stimpson.  
 32861. Hairy whelk (*Sycotypus canaliculatus*). Vineyard Sound. Dr. Wm. Stimpson.  
 32864. Winged conch (*Strombus alatus*). Tampa Bay, Florida. T. A. Conrad.  
 32863. Thorny drill (*Hemifusus bicoronatus*). Tampa Bay, Florida. T. A. Conrad.  
 32835. Drill (*Urosalpinx cinereus*). Florida to Massachusetts Bay. W. H. Dall.  
 32975. Drill. South Norwalk, Conn. Hoyt Bros.  
 32837. Periwinkle (*Purpura floridana*). Baratavia Bay, La. Gustav Kohn.  
 32892. Sea-snail (*Lunatia Lewisii*). Monterey, Cal. H. Hemphill.  
 32913. Sea-snail (*Neverita reclusiana*). California. W. H. Dall.  
 27620. Sea-snail (*Neverita duplicata*). North Carolina. T. D. Kurtz.  
 32866. Sea-snail (*Lunatia heros*). Massachusetts Bay. C. B. Fuller.

## 2. Injurious by destroying vegetable substances and garden plants:

33058. Slug (*Limax Hewstoni*). Oakland, Cal. H. Hemphill.

**Mollusca acephala.**—BIVALVE SHELLFISH.

## A. Producing food or used as bait.

\* *Oysters*.

## 1. Series illustrating distribution and geographical varieties:

**Ostrea virginica**, Gmelin.—EAST AMERICAN OYSTERS.

32784. Northern variety (*O. borealis*, Lam.) Prince Edward's Island. J. W. Dawson.  
 32813. Nova Scotia. J. H. Willis.  
 32785. Shediac, New Brunswick. W. H. Dall.  
 33092. "Pourrier Bed." Shediac, New Brunswick. G. F. Mathew.  
 33093. "Bnetouche." Kent County, New Brunswick. G. F. Mathew.  
 32783. Miramichi River, New Brunswick. W. H. Dall.  
 32977. Indigenous oyster, now extinct. Shell-heaps. Damariscotta, Maine. Robert Dixon.  
 32978. Ditto. Shell-heaps. Sheepscot River, Maine. Robert Dixon.  
 32810. Indigenous oyster (var. *borealis*). Buzzard's Bay, Mass. Dr. Wm. Stimpson.  
 32814. Specimens showing color-bands. Rhode Island. General Totten.

NOTE.—The following series of oysters from the vicinity of New York were furnished by Mr. B. J. M. Carley, oyster-dealer, of Fulton Market, New York, through Mr. E. G. Blackford:

32790. "Greenwich." Greenwich, Conn.  
 32777. "Blue Point." Long Island, New York.  
 32779. "Lloyd's Harbor." Long Island, New York.

32781. "Cow Bay." Long Island, New York.  
 32791. "Glenwood." Glenwood, Long Island, New York.  
 32812. "Cove." Long Island, New York.  
 32920. "City Island." Long Island Sound, New York.  
 32919. "Mill Pond." Cow Bay, Long Island, New York.  
 32778. "Shrewsburys." Shrewsbury River, New Jersey.  
 32915. "Egg Island." Three years old. Morris Cove, Delaware.  
 32788. "Chesapeake." Crisfield, Md. E. G. Blackford.  
 32976. Pokamoke, Virginia. E. G. Blackford.

NOTE.—The following series from the waters of Virginia and Maryland, all indigenous or "natural growths" as distinguished from "plants," were selected by Mr. G. W. Harvey, and furnished by Harvey & Holden, oyster-dealers of Washington, D. C.:

33096. "St. Jerome River." Maryland.  
 33097. "Deep Creek." Eastern shore of Maryland.  
 33098. "Tangier Sound." Chesapeake Bay.  
 33100. "Little River." Western shore of Maryland.  
 33099. "Point Lookout Creek." Virginia.  
 33101. "Naswaddox." Eastern shore of Virginia.  
 33095. "Rappahannock." Rappahannock River, Virginia.  
 33103. "York River." York River, Virginia.  
 33104. "Cherrystones." Chesapeake Bay.  
 33102. "Presby's Creek." Presby's Creek, Virginia.

The following series from Florida were furnished by Kossuth Niles, U. S. N.:

32805. "Appalachicola Bay." Appalachicola Bay, Florida.  
 32806. "Cat Point." Same locality.  
 32807. ———. Same locality.  
 32808. "Raccoon oysters." Appalachicola Bay, Florida.

The following series from the vicinity of New Orleans were selected by M. Zatarain, and furnished by W. Alex. Gordon, esq., of New Orleans, La.:

32800. "Timbalier Bay." Louisiana.  
 32801. "Southwest Pass." Louisiana.  
 32802. "Bayou Cook." Louisiana.  
 32803. "Four Bayous." Louisiana.  
 32804. "Grand Lake." Louisiana.

### ***Ostrea lurida*, Cpr.—WEST COAST OYSTERS.**

32879. Natives. Crescent City, Cal. W. H. Dall.  
 32809. Natives. Shoalwater Bay, W. T. H. Hemphill.  
 32798. Natives. San Diego, Cal. H. Hemphill.  
 32798. Eastern oyster (*O. virginica*). Taken from Newark Bay, N. J., when a year old and planted in San Francisco Bay; showing two years' growth in California waters.

#### Extra limital:

32878. Fossil oyster from marine Tertiary beds near Vicksburg, Miss. Closely resembling the present English oyster.  
 32311. Fresh specimen, English oyster (*O. edulis*, Linn.). Introduced for comparison with the American fossil and recent oysters. North Sea. Dr. Wm. Stimpson.

## 2. Series illustrating culture and individual variations:

**Ostrea virginica**, Gmelin.—EAST AMERICAN OYSTERS.

That portion of the series from South Norwalk, Conn., was furnished by Hoyt Bros. of that place, at the instance of James Richardson, esq. The portion of the series from the vicinity of New York was furnished by Mr. B. J. M. Carley through Mr. E. G. Blackford, of New York.

## a. Growth. 1-20 years old:

- 32958. Young spat on various stools. South Norwalk, Conn.
- 32957. One year old. South Norwalk, Conn.
- 32967. Two to three years old. Natural growth. South Norwalk, Conn.
- 32968. Three to four years old. Natural growth. South Norwalk, Conn.
- 32965. "Cullers." Three to four years old. South Norwalk, Conn.
- 32962. Three years after transplantation. South Norwalk, Conn.
- 32964. "Box." Four to six years old. South Norwalk, Conn.
- 32916. "Cullers." Three years old. Vicinity of New York.
- 32918. "Single extra." Four years old. Vicinity of New York.
- 32776. "Double extra." Vicinity of New York.
- 32917. "Box." Three years old. Vicinity of New York.

## b. Peculiarities of form and growth:

- 32959. "Pinched" oyster from muddy bottom. South Norwalk, Conn.
- 32930. Showing effect of transplanting the "pinched" from a muddy to a hard bottom. South Norwalk, Conn.
- 32787. Form caused by growing in a tideway. Vicinity of New York.
- 32786. Form caused by growing in still water. Vicinity of New York.
- 32974. Curious forms of shell. South Norwalk, Conn.
- 32782. Peculiar growth. Vicinity of New York.
- 32795. Specimens of peculiar form. Vicinity of New York.
- 32971. Natural growth on stone. South Norwalk, Conn.
- 32973. Natural growth on part of stone jug. South Norwalk, Conn.
- 32972. Natural growth on shells. South Norwalk, Conn.
- 32970. Natural growth on bottle. South Norwalk, Conn.
- 32969. Natural growth on crab. South Norwalk, Conn.
- 32780. Illustrating methods of attachment. Vicinity of New York.
- 32914. Blue Point "seed." Long Island, New York.
- 32789. Rosette of oysters. Vicinity of New York.
- 32792. Shell growing on *Maetra* shell. Vicinity of New York.
- 32794. "Seed" on old rubber boot. Vicinity of New York.
- 32793. "Seed" growing on stone. Vicinity of New York.
- 32895. "Seed" on rubber shoe. Vicinity of New York.
- 32894. "Seed" on bone. Vicinity of New York.
- 32797. "Seed" on bark. Vicinity of New York.
- 32796. "Seed" on leather shoe. Vicinity of New York.
- 32932. "Seed" on old boot-leg. Vicinity of New York.

## c. Enemies and parasites:

- 32927. Specimens injured by whelk. South Norwalk, Conn.
- 32929. Specimens injured by hairy whelk. South Norwalk, Conn.

32928. Specimens perforated by "drill." South Norwalk, Conn.  
 32933a. Specimen injured by boring worm (an *Annelid*). South Norwalk, Conn.  
 32933. Specimens killed by star-fish. South Norwalk, Conn.  
 32933. Specimens showing ravages of *Cliona* or boring sponge. South Norwalk, Conn.  
 For commensal crab see Crustacea.  
 33092a. Lime derived from oyster shells. Use in medicine and as a fertilizer. Washington, D. C. W. H. Dall.

\*\*\* *Other bivalves.*

A. Affording or available for food or bait.

32887. Rock oyster (*Placnomanonia macroschisma*, Desh.). Alaska to California. W. H. Dall.  
 32873. Scallops (*Pecten irradians*, Lam.). Long Island Sound. Dr. Wm. Stimpson.  
 32868. Great scallop (*P. tenuicostatus*, Migh.). Coast of Maine. C. B. Fuller.  
 27523. Black mussel (*Mytilus edulis*, L.). Massachusetts Bay. Dr. Wm. Stimpson.  
 32857. Ditto. San Francisco Bay, California. H. Hemphill.  
 32845. Ditto. Monterey, Cal. H. Hemphill.  
 32849. Ditto. San Diego, Cal. H. Hemphill.  
 32875. Grooved mussel (*Modiola plicatula*, Lam.). Nahant, Mass. Dr. Wm. Stimpson.  
 32834. Ditto. (*Modiola*, sp.) Last Island, La. Gustav Kohn.  
 32858. Brown mussel (*M. capax*, Conr.). San Diego, Cal. H. Hemphill.  
 32876. Ditto. (*M. modiolus*, L.) Massachusetts Bay. Dr. Wm. Stimpson.  
 32897. Ditto. Massachusetts Bay. Dr. Wm. Stimpson.  
 —. Ditto. Castine, Me. A. R. Crittenden.  
 32871. Giant cockle (*Cardium magnum*, Birn.). Tampa Bay, Florida. T. A. Conrad.  
 32851. Egg cockle (*C. datum*, Sby.). Guaymas, west coast Mexico. Dr. Palmer.  
 32853. Nuttall's cockle (*C. nuttallii*, Con.). Baulinas, Cal. H. Hemphill.  
 32891. Ditto. Alaska. W. H. Dall.  
 32872. "Red edge" (*Codakia tigrina*, L.). Florida. Dr. Wm. Stimpson.  
 32877. Quahog—round clam (*V. mercenaria*, L.). Maine to Florida.  
 32862. Ditto. (Var. *nortoni*.) Maine to Florida. Dr. Stimpson.  
 32893. Ditto. Providence River, Rhode Island. Benj. Davis.  
 32849. Ditto. "Sumbosed" var. Fire Island. B. J. M. Carley.  
 32847. Ditto. Elongated var. Rockaway, N. J. B. J. M. Carley.  
 32838. Ditto. Barataria Bay, La. Gustav Kohn.  
 32848. Ditto. Deformed specimens. Long Island Sound. B. J. M. Carley.  
 —. Ditto. Specimens of shell polished. Jas. T. Ames.  
 32880. "Hen clam" (*Pachyderma crassatelloides*, Conr.). California. W. H. Dall.  
 32843. "Round clams" (*Saxidomus aratus*, Gld.). San Diego, Cal. H. Hemphill.  
 32867. "Painted clam" (*Callista gigantea*, Ch.). South Carolina.  
 32841. "Little Neck clams" (*Chione succincta*, Val.). San Diego, Cal. H. Hemphill.  
 32842. Ditto. (*C. similima*, Sby.). San Diego, Cal. H. Hemphill.



32846. Ditto. (*Tapes laciniata*, Cpr.). San Diego, Cal. H. Hemphill.  
 32854. Ditto. (*T. staminea*, Conr.). Baulinas, Cal. H. Hemphill.  
 32844. Ditto. Tomales Bay, Cal. H. Hemphill.  
 32869. "Hen clam" (*Macra solidissima*, Ch.). Massachusetts Bay. W. H. Dall.  
 32870. Ditto. Shells utilized for catch-alls. Newport, R. I. N. C. Peterson.  
 32888. Ditto. (*M. fulcata*, Gld.). Alaska to California. W. H. Dall.  
 32826. "Gapers" (*Schizotharus nuttalli*, Con.). Oregon. J. G. Swan.  
 32852. Ditto. Baulinas, Cal. H. Hemphill.  
 32874. Salmon tellen (*Macoma*, sp.). Florida. T. A. Courad.  
 32848. "Tellens" (*M. nasuta*, Conr.). San Francisco markets. H. Hemphill.  
 32847. "Flat clam" (*Semele decisa*, Cpr.). San Diego, Cal. H. Hemphill.  
 32909. "Razor-fish" (*Solen ensis*, L.). Cow Bay, New York. B. J. M. Carley.  
 32881. Ditto. (*Siliqua patula*, Dixon.) Alaska to California. W. H. Dall.  
 32955. "Soft-shelled clams" (*Mya arcuaria*, L.). Cape Cod, Mass. E. G. Blackford.  
 32829. Ditto. Oyster Bay, L. I. E. G. Blackford.  
 32833. Ditto. Accidentally transplanted with young oysters to San Francisco Bay, where it now abounds greatly. Oakland, Cal. H. Hemphill.  
 33094. Ditto. Bay of Fundy, N. S. G. F. Mathew.  
 32950. Date-fish (*Platygodon cancellatus*, L.). Baulinas Bay, Cal. H. Hemphill.  
 32856. Ditto. (*Zirpheu crispata*, L.). Baulinas, Cal. H. Hemphill.

B. Useful or ornamental bivalves other than those affording food:

a. Pearl-producing.

1. River mussels:

- 26092a. River mussel affording pearl-shell, illustrating application of raw material. Cincinnati, Ohio. D. H. Shaffer.  
 26092. Carvings, from pearl-shell afforded by river mussels, for use as studs, buttons, pins, brooches, &c. Cincinnati, Ohio. D. H. Shaffer.  
 26092b. Pearls derived from river mussels. Cincinnati, Ohio. D. H. Shaffer.  
 —. A series of river mussels of various species, one valve polished, the other in its original condition in each case. Chicopee, Mass. Jas. T. Ames.  
 25986 to 26010. Another series, both valves polished, from Dr. C. A. Miller, Cincinnati, Ohio, comprising the following species:

*Unio rugosus*, Barnes.

*alatus*, Say.

*ornatus*, Lea.

*verrucosus*, Barnes.

*gibbosus*, Barnes.

*rectus*, Lam.

*cylindricus*, Say.

*pyramidatus*, Lea.

*tuberculatus*, Barnes.

*siliquoides*, Barnes.

*circulus*, Lea.

*anodontooides*, Lea.

*pustulosus*, Lea.

*cuneatus*, Barnes, &c., &c.

## 2. Marine pearl-shells:

13507. American pearl-oyster (*M. fimbriata*). Panama. Col. Jewett.  
 3624. Ditto. Illustrating formation of pearls. Panama. Col. Jewett.  
 32836. Ditto. Gulf of California. J. Xantus.  
 —. Ditto. Polished shell. Chicopee, Mass. Jas. T. Ames.  
 32921. Ditto. Made into artificial fish-bait. Boston, Mass. Bradford & Anthony.  
 32922. Ditto. Made into artificial minnow. Boston, Mass. Bradford & Anthony.  
 —. Series of buttons, studs, stopper-caps, &c. Manufactured from, and showing application of American pearl-oyster shell. Furnished by A. B. De Freee & Co., 428 Broadway, New York.

## b. Otherwise useful:

32869. "Hen clam" (*Maetra solidissima*, Ch.). Shell used for scoops, milk-skimmers, and boat-bailers. Painted inside and used for catch-alls.  
 29527. Basket. Made from Florida shells. E. F. Gilbert, Jacksonville, Fla.  
 29210. Basket. Made from Florida shells. Mrs. C. E. Mott, Jacksonville, Fla.  
 29209. Frame. Made from Florida sea-shells. Mrs. C. E. Mott, Jacksonville, Fla.  
 29211. Easter Cross. Made from Florida shells. Mrs. C. E. Mott, Jacksonville, Fla.  
 29526. Shell flowers. Made from Florida shells. E. F. Gilbert, Jacksonville, Fla.  
 26595. "Coquina." Miscellaneous species broken up and cemented by surf action into a natural conglomerate, used for building stone or for making a superior kind of lime. Saint Augustine, Fla. G. Browne Goode.  
 32839. "Cuneate clam" (*Gnathodon cuneatus*). Used largely for bait. Natural condition. Lake Pontchartrain, La. Gustav Kohn.  
 32840. Ditto. Semi-fossil (in shell-heaps), used for macadamizing roads. Lake Salvador, La. Gustav Kohn.

## C. Injurious bivalves:

## a. Destroying submerged timber:

## Specimens of wood showing ravages:

32982. Ship-worm (*Teredo* sp.). Bangor, Me. (Brig H. B. Emory.) C. H. Parker.  
 32908. Ditto. In lignumvitæ wood. Gloucester, Mass. Samuel Elwell, jr.  
 33106. Ditto. (*Teredo chlorotica*, Gld.) Wood's Holl, Mass. Vinal N. Edwards.  
 33105. Ditto. (*Xylotrya fimbriata*, Jeffr.) Wood's Holl, Mass. Vinal N. Edwards.  
 32984. Ditto. (*Teredo navalis*? L.) New Haven, Conn. A. E. Verrill.  
 32902. Ditto. (*Teredo* sp.) Showing damage effected in white-pine wood in one year. Pier 44, North River, N. Y. W. T. Pelton.  
 32901. Ditto. Showing damage to hard-pine wood effected in one year. Charleston, S. C. W. T. Pelton.  
 32983. Ditto. Schooner Carrie Melvin; done in 6 weeks. Charleston, S. C. A. G. Hunt.

32815. Ship-worm. (*Teredo* sp.). Gulf coast. Dewey.  
 32816. Ditto. Showing lining of tubes. Texas. Dr. Schott.  
 19405. Ditto. (*Xylotrypa* sp.) Coast of Oregon. J. G. Swan.

#### D. Prepared foods:

\* Specimens of various brands of canned, preserved, and pickled shell-fish in manufacturers' packages:

26579. Pickled oysters (*Ostrea virginica*). Blue Point. B. J. M. Carley.  
 26581. Pickled oysters (*Ostrea virginica*). Saddle Rocks. B. J. M. Carley, New York.  
 25835. Fresh Cove oysters (*Ostrea virginica*). Kemp, Day & Co., New York.  
 25844-54. Fresh Cove oysters (*Ostrea virginica*). Kemp, Day & Co., New York.  
 25861-3. Spiced Cove oysters (*Ostrea virginica*), hermetically sealed. Kemp, Day & Co., New York.  
 26577. Pickled Little Neck clams (*Mya arenaria*). B. J. M. Carley.  
 26582. Pickled clams (*Venus mercenaria*). "Cow Bay." B. J. M. Carley.  
 26642. The Farmers' Old Orchard Beach clams (Little Necks, star brand). Portland Packing Company, Portland, Me.  
 26575. Pickled scallops (*Pecten irradians*). Oyster Bay. B. J. M. Carley.  
 26580. Pickled mussels (*Mytilus edulis*). East River, N. Y. B. J. M. Carley, New York.  
 25873. Scarboro' Beach clams (*Venus mercenaria*). Put up by Burnham & Morrill, Portland, Me. Kemp, Day & Co., New York.  
 25864-6. Orchard Beach clams (*Venus mercenaria*). Kemp, Day & Co., New York.  
 25867-9. Little Neck clams (*Mya arenaria*). Kemp, Day & Co., New York.  
 25870-2. Little Neck clams (*Mya arenaria*). Put up by Bogart & Co., New York. Kemp, Day & Co., New York.  
 24925. Little Neck clams (*Mya arenaria*). Wm. Underwood & Co., Boston, Mass.  
 22235-6. Pickled Little Neck clams (*Mya arenaria*). Penobscot Bay. Castine Packing Company, Castine, Me.  
 26752. Alden's granulated clams. Prepared by Alden Sea-Food Company. Sold by Lyon Manufacturing Company, New York. Presented by E. G. Blackford, New York.  
 26753. Alden's granulated and concentrated clams (paper boxes). Prepared by Alden Sea-Food Company. Sold by Lyon Manufacturing Company, N. Y. Presented by E. G. Blackford, New York.

\*\* Otherwise prepared.

5672. Dried siphons of *Schizotharus Nuttalli*. Prepared by the Puget Sound Indians, Wash. Ter. Dr. J. G. Suckley, U. S. Army.

### CRUSTACEA.

#### Crustacea phyllopoda.

A. Useful; converted into fertilizers; carapax used as a scoop or boat-bailer:

2222. King crab, Horseshoe (*Limulus polyphemus*). Florida. F. B. Meek.  
 2223. Ditto. Male and female. Cape May C. H., New Jersey. Thos. Beesley.  
 2223. Ditto. Product "cancerine," prepared fertilizer. Cape May C. H., New Jersey. Thos. Beesley.

**Crustacea isopoda.**

- A. Useful; by removing wrecks or snags.  
 B. Injurious; by destroying submerged timber.

2283. Wood-eater (*Limnoria lignorum*, White). San Diego, Cal. H. Hemphill.  
 2254. Ditto. New Haven, Conn. A. E. Verrill.

## a. Wood showing ravages:

2240. Eastport, Me. U. S. Fish Commission.  
 2290. Wood's Holl, Mass. Vinal N. Edwards.  
 2221. San Diego, Cal. H. Hemphill.

**Crustacea stomatopoda.**

## Available for food:

2253. Squill (*Squilla empusa*, Say). Long Island Sound. U. S. Fish Commission.  
 2262. Southern squill (*Coronis glabriuscula*, Stm.). Galveston, Texas. M. Wallace.

**Crustacea decapoda.**—LOBSTERS, SHRIMP, CRAWFISH, CRABS.

## A. Useful; food-supplying:

2263. River shrimp (*Palamon* sp.). New Orleans, La. Gustav Kohn.  
 2264. Ditto. (*Pal. ohiois*, Smith.) New Orleans, La. Gustav Kohn.  
 2269. Ditto. (*Palamon*?) Isthmus of Panama. Dr. Bransford.  
 2252. Sea shrimp (*Palamonetes vulgaris*, Stm.). Long Island Sound. U. S. Fish Commission.  
 2211. Shrimp (*Pandalus Dana*, Stm.), as dried for export by Californian Chinese. San Francisco, Cal. H. Hemphill.  
 2220. Ditto. (*Hippolyte brevirostris*, Dana.) San Francisco, Cal. H. Hemphill.  
 2219. Ditto. (*Crangon franciscorum*, Stm.) San Francisco, Cal. H. Hemphill.  
 2251. Ditto. (*Crangon vulgaris*, Fbr.) New England coast. U. S. Fish Commission.  
 2267. River crawfish (*Astacus oregonensis*, Nutt.). California. J. R. Scupham.  
 2261. Ditto. (*Cambarus Clarkii*, Gir.) New Orleans, La. Gustav Kohn.  
 2265. Ecrevisse (*Cambarus affinis*, Er.). Potomac River, Va. J. W. Milner.  
 2250. Lobster (*Homarus americanus*, Edw.). New York. E. G. Blackford.  
 2250. Ditto. Series showing young stages. Vineyard Sound, Mass. U. S. Fish Commission.  
 2241. Ditto. Young specimens, dry. Massachusetts Bay. U. S. Fish Commission.  
 2242. Ditto. Claws of extraordinary size. Massachusetts Bay. Amos Lawrence.  
 2213. Ditto. Remarkably abnormal claws. Newport, R. I. J. H. Clarke.  
 2214. Ditto. Noank, Conn. T. & E. B. Potter.  
 —. Pincushion, showing application of lobster-claws. Wellfleet, Mass. Miss Angiel Stone.  
 2215. Prawn; sea crawfish (*Pannlicus interruptus*, Ran.). Santa Barbara Channel, Cal. H. Hemphill.

2248. Crab (*Platyonichus ocellatus*, Latr.). Vineyard Sound, Mass. U. S. Fish Commission.
2256. Ditto. (*Panopeus Herbstii*, Edw.) New Orleans, La. Gustav Kohn.
2247. Ditto. (*Carcinus maenas*, Leach.) New Haven, Conn. A. E. Verrill.
2243. "Soft-shelled" (in certain stages only) crab (*Callinectes hastatus*, Say). Vineyard Sound, Mass. U. S. Fish Commission.
2249. Ditto. Long Island Sound. U. S. Fish Commission.
2218. Kelp-crab (*Episthus productus*, Randall). Monterey, Cal. H. Hemphill.
2244. Crab (*Cancer borealis*, St.). Casco Bay, Maine. U. S. Fish Commission.
2242. Common crab (*Cancer irroratus*, Say). Casco Bay, Maine. U. S. Fish Commission.
2245. Ditto. Vineyard Sound, Mass. U. S. Fish Commission.
2217. Scalloped crab (*Cancer antennarius*, Stm.). San Francisco, Cal. H. Hemphill.
2216. Market crab (*Cancer magister*, Dana). San Francisco, Cal. H. Hemphill.

#### B. Commensal with other food supplies:

2266. Oyster-crab (*Pinnotheres ostreum*, Say). Commensal with all southern oysters and with northern-oysters in northern rivers where the southern oysters have been long planted. New York. E. G. Blackford.
2272. Ditto. Commensal on the western coast with *Pachydesma* and *Mytilus californianus*. San Diego, Cal. H. Hemphill.

#### C. Injurious by burrowing into and weakening levees and dams:

2261. Crawfish (*Cambarus Clarkii*, Gir. and most other species). New Orleans, La. Gustav Kohn.
2259. Fiddler-crab (*Gelasimus pugnax*, Smith). New Orleans, La. Gustav Kohn.

#### D. Prepared foods:

##### Canned lobster and crabs in manufacturers' packages:

- 25836-43. Canned lobster (*Homarus americanus*). Kemp, Day & Co., New York.
22237. Canned lobster (*Homarus americanus*). Castine, Me. Castine Packing Company.
26643. Fresh star-lobster (star brand). Portland Packing Company, Portland, Me.
26651. Fresh star-lobster (star brand). Portland Packing Company, Portland, Me.
24926. Fresh lobster (*Homarus americanus*). Wm. Underwood & Co., Boston, Mass.
25834. Canned lobster (*Homarus americanus*). Kemp, Day & Co., New York.
24933. Original deviled lobster (*Homarus americanus*). Wm. Underwood & Co., Boston, Mass.
26578. Pickled lobsters (*Homarus americanus*). Cape Cod. B. J. M. Carley, New York.
26576. Pickled prawns. Savannah, Ga. B. J. M. Carley.

**Cirripedia.**

## Injurious:

- a.* By dulling the edge of knives and spades employed in  
"cutting in" whale blubber:

2270. Whale barnacle (*Coronula dadema*, Lam.) on dried skin of "hump-back" whale. New England coast. U. S. Fish Commission.

- b.* By obstructing the progression of vessels upon which they affix themselves:

2271. Barnacles (*Balanus rugatus*, &c.). California. H. Hemphill.

## ANNULOSA.

**Annelida.**—WORMS AND LEECHES.

## A. Useful:

1. In surgery and medicine:

3226. Leech (*Macrobdelella decora*, Verrill). New Haven, Conn. A. E. Verrill.

3227. Ditto. (*Macrobdelella* sp.) Mountain Lake, Cal. H. Hemphill.

2. For bait in fishing:

3228. Earthworm (*Lumbricus terrestris*, L.). Washington, D. C. W. Palmer.

3229. Sea-worm (*Nereis* sp.?). San Francisco, Cal. H. Hemphill.

3. For food:

19713. Dried worms (*Ephydra* sp.). Prepared for food by the Monachee Pi-Ute Indians. Owen's Lake, Cal. Stephen Powers.

19714. Dried worms. Used in making soup by the Monachee Pi-Ute Indians. Owen's Lake, Cal. Stephen Powers.

## B. Injurious:

1. By boring into and destroying oyster-shells:

32963a. Oyster-shell, showing ravages (of *Heteronereis*?). South Norwalk, Conn. Hoyt Brothers.

NOTE.—Insects and larvæ, commonly called worms, affecting chiefly agricultural interests, are not here included.

## RADIATA.

**Radiates.**—SEA-URCHINS, STARFISH, CORALS, MEDUSÆ, ETC.

N. B. Strictly ornamental corals and gorgonias, having no special useful application, have, for the same reasons which necessitated the exclusion of the solely ornamental shells, been here omitted.

## A. Useful:

1. Food-producing:

3226. Trepang; Beche-de-mer (*Holothuria* sp.?). San Diego, Cal. H. Hemphill.

3212. Sea-urchin (*Strongylocentrotus drabachiensis*). New England coast. U. S. Fish Commission.  
 3146. Ditto. (*Toxopneustes* sp.) Southern United States. Dr. William Stimpson.  
 3145. Ditto. (*T. franciscorum*, Ag.) Alaska to California. F. Bischoff.

### B. Injurious:

#### 1. Destroying oysters, clams, &c.:

3214. Starfish (*Asterias vulgaris*, Stm.). Portland, Me. U. S. Fish Commission.  
 3149. Ditto. (*Ast. arenicola*, Stm.) Massachusetts Bay. Dr. William Stimpson.  
 3213. Ditto. Long Island Sound. U. S. Fish Commission.  
 3150. Ditto. South Norwalk, Conn. Hoyt Brothers.  
 3151. Ditto. In act of destroying oysters. South Norwalk, Conn. Hoyt Brothers.

#### 2. By their urticating powers annoying bathers and "fouling" nets and fishing lines with slime—various *Acalephs*.

## PROTOZOA.

### Protozoans.—SPONGES, ETC.

#### Useful:

#### 1. For conveyance of fluids requiring an elastic and temporary menstruum, and as a detergent:

3210. Sponge (on bougie). Boston, Mass. J. A. Levey.  
 3206-9. Sponge (*Spongia barbara*, D. & M.). Florida Keys and Bahamas. Isaacs & Co., sponge-dealers, New York.  
 3205. Ditto. (*Spongia graminea*, Hyatt). (Prepared by cleansing for use.) Key West. Boston Soc. Nat. Hist.  
 3203-4. Ditto. (Dried in natural condition.) Key West. Boston Soc. Nat. Hist.  
 3152-3. } Ditto. (*S. dura*, var. *densa*, Hyatt.) Florida Keys. Isaacs & Co.  
 3167. }  
 3154-66. Ditto. (*S. dura*, var. *gravida*, Hyatt.) Florida Keys. Isaacs & Co.  
 3172. Ditto. Dried in natural state. (*Aplysina aurea*, Hyatt.) Bahamas. Boston Soc. Nat. Hist.  
 3168-71. Ditto. (Cleansed.) (*S. dura*, var. *punctata*, Hyatt.) Florida Keys. Isaacs & Co.  
 3177. Ditto. (Dried in natural state.) (*S. cerebriiformis*, Hyatt.) Key West. Boston Soc. Nat. Hist.  
 3173-76. Ditto. (Cleansed.) Key West and Bahamas. Isaacs & Co.  
 3178-9. Ditto. (*S. tubulifera*, Lam.). Florida and Bahamas. Isaacs & Co.  
 3150-85. Ditto. (*S. tubulifera*, var. *rotunda*, Hyatt.) Florida Keys and Bahamas. Isaacs & Co.  
 3186. Ditto. (Dried in natural condition.) Florida Keys. Boston Soc. Nat. Hist.

- 3189-90. Ditto. (Cleansed.) (*S. tabulifera*, var. *disciformis*, Hyatt.) Florida Keys and Bahamas. Isaacs & Co.  
 3192-96. Ditto. (*S. gossypina*, D. & M., var. *hirsuta*.) Florida Keys and Bahamas. Isaacs & Co.  
 3197. Ditto. (*S. gossypina*, var. *dendritica*.) Florida Keys and Bahamas. Isaacs & Co.  
 3198-3202. Ditto. (*S. gossypina*, var. *porosa*.) Florida Keys and Bahamas. Isaacs & Co.

## 2. Useful as an elastic medium or absorbent:

- 3213a. Sponge prepared for use as lint in surgery. Wm. B. Moses, Washington, D. C.  
 3211. Ditto. For stuffing cushions and packing. Florida. Jas. Richardson.  
 3212a. Ditto. Prepared for stuffing cushions, mattresses, &c. Florida. Wm. B. Moses, Washington, D. C.

## Injurious:

### 1. By destroying oysters:

3215. Boring sponge (*Cliona sulphurea*, Verrill). Mature form, after oyster-shell has disintegrated. Vineyard Sound, Mass. U. S. Fish Commission.  
 32979. Boring sponge. Shells of Pecten showing ravages. Castine, Me. A. R. Crittenden.  
 32980. Ditto. Castine, Me. L. J. Heath.  
 32820. Ditto. Showing effect on oyster-shell. New York Bay. B. J. M. Carley.  
 3147. Ditto. Showing various stages in shell. Shrewsbury River, N. J. B. J. M. Carley.

## Rhizopods.

Useful; the fossil forms being largely employed as a polishing powder under the name of "Tripoli" or "infusorial earth"; as a menstruum for nitro-glycerine, in the manufacture of dynamite and other explosives; and also in the manufacture of "stone china" and pottery. The valuable quality in nearly all cases is the contained silica.

## MISCELLANEOUS PRODUCTS OF SEA OR SHORE, NOT OF AN ANIMAL NATURE.

### Plants:

#### a. Lichens:

29316. Orchilla (*Rocella tinctoria*), in its natural condition as gathered from rocks and branches of plants. West coast of North America. W. A. Ross & Bro., New York.  
 29313. "Archil liquor," derived from Orchilla, and extensively used as a dye-stuff. West coast of North America. W. A. Ross & Bro., New York.



29314. "Cudbear." Product of a lichen (*Lecanora*), extensively applied as a dye-stuff. Western coast of North America. W. A. Ross & Bro., New York.

b. Algæ:

1. Having economical applications:

\* Available as food.

- Irish moss (*Chondrus crispus*, L.), affording gelatine. New England coast. Dr. W. G. Farlow.
- Western dulse (*Schizymenia edulis*, Ag.). West coast United States. Rev. E. Hall.
- Dulse (*Rhodymenia palmata*, Grev.), used for food. New England coast. Dr. W. G. Farlow.
- Laver (*Porphyra vulgaris*, Ag.), used for food. New England coast. Dr. W. G. Farlow.
- Badderlocks (*Alaria esculenta*, Grev.). Available for food. Cape Cod northward.

\*\* Employed in the manufacture of fertilizers, iodine and bromine, or "artificial staghorn" (*Laminaria*) articles.

- Rockweed (*Fucus vesiculosus*, L. & C.). New England coast. Dr. W. G. Farlow.
  - Bull-head kelp (*Nereocystis Lütkeana*, P. & M.). Stems made by Indians into fishing-lines. Northwest coast of America. W. H. Dall.
  - Specimens of lines made of this material. [See ethnological and fishing-implement series.]
29373. Devil's apron (*Laminaria digitata*), dried stems for making "tents." Newfoundland. Dr. E. R. Squibb.
- 29373a. "Sponge tents" used in surgery, made from dried *Laminaria* stems.
- 29373b. Paper-knife, made of "artificial staghorn" or dried *Laminaria* (*longicurvus*), by J. H. Batchelder, Cambridge, Mass.

2. Ornamental algæ:

The following series, prepared by Dr. W. G. Farlow, comprises specimens collected by Mr. F. W. Hooper and Dr. Palmer, at Key West; by Dr. Farlow on the New England coast; by Prof. D. C. Eaton from various sources; by A. R. Young, at New York; Mrs. A. S. Davis, at Cape Ann; Mrs. Beebe, at Gloucester, Mass.; Mrs. B. D. Halstead, at Swampscott; Mr. H. Averill, at New York; Dr. L. R. Gibbes, in South Carolina; Miss M. A. Booth, at Orient, L. I.; and from California and Oregon by Dr. C. L. Anderson, Capt. I. Stratton, Rev. E. Hall, Mr. H. Hemphill, D. Cleveland, and Mr. W. H. Dall:

- AMANSIA MULTIFIDA, Linn. Key West.
- DASYA GIBBESII, Harv. Key West.
- DASYA ELEGANS, Ag. *Chenille*. Cape Cod.
- DASYA RAMOSISSIMA, Harv. Key West.
- DASYA HARVEYI, Ashmead. Key West.
- DASYA MOLLIS, Harv. Key West.
- DASYA MUCRONATA, Harv. Key West.
- DASYA WURDEMANNI, Bailey. Key West.
- DASYA CALLITHAMNION, Harv. San Diego.

- DASYA TUMANOWICZI, Gatty. Key West.  
 DASYA LOPHOCLADOS, Mont. Key West.  
 DASYA PLUMOSA, Bail. and Harv. Santa Cruz, Cal.  
 BOSTRYCHIA MONTAGNEI, Harv. Key West.  
 BOSTRYCHIA CALAMISTATA, Mont. Key West.  
 BOSTRYCHIA MORITZIANA, Mont. Florida.  
 POLYSIPHONIA URCEOLATA, Grev. Nahant, Mass. Var. *formosa*, New Eng-  
 land.  
 POLYSIPHONIA HAVANENSIS, Mont. Var. *Binucyi*, Ag. Key West.  
 POLYSIPHONIA FERULACEA, Ag. Key West.  
 POLYSIPHONIA OLNEYI, Harv. Dough-balls. Long Island Sound.  
 POLYSIPHONIA HARVEYI, Bail. Nigger-hair. Wood's Holl, Mass.  
 POLYSIPHONIA ELONGATA, Grev. Lobster-claws. Gay Head, Mass.  
 POLYSIPHONIA VIOLACEA, Grev. Wood's Holl, Mass.  
 POLYSIPHONIA FIBRILLOSA, Grev. Wood's Holl, Mass.  
 POLYSIPHONIA VARIEGATA, Ag. Wood's Holl, Mass.  
 POLYSIPHONIA PENNATA, Ag. California.  
 POLYSIPHONIA PARASITICA, Grev. California. Var. *dendroidea*, Ag., Cali-  
 fornia.  
 POLYSIPHONIA BAILEYI, Ag. Pacific coast.  
 POLYSIPHONIA PECTEN-VENERIS, Harv. Florida.  
 POLYSIPHONIA ATRORUBESCENS, Grev. Wood's Holl, Mass.  
 POLYSIPHONIA BIPINNATA, Post. and Rupr. West coast.  
 POLYSIPHONIA WOODII, Harv. West coast.  
 POLYSIPHONIA NIGRESCENS, Grev.  
 POLYSIPHONIA FASTIGIATA, Grev. Nahant, Mass.  
 ODONTHALIA ALEUTICA, Ag. Oregon.  
 ODONTHALIA LYALLII, Harv. Necah Bay, W. T.  
 RHODOMELA LARIX, Ag. California.  
 RHODOMELA FLOCCOSA, Ag. Aleutian Islands.  
 RHODOMELA SUBFUSCA, Ag. Gloucester, Mass. Var. *gracilis*, same limits.  
 Var. *Rochei*, Long Island Sound.  
 DIGENIA SIMPLEX, Ag. Key West.  
 BRYOTHAMNION TRIANGULARE, Ag. Key West.  
 BRYOTHAMNION SEAFORTHII, Ag. Florida.  
 ALSIDIUM BLODGETTII, Harv. Key West, Fla.  
 ACANTHOPHORA THERII, Lamx. Florida to Brazil; Pacific Ocean.  
 ACANTHOPHORA MUSCOIDES, Ag. Florida.  
 CHONDRIA DASYPHYLLA, Ag. Cape Cod.  
 CHONDRIA STRIOLATA, Ag. (*C. Baileyana*, Mont.) Cape Cod.  
 CHONDRIA TENUISSIMA, Ag. Wood's Holl, Mass.  
 CHONDRIA LITTORALIS, Harv. Wood's Holl, Mass.  
 CHONDRIA ATROPURPUREA, Harv. Key West, Fla.  
 LAURENCIA PINNATIFIDA, Lamx. Pepper-dulse. California.  
 LAURENCIA VIRGATA, Ag. California.  
 LAURENCIA OBTUSA, Lamx. Florida.  
 LAURENCIA IMPLICATA, Ag. Key West.  
 LAURENCIA CERVICORNIS, Harv. Key West: San Diego, Cal.  
 LAURENCIA GEMMIFERA, Harv. Florida.  
 LAURENCIA PAPILLOSA, Grev. Florida.  
 LAURENCIA PANICULATA, Ag. San Diego, Cal.  
 CHYLOCLADIA OVALIS, Hook. (*Lomentaria*, Endl.) California.  
 GRINNELLIA AMERICANA, Harv. Wood's Holl, Mass.  
 DELESSERIA SINUOSA, Lamx. Gloucester, Mass.  
 DELESSERIA QUERCIFOLIA, Bory. California.

- DELESSERIA ALATA, Linn. Gloucester, Mass.  
 DELESSERIA HYPOGLOSSUM, Linn. Chleston, S. C.  
 DELESSERIA TENUIFOLIA, Harv. Key West.  
 DELESSERIA INVOLVENS, Harv. Key West.  
 DELESSERIA LEPRIEURII, Mont. New York.  
 DELESSERIA DECIPIENS, Ag. West coast. Neeah Bay, W. T.  
 NITOPHYLLUM PUNCTATUM, var. *ocellatum*, Grev. Key West.  
 NITOPHYLLUM SPECTABILE, Eaton, mss. California.  
 NITOPHYLLUM LACERATUM, Grev. California.  
 NITOPHYLLUM LATISSIMUM, Ag. California.  
 NITOPHYLLUM AREOLATUM, Eaton, mss. California.  
 NITOPHYLLUM (NEUROGLOSSUM) ANDERSONII, Ag. California.  
 NITOPHYLLUM RUPRECHTIANUM, Ag. West coast.  
 CALLIBLEPHARIS CILIATA, Kütz. Cape Ann, Mass.  
 GRACILARIA MULTIPARTITA, Ag. Var. *angustissima*, Harv. New York.  
 GRACILARIA CERVICORNIS, Ag. Key West.  
 GRACILARIA CONFEROIDES, Grev. Florida; California.  
 GRACILARIA ARMATA, Ag. Key West.  
 CORALLINA OFFICINALIS, L. Cape Ann.  
 CORALLINA SQUAMATA, Ellis and Sol. San Diego, California.  
 JANIA RUBENS, Linn. San Diego, California.  
 JANIA CAPILLACEA, Harv. Key West.  
 AMPHIROA FRAGILISSIMA, Linn. Florida.  
 AMPHIROA NODULOSA, Kütz. Florida.  
 AMPHIROA DEBILIS, Kütz. Florida.  
 AMPHIROA CALIFORNICA, DeCaisne. West coast.  
 MELOBESIA FARINOSA, Linn. East coast.  
 MELOBESIA PUSTULATA, Linn. Wood's Holl, Mass.  
 LITHOTHAMNION POLYMORPHUM, Aresch. Eastport, Me.  
 HILDENBRANDTIA ROSEA, Kütz. Eastport, Me.  
 GELIDIUM CORNEUM, Linn. Florida; New Haven, Conn.  
 GELIDIUM CARTILAGINEUM, Grev. San Diego, Cal.  
 GELIDIUM COULTERI, Harv. California.  
 WURDEMANNIA SETACEA, Harv. Key West.  
 EUCHEUMA ISIFORME, Ag. Key West.  
 EUCHEUMA? ACANTHOCLADUM, Ag. (*Chrysymenia*, Harv.). Key West.  
 HYPNEA MUSCIFORMIS, Linn. Wood's Holl, Mass.  
 HYPNEA CORNUTA, Ag. Key West.  
 RHODYMENIA PALMATA, Grev. *Common dulce*. Swampscott, Mass.  
 RHODYMENIA PALMETTA, Grev. California.  
 RHODYMENIA CORALLINA, Grev. California.  
 EUTHORA CRISTATA, Ag. Gloucester, Mass.  
 PLOCAMUM COCCINEUM, Lyngb. Var. *flexuosum*. West coast.  
 STENOGRAMMA INTERRUPTA, Mont. California.  
 PIKEA CALIFORNICA, Harv. California.  
 CHAMPIA PARVULA, Harv. Noank, Conn.  
 LOMENTARIA BAILEYANA, Farlow (*Chylocladia*, Harv.). New York Bay.  
 LOMENTARIA ROSEA, Thuret. Gay Head, Mass.  
 RHABDONIA TENERA, Ag. (*Solieria chordalis*, Harv.) Wood's Holl, Mass.  
 RHABDONIA COULTERI, Harv. California.  
 CORDYLOCLADIA CONFERTA, Ag. San Diego, Cal.  
 POLYDUS ROTUNDUS, Ag. Cape Ann, Mass.  
 PEYSSONNELIA ATRO-PURPUREA, Cronan?. Key West.  
 NEMALION MULTIFIDUM, Ag. Watch Hill, R. I.  
 SCINAIA FURCELLATA, Bivon. Gay Head, Mass.

- LIAGORA VALIDA, HARV. Florida.  
 LIAGORA PENNATA, HARV. Florida.  
 LIAGORA PULVERULENTA, Ag. Key West.  
 WRANGELLA PENICILLATA, Ag. Key West.  
 PHYLLOPHORA BRODLEI, Ag. Long Island Sound.  
 PHYLLOPHORA MEMBRANIFOLIA, Ag. Long Island Sound.  
 GYMNOGONGRUS NORVEGICUS, Ag. (inc. *G. Torreyi*, Ag.). Peak's Island, Me.  
 GYMNOGONGRUS TENUIS, Ag. California.  
 GYMNOGONGRUS GRIFFITHIÆ, Ag. California.  
 GYMNOGONGRUS LINEARIS, Ag. California.  
 AHNFELTIA GIGARTINOIDES, Ag. West coast.  
 AHNFELTIA PPLICATA, FR. Cape Ann, Mass.  
 CYSTOCLONIUM PURPURASCENS, Kütz. Block Island, New York.  
 CALLOPHYLLIS VARIEGATA, Ag. California.  
 CALLOPHYLLIS OBTUSIFOLIA, Ag. San Diego, Cal.  
 CALLOPHYLLIS DISCIGERA, Ag. California.  
 GIGARTINA ACICULARIS, Lmx. Florida.  
 GIGARTINA CANALICULATA, HARV. West coast.  
 GIGARTINA MAMILLOSA, Ag. Portland, Me.; Santa Cruz, Cal.  
 GIGARTINA MICROPHYLLA, HARV., and var. *horrida*. California.  
 GIGARTINA RADULA, Ag. West coast.  
 CHONDRUS CRISPUS, Lyngb. *Irish moss*. Cape Ann, Mass. Very common.  
 CHONDRUS AFFINIS, HARV. California.  
 IRIDEA LAMNARIOIDES, Bory. (including *Iridaea minor* and *Iridaea dichotoma*).  
 West coast.  
 ENDOCLADIA MURICATA, Ag. West coast.  
 CRYPTONEMIA CRENULATA, Ag. Key West.  
 CHRYSYMENTIA HALYMENIOIDES, HARV. Key West.  
 CHRYSYMENTIA UVARIA, Ag. Key West.  
 HALYMENIA LIGULATA, Ag. Var. *Californica*; Santa Cruz, Cal.  
 HALYMENIA FLORESIA, Ag. Key West.  
 PRIONITIS LANCEOLATA, HARV. West coast.  
 PRIONITIS ANDERSONII, Eaton, mss. Santa Cruz, Cal.  
 SCHIZYMENTIA EDULIS, Ag. Oregon.  
 SCHIZYMENTIA? COCCINEA, HARV. Santa Cruz, Cal.  
 GRATELOUPIA GIBBESII, HARV. Charleston, S. C.  
 GRATELOUPIA CUTLERIÆ, Kütz. California.  
 GRATELOUPIA FILICINA, Ag. Florida.  
 HALOSACCION HYDROPHORA, Ag. West coast.  
 HALOSACCION FUGICOLA, Post. and Rupr. West coast.  
 HALOSACCION RAMENTACEUM, Ag. Eastport, Me.  
 SPYRIDIA ACULEATA, Kütz. Florida.  
 SPYRIDIA FILAMENTOSA, HARV. Wood's Holl, Mass.  
 MICROCLADIA COULTERI, HARV. West coast.  
 MICROCLADIA CALIFORNICA, FARLOW. California.  
 MICROCLADIA BOREALIS, Rupr. West coast.  
 CENTRO CERAS CLAVULATUM, Ag. Key West.  
 CENTRO CERAS EATONIANUM, FARLOW. West coast.  
 CERAMIMUM NITENS, Ag. Key West.  
 CERAMIMUM RUBRUM, Ag. East coast.  
 CERAMIMUM DES-LONGCHAMPSII, Ch. Eastport, Me.  
 CERAMIMUM DIAPHANUM, Roth. California.  
 CERAMIMUM STRICTUM, HARV. New England.  
 CERAMIMUM YOUNGII, FARLOW, mss. Canarsie, L. I.  
 CERAMIMUM TENUISSIMUM, Lyngb. Key West.

- CERAMIVM FASTIGIATUM, Harv. Southern New England.  
 CERAMIVM ———. Key West.  
 Ptilota DENSA, Ag. California.  
 Ptilota HYPNOIDES, Harv. California.  
 Ptilota PLUMOSA, Ag. Var. *filicina*, west coast. Var. *serrata*. Eastport, Me., and Neeah Bay, W. T.  
 Ptilota ELEGANS, Bonnem. New York.  
 GLOIOSIPHONIA CAPILLARIS, Carm. Cape Ann, Mass.  
 CROUANIA ATTENUATA, J. Ag. Key West.  
 GRIFFITHSIA BORNETTIANA, Farl. Wood's Holl, Mass.  
 CALLITHAMNION TETRAGONUM, Ag. Orient, L. I.  
 CALLITHAMNION BAILEYI, Harv. New York.  
 CALLITHAMNION PTHLOPHORA, Eaton, mss. California.  
 CALLITHAMNION BORRERI, Ag. New Haven, Conn.  
 CALLITHAMNION BYSSOIDEUM, Afb. Long Island Sound.  
 CALLITHAMNION CORYMBOSUM, Ag. Beverly, Mass.  
 CALLITHAMNION VERSICOLOR, Ag., var. *scirospermum*, Harv. New York.  
 CALLITHAMNION PLUMULA, Lyngb. Gay Head, Mass.  
 CALLITHAMNION HETEROMORPHUM, Ag., mss. California.  
 CALLITHAMNION AMERICANUM, Harv. New York.  
 CALLITHAMNION PYLAISÆI, Mont. Gloucester, Mass.  
 CALLITHAMNION FLOCCOSUM, Ag. Var. *pacificum*, Harv. Neeah, Bay, W. T.  
 CALLITHAMNION CRUCIATUM, Ag. New York.  
 CALLITHAMNION LEJOLISIA, Farlow, mss. San Diego, Cal.  
 CALLITHAMNION TURNERI, Ag. New York.  
 CALLITHAMNION ROTHII, Lyngb. New England coast.  
 CALLITHAMNION ROSEUM, Lyng. New York.  
 PORPHYRA VULGARIS, Ag. *Laver*. East coast.  
 BANGIA FUSCOPURPUREA, Lyngb. East coast.  
 CHANTRANSIA EFFLORESCENS, Thurf. Gay Head, Mass.  
 CHANTRANSIA VIRGATULA, Thurf. Portland, Me.  
 ERYTHROTRICHIA CERAMICOLA, Aresch. Cape Ann, Mass.  
 PADINA PAVONIA, Linn. *Peacock's-tail*. Key West, Fla.  
 ZONARIA LOBATA, Ag. Key West.  
 ZONARIA FLAVA, Ag. San Diego, Cal.  
 TAONIA SCHREDERI, Ag. Florida.  
 DICTYOTA FASCIOLA, Linn. Florida; Mediterranean Sea.  
 DICTYOTA DICHOTOMA, D. C. Charleston.  
 DICTYOTA CILIATA, Ag. Key West.  
 DICTYOTA KUNTZII, Ag. San Diego, Cal.  
 DICTYOTA ACUTILOBA, Ag. Key West.  
 SARGASSUM VULGARE, Ag. Atlantic Ocean.  
 SARGASSUM BACCIFERUM, Ag. *Gulf-weed*. Gulf Stream.  
 SARGASSUM DENTIFOLIUM, Ag. Key West.  
 SARGASSUM AGARDIANUM, Farlow, mss. San Diego, Cal.  
 TURBINARIA VULGARIS, Ag. Key West.  
 FUCUS FASTIGIATUS, Ag. West coast.  
 FUCUS DISTICHUS, L. (*F. filiformis*, Gm.). Swampscott, Mass.  
 FUCUS FURCATUS, Ag. Marblehead, Mass.  
 FUCUS VESICULOSUS, L. *Rock-weed*. Swampscott, Mass.  
 FUCUS SERRATUS, L. Nova Scotia.  
 NEREOCYSTIS LÜTKEANA, Post. and Rupr. *Great bladder-weed*. Monterey, Cal., and northward.  
 ALARIA ESCULENTA, Grev. *Badderlocks*. *Hemware*. Cape Cod.

- LAMINARIA SACCHARINA, Lamx. *Devil's apron*; *Kelp*. New York, northward; west coast; Europe; Japan?
- LAMINARIA LONGICRURIS, De la Pyl. *Devil's apron*; *Kelp*. New England.
- LAMINARIA FLEXICAULIS, Le Jolis. *Devil's apron*; *Kelp*. New England.
- AGARUM TURNERI, Post. and Rupr. *Sea-colander*. Nahant, Mass.
- STILOPHORA RHIZODES, Ag. Vineyard Sound.
- ASPEROCOCCUS SINUOSUS, Bory. Key West.
- ASPEROCOCCUS ECHINATUS, Grev. New England coast.
- HYDROCLATHRUS CANCELATUS, Bory. Noank, Conn.
- RALEPSIA VERRUCOSA, Aresch. Nahant, Mass.
- CHORDA FILUM, Stack. New York.
- CHORDARIA FLAGELLIFORMIS, Ag. Eastport, Me.
- CHORDARIA ABIEUTINA, Rupr. Santa Cruz, Cal.
- CHORDARIA DIVARICATA, Ag. Gloucester, Mass.
- CASTAGNEA VIBESCENS, Thuret. Wood's Holl, Mass.
- LEATHESIA TUBERIFORMIS, Gray. Watch Hill, R. I.
- ELACHISTA FUCICOLA, Fr. New England.
- MYRIONEMA STRANGULANS, Grev. Wood's Holl, Mass.
- MYRIONEMA LECLANCHIERII, Harv. Gloucester, Mass.
- CLADOSTEPHUS SPONGIOSUS, Ag. Newport, R. I.
- CLADOSTEPHUS VERTICILLATUS, Ag. Gay Head, Mass.
- SPHACELARIA FUSCA, Ag. On *Amphiroa Californica*, San Diego, Cal.
- SPHACELARIA RADICANS, Ag. New England.
- ECTOCARPUS FIRMUS, Ag. (*E. littoralis*, Harv.). New England.
- ECTOCARPUS FARLOWII, Thuret. Peak's Island, Me.
- ECTOCARPUS SILICULOSUS, Lyngb. Charleston, S. C.
- ECTOCARPUS VIRIDIS, Harv. Orient, L. I.
- ECTOCARPUS FASCICULATUS, Harv. New England coast.
- ECTOCARPUS GRANULOSUS, Ag. Santa Cruz, Cal.
- ECTOCARPUS HOOPERI, Harv. Greenport, L. I.
- DESMARESTIA ACULEATA, Lamx. Eastport, Me.
- DESMARESTIA VIRIDIS, Lamx. New York.
- DESMARESTIA LIGULATA, Lamx. Monterey, Cal.
- PUNCTARIA LATHFOLIA, Grev., and var. *zosteræ*, Le Jolis. Eastport, Me.
- PUNCTARIA PLANTAGINEA, Grev. New England.
- PHYLLITIS FASCIA, Ktz. Eastport, Me.
- SCYTOSIPHON LOMENTARIUS, Ag. Eastport, Me.
- CAULERPA PROLIFERA, Lamx. Florida.
- CAULERPA CRASSIFOLIA, Ag., var. *Mexicana*. Florida.
- CAULERPA PLUMARIS, Ag. Florida.
- CAULERPA ASHMEADII, Harv. Key West.
- CAULERPA ERICIFOLIA, Ag. Florida.
- CAULERPA CUPRESSOIDES, Ag. Key West.
- CAULERPA LANUGINOSA, Ag. Key West.
- CAULERPA PASPALOIDES, Bory. Florida.
- CAULERPA CLAVIFERA, Ag. Florida.
- HALIMEDA OPUNTJA, Lamx. Florida.
- HALIMEDA TUNA, Lamx. Florida.
- HALIMEDA TRIDENS, Lamx. Key West.
- UDOPEA ELABELATA, Lamx. Key West.
- UDOPEA CONGLUTINATA, Lamx. Key West.
- CODIUM TOMENTOSUM, Stack. Florida; var. *damacornis*. West coast.
- CHLORODESMIS? Key West.
- BRYOPSIS PLUMOSA, Lamx. Eastern coast.
- BRYOPSIS HYPNOPSIS, Lamx. Key West.

- VAUCHERIA PILOBOLOIDES, Thuret. Wood's Holl, Mass.  
 DASYCLADUS OCCIDENTALIS, Harv. Florida.  
 DASYCLADUS CLAVIFORMIS, Ag. Key West.  
 ACETABULARIA CRENULATA, Linn. Florida.  
 CYMOPOLIA BARBATA, Linn. Key West.  
 CHAMÉDORIS ANNULATA, Mont. Key West.  
 PENICILLUS DUMETOSUS, Dne. Florida; West Indies.  
 PENICILLUS CAPITATUS, Linn. *Mermaid's shaving-brush*. Florida.  
 BLODGETTIA? CONFEROIDES, Harv. Key West.  
 ANADYOMENE FLABELLATA, Linn. Key West.  
 DICTYOSPIRERIA FAVULOSA, Dne. Key West.  
 ASCOTHAMNION INTRICATUM, Kütz. Key West.  
 ENTEROMORPHIA INTESTINALIS, Link. New England.  
 ENTEROMORPHIA COMPRESSA, Grev. New England.  
 ENTEROMORPHIA CLATHRATA, Grev. New England coast.  
 ULVA LATISSIMA, Linn. *Sea-lettuce*. New England coast.  
 ULVA FASCIATA, Delile. California.  
 CLADOPHORA MEMBRANACEA, Ag. Key West.  
 CLADOPHORA RUPESTRIS, L. Cape Ann, Mass.  
 CLADOPHORA ARCTA, Dillw. Cape Ann, Mass.  
 CLADOPHORA LANOSA, Roth. Orient. L. I.  
 CLADOPHORA UNCLIALIS, Fl. Dan. New England coast.  
 CLADOPHORA LETEVIRENS, Dillw. Key West, Fla.  
 CLADOPHORA FRACATA, Fl. Dan. Eastern coast.  
 CHLETOMORPHA PICQUOTIANA, Mont. Cape Ann, Mass.  
 CHLETOMORPHA MELAGONIUM, Web. and Mohr. Cape Ann, Mass.  
 CHLETOMORPHA SUTORIA, Berk. Stonington, Conn.  
 CHLETOMORPHA BRACHYGONA, Harv. Key West.  
 CHLETOMORPHA TORTUOSA, Dillw. Eastport, Me.  
 HORMOTRICHUM YOUNGANUM, Dillw. New England coast.  
 LYNGBYA MAJUSCULA, Harv. Cape Cod.  
 LYNGBYA FERRUGINEA, Ag. New England coast.  
 LYNGBYA KÜTZUNGIANA, Thur. Eastern coast.  
 CALOTHRIX CONFERVICOLA, Ag. East coast.  
 CALOTHRIX SCOPULORUM, Ag. East coast.  
 SPHEROZYGA CARMICHAELII, Harv. Wood's Holl, Mass.  
 PETROCELIS CRUENTA, Ag. Eastport, Me.  
 SPIRULINA TENUISSIMA, Kütz. Eastport, Me.  
 CHNOOSPORA FASTIGIATA, Ag. San Diego, Cal.  
 HORMACTIS FARLOWI, Bornet. East coast.

### Inorganic materials:

- . Scouring-sand. Impure silex for domestic use. Alameda, Cal. H. Hemphill.  
 —. Glassmaker's-sand. Pure silex. Isle of Shoals, N. H.

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.

The following review of the character and commercial values of animal products used or produced in the United States is intended to supplement and explain in part the preceding "Catalogue of the collection illustrating the animal resources of the United States," made under the direction of the United States National Museum for the International Exhibition of 1876. The statistics have been arranged with a view to a concise exhibition of the extent and location of the trade in all substances of animal origin. The classification is uniform with that employed in the catalogue.

An attempt is made to show—

1. The amount of imports, the countries from which the products are imported, and the ports through which the import entries are chiefly made.

2. The domestic consumption of foreign products. The table of imports entered into consumption is more detailed than any of the others, and from this have been taken many statements which were not elsewhere given, as, for instance, the amounts of coral, whalebone, chemicals, and specimens of natural history.

3. The exports of domestic products, the ports from which they were chiefly shipped, and the countries to which they are sent.

4. The statistics of foreign exports or of the exports of products not directly of domestic origin.

No account has been made of the indirect and transshipment trade.

LIVING ANIMALS.

The total value of living animals brought into the United States does not fall far below \$2,200,000.

The value of the miscellaneous importations of living animals is placed at \$1,648,465. Of this amount Quebec, Ontario, &c., supply \$1,452,457, and Mexico \$129,897 (no doubt chiefly sheep), Nova Scotia and New Brunswick send \$30,124, Germany \$13,262, British Columbia \$13,762, England \$6,184. The remainder comes from the British East Indies (\$1,389), Cuba (\$818), Brazil (\$133), Scotland, Honduras, Belgium, Chili, China, France, Guiana, Colombia, and Uruguay. The latter countries probably send chiefly animals for menageries and gardens.

Animals for breeding purposes are imported to the amount of \$419,170. The larger proportion (\$291,960) comes from the British Provinces



through the Lake ports. New York, with its extensive shipments from Europe, receives the next proportionate share (\$111,501), then San Francisco (\$4,708), Boston (\$3,029), Baltimore (\$2,113), Philadelphia (\$519), and New Orleans (\$200).

The teams of emigrants have the right of free entry. The yearly return of entries is placed at \$26,070. The greater proportion (\$23,520) appears to come from the British Provinces through the Lake ports.

The imports of birds are valued at \$109,879. Of this amount, \$71,989 comes to New York, and consists principally, no doubt, of singing birds. The Provinces send \$38,328, probably, for the most part, fowls.

Leeches are imported to the amount of \$4,227. All come through New York, except \$133 worth through New Orleans.

The following table, compiled from the "Statement showing quantities and values of foreign merchandise entered into consumption in the United States during the fiscal year ended June 30, 1877, &c." (No. 20, pp. 446-505), while it necessarily does not tally with the figures already given, is instructive, since it shows in fuller detail the numbers and character of the imports of foreign animals:

Description of animal.	Number.	Value.
Horses .....	9,240	\$602,513
Cattle .....	31,893	314,094
Sheep .....	282,432	674,883
Hogs .....	4,534	9,876
Animals for breeding purposes .....	5,370	416,476
Fowls, land and water .....		36,793
Birds .....		73,187
Leeches .....		4,288
Animals not elsewhere specified .....		27,737
Total .....		2,159,847

The domestic exports of living animals are valued at \$3,306,308, as shown in the following table:

Description of animal.	Number.	Value.
Horses .....	2,042	\$301,134
Mules .....	3,441	478,454
Horned cattle .....	50,001	1,593,080
Sheep .....	179,017	234,480
Hogs .....	65,107	699,189
Total .....		3,306,308

The largest number of horses is shipped from New York (727), next from Brazos de Santiago, Tex. (363), Minnesota (196), San Diego, Cal. (195), Corpus Christi, Tex. (82), Puget Sound, Washington (66), San Francisco (52), and Baltimore (53). The horses shipped from San Francisco are most valuable, being worth \$500 on an average; those from New York \$150; those from Texas \$40.

The principal exports of horses are to Mexico (603) chiefly from Texas, Quebec, Ontario, &c. (391), the British West Indies and Honduras (232), Cuba (157), and the French West Indies and French Guiana (129).

Mules are shipped in the largest numbers from New York (2,058), New Orleans, La. (1,036), Brazos de Santiago, Tex. (116), Saluria, Tex. (92), and Galveston, Tex. (90). They are sent chiefly to the British West Indies and Honduras (1,541), Cuba (1,018), the French West Indies and Guiana (252), the Central American States (210), British Guiana (218), and Mexico (134).

Horned cattle are shipped chiefly from Texas (20,396), Key West, Fla. (9,071), Minnesota (6,615), New York (4,863), Huron, Mich. (4,748), Boston (1,566), Philadelphia (700), Puget Sound, W. T. (611), Detroit, Mich. (543), and San Diego, Cal. (685). They are sent chiefly to Cuba (27,388), Quebec, Ontario, &c. (12,020), England (4,991), Liberia (2,809), and to the British West Indies and Honduras (1,741), the Bermudas taking a large share of the latter.

Sheep are sent principally from Texas (108,747), California (53,438), Washington Territory (9,484), and New York (4,744), and find their way mostly to Mexico (161,549), British Columbia (9,484), British West Indies, (2,299), England (2,692), and Quebec, &c. (4,003). It is sufficiently evident that Texas and California send to Mexico, Washington Territory to British Columbia, and New York and the Atlantic ports to England and the West Indies.

Hogs are exported largely from Detroit, Mich. (34,504), Huron, Mich. (28,508), and Minnesota (339); also, from Puget Sound, W. T., to the British Provinces. Key West, Fla., sends about 230 to Cuba, and Texas 348 to Mexico.

There is a foreign export of living animals to the value of \$22,970, chiefly to England (\$12,136) and the British West Indies (\$8,176). It is chiefly from New York (\$20,722).

#### FOOD PRODUCTS, EXCEPT FISH.

The import entries of food products are placed at \$721,452. New York is the chief receptacle of these imports (\$508,905), followed by the ports on the Canadian border (\$173,007), San Francisco (\$53,760), Philadelphia (\$32,111), New Orleans (\$7,400), Boston (\$5,253), and Key West, Fla. (\$2,336).

The receipts from Canada (\$143,191) correspond nearly to the amount given for the northern border ports, those from China (\$43,331) to the entries of San Francisco, and those from Cuba (\$2,846) to the entries of Florida. New York and Philadelphia receive nearly all the remainder, which is principally sent by Germany (\$325,693), England (\$65,164), France (\$63,419), Belgium (51,537), the Netherlands (\$40,145), Italy (\$11,957), and Mexico (\$2,679).

The total value of the import of honey is \$61,205, of which New York receives the principal share (\$34,693), then New Orleans (\$13,483) and Boston (\$8,019).

Sausages, sausage-skins, and Bologna sausages are imported to the

value of \$83,187, of which New York receives over \$80,000 and New Orleans over \$1,300.

Condensed eggs come only to New York, which imports to the value of \$2,529.

Milk comes to the Lake ports to the value of \$2,062.

The quantities of each article entered into consumption are shown in the following table:

Articles.	Amount.	Value.
Beef.....pounds..	213,909	\$15,540 92
Mutton.....pounds..		2,413 80
Pork.....pounds..	42,418	3,111 70
Venison.....pounds..		8,824 66
Poultry.....pounds..		33,022 94
Salted tongues.....pounds..		112 00
Tripe.....pounds..		116 00
Sausage-skins.....pounds..		55,928 00
Bologna sausages.....pounds..		28,948 40
Bacon and hams.....pounds..	73,773	14,193 35
Prepared meats, game, and poultry, sealed or unsealed, in cans or otherwise.....pounds..		28,289 80
Lard.....pounds..	12,524	1,166 74
Extract of meat.....pounds..		38,124 00
Eggs.....dozens..	5,048,900	617,643 59
Eggs, condensed.....dozens..		1,873 00
Eggs, yolk of.....dozens..		203 00
Milk, plain.....pounds..		2,614 65
Milk, condensed or preserved.....pounds..		2,798 00
Cheese.....pounds..	2,719,451	464,001 23
Butter.....do.....	82,131	17,231 00
Honey.....gallons..	27,017	16,473 50

The following tables show the imports of eggs by countries, and the corresponding entries by customs-districts.

Countries.	Eggs.		Countries.	Eggs.	
	Dozens.	Dollars.		Dozens.	Dollars.
China.....	126,800	8,716	British Columbia.....	100	6
Hong-Kong.....	3,066	183	British West Indies and British Honduras.....	300	69
Nova Scotia, New Brunswick, &c.....	948,703	109,823	Total.....	5,048,271	617,622
Quebec, Ontario, &c.....	3,969,302	498,825			

Districts.	Eggs.		Districts.	Eggs.	
	Dozens.	Dollars.		Dozens.	Dollars.
Aroostook, Me.....	5,000	750	Newport, R. I.....	753,817	86,815
Boston and Charlestown, Mass.....	639,932	75,665	Norfolk and Portsmouth, Va... ..	934,427	108,320
Buffalo Creek, N. Y.....	1,325,608	180,222	Oregon, Ore.....	45,347	4,818
Cape Vincent, N. Y.....	6,718	787	Pandico, N. C.....	321,567	35,489
Champlain, N. Y.....	144,891	19,504	Pensacola, Fla.....	300	69
Cuyahoga, Ohio.....	25,539	2,595	Philadelphia, Pa.....	1,044	133
Detroit, Mich.....	77,019	9,638	Plymouth, Mass.....	3,200	383
Eric, Pa.....	918	107	Portsmouth, N. H.....	100	6
Frenchman's Bay, Me.....	10,269	1,096	Puget Sound, Wash.....	1,045	117
Genesee, N. Y.....	4,372	464	Richmond, Va.....	90	10
Georgetown, D. C.....	979	124	Saco, Me.....	126,800	8,716
Key West, Fla.....	1,665	208	Savannah, Ga.....	612,296	81,751
Michigan, Mich.....	118	24	Superior, Mich.....	100	10
Mobile, Ala.....	150	18	Vermont, Vt.....	3,066	183
Newark, N. J.....	704	83	Total.....	5,048,271	617,622
New Bedford, Mass.....	704	83			
New Orleans, La.....	1,120	109			

The amount of domestic exports is shown in the following table:

Articles.	Amount.	Value.
Beef, fresh .....	49,210,990	\$1,552,523
Beef, salted .....	39,155,153	2,950,952
Mutton .....	349,368	36,480
Pork .....	69,671,894	6,296,411
Bacon and hams .....	460,057,196	49,512,412
Preserved meats .....		3,939,977
Lard .....	234,741,233	25,562,665
Eggs .....	32,591	8,429
Condensed milk .....		123,801
Cheese .....	197,361,666	12,709,627
Butter .....	21,527,242	4,424,616
Total.....		110,108,916

Fresh beef is shipped as follows:

Ports.	Amount.	Value.
New York .....	39,230,400	\$3,608,940
Philadelphia.....	9,896,260	933,249
Boston.....	81,000	10,000
Portland.....	3,330	334
Total.....	49,210,990	4,552,523

All the fresh beef goes to England and Scotland. The former receives 39,906,910 pounds, valued at \$3,614,779, and the latter 9,304,050 pounds, valued at \$937,744.<sup>1</sup>

Salted beef goes principally from New York, Philadelphia, Boston, Baltimore, San Francisco, Portland, and Brazos de Santiago, Tex., and is sent to almost every country, England (19,727,882 pounds), Scotland (5,887,774), the British West Indies (2,774,804), Germany (2,185,990), Nova Scotia and New Brunswick (1,297,662), and British Guiana (1,042,150) receiving the largest proportion.

Mutton goes from New York to England (219,928 pounds) and Scotland (129,440).

Pork goes chiefly from New York (39,239,234 pounds), Boston (10,763,062), Huron, Mich. (7,748,660), Baltimore (3,964,045), Philadelphia (2,144,761), and Portland (2,930,359) to England (19,793,191), the British North American Provinces (17,990,540), the British West Indian Provinces (9,867,490), Scotland (2,817,316), Porto Rico (2,923,975), Germany (1,251,166), and the Dutch West Indies (1,126,169), as well as to all other quarters of the globe.

Bacon and hams go chiefly from New York (253,481,617 pounds), Boston (112,656,704), Philadelphia (72,738,161), Portland (10,541,136), Baltimore (6,146,098), and Huron, Mich. (2,275,004), to England (322,016,729), Scotland (31,193,969), Belgium (30,816,038), Germany (23,715,093), France (23,167,236), Cuba (10,813,912), Sweden and Norway (5,278,228), Netherlands (4,412,709), the British Provinces (3,632,464), the British West

<sup>1</sup>The Journal of the Royal Agricultural Society of England (1877) states the import of fresh beef from New York and Philadelphia in the first four months of 1877 (22,812,128 pounds) to have exceeded the whole import of the preceding year (19,838,895 pounds).

Indies (1,241,484), Spain (1,004,849), and in smaller quantities to almost every other country.

Preserved meats go chiefly from New York (\$3,066,538), Galveston, Tex. (\$359,063), Boston (\$186,013), Oregon (\$115,321), and San Francisco (\$114,531) to England (\$2,189,688), Scotland (\$1,222,285), Germany (\$159,059), France (\$126,619), and the British West Indies (\$46,480).

Lard goes chiefly from New York (166,924,255 pounds), Boston (29,380,349), Philadelphia (11,682,146), Baltimore (11,672,057), Portland (7,744,890), and Huron, Mich. (5,425,731), to England (66,196,750), Scotland (58,038,751), Belgium (23,882,271), France (23,788,669), Cuba (21,665,367), Scotland (8,096,852), British Provinces (6,115,553), Netherlands (5,597,166), United States of Colombia (4,549,995), Brazil (4,267,310), Venezuela, Spanish Africa, Hayti, and numerous other countries.

Eggs go from New York (12,211 dozens), Washington Territory (8,971), and the Canadian boundary (9,359) to the British Provinces (18,895), England (4,200), and Porto Rico (9,021).

Condensed milk goes from New York (\$94,246), San Francisco (\$24,606), and Baltimore (\$1,325) to the British possessions in Australasia (\$37,509), England (\$30,727), Japan (\$12,984), British West Indies (\$8,592), China (\$8,196), Cuba (\$4,746), Brazil (\$2,495), British Columbia (\$2,465), Central America (\$1,754), and Hayti (\$1,248).

Cheese goes chiefly from New York (103,251,661 pounds), Philadelphia (1,456,868), Boston (1,172,522), and Huron, Mich. (1,116,320), to England (95,871,379), Scotland (1,100,099), and the English colonies, with small quantities to other countries.

Butter goes chiefly from New York (16,771,663 pounds), Boston (2,284,619), and Philadelphia (1,141,224) to England (10,504,640), Scotland (4,526,737), the British West Indies (1,277,945), Scotland (1,237,978), the British Provinces, Cuba, Porto Rico, Hayti, the Netherlands, Colombia, Venezuela, and the Danish West Indies.

The foreign exports of provisions amount to \$64,478, chiefly from New York to England, Cuba, Mexico, British Columbia, Central and South America.

## FISH.

The quantity of fish imported not subject to duty is shown in the following table. The total value is \$1,400,736.

Countries.	Fresh, of all kinds.		Herring, pickled.		Mackerel, pickled.		All other.
	Pounds.	Dollars.	Barrels.	Dollars.	Barrels.	Dollars.	
Nova Scotia, New Brunswick, &c .....	4,531,678	128,660	49,033	152,293	43,653	372,127	512,047
Quebec, Ontario, &c .....	2,570,023	94,780	2,218	13,242	13	133	27,387
British Columbia .....	1,270	58	.....	.....	.....	.....	.....
Newfoundland and Labrador .....	630,000	12,600	12,029	45,251	.....	.....	189
Hayti .....	.....	.....	.....	.....	.....	.....	592
Mexico .....	.....	.....	.....	.....	.....	.....	294
	7,735,981	236,998	63,280	210,786	43,666	372,260	510,300

The remainder of the import subject to duty is shown in the next table. The total value is \$1,054,718.

Countries.	Sardines and anchovies, preserved in oil or otherwise.		Herring, pickled.		Mackerel, pickled.		All other.
	Pounds.	Dollars.	Pounds.	Dollars.	Pounds.	Dollars.	
Belgium.....		20	167	2,368			16
China.....							47,089
Hong-Kong.....							761
France.....		685,164					911
French Possessions.....							4
Germany.....		5,266	4,726	61,676			7,098
England.....		77,317	98	1,277			7,129
Scotland.....			49	698			169
Nova Scotia, New Brunswick, &c.....			81	568	8	105	335
Quebec, Ontario, &c.....		6	24	35	6	43	19,691
British Columbia.....							2,439
British West Indies and British Honduras.....							5
Hawaii.....							35
Italy.....		969					176
Japan.....							175
Mexico.....							1,101
Netherlands.....		4,464	9,476	121,254			1,977
Spain.....		42					63
Cuba.....		83	2	22			1,356
Sweden and Norway.....			247	1,717			1,134
		773,331	14,873	189,615	14	148	91,654

The amounts of Canadian fish not liable to duty received in the various customs-districts are shown below:

Districts.	Fish, not of American fisheries.						
	Fresh, of all kinds.		Herring, pickled.		Mackerel, pickled.		All other, where specified.
	Pounds.	Dollars.	Barrels.	Dollars.	Barrels.	Dollars.	
Baltimore, Md.....	1,500	85	1,884	7,605	38	314	392
Boston and Charlestown, Mass.....	473,556	15,465	46,150	157,108	34,730	300,690	176,147
Buffalo Creek, N. Y.....	378,869	13,154	328	1,892			
Cape Vincent, N. Y.....	474,798	15,433					
Champlain, N. Y.....	191,633	14,338	84	524	11	133	1,405
Cuyahoga, Ohio.....	12,720	509					
Detroit, Mich.....	652,703	19,084					
Eric, Pa.....	5,400	227					
Genesee, N. Y.....	36,240	1,413					
Gloucester, Mass.....			1,010	2,010			12,199
Huron, Mich.....	46,813	1,234	1,418	8,054			735
Key West, Fla.....							258
Marchias, Me.....							116
Marblehead, Mass.....			6	12	4	15	99
Minnesota, Minn.....	200	10					
Newburyport, Mass.....							51
New York, N. Y.....	2,610,000	52,200	2,115	8,961	1,823	15,656	217,503
Niagara, N. Y.....	159,057	7,561					
Oswegatchie, N. Y.....	6,800	480					19
Oswego, N. Y.....	184,244	7,471					
Passaniquoddy, Me.....	1,331,353	63,844	6,726	9,885	4,974	44,031	55,320
Philadelphia, Pa.....							2,529
Portland and Falmouth, Me.....	747,579	9,676	2,661	11,163	1,480	11,405	87,721
Puget Sound, Wash.....	1,270	58					
Richmond, Va.....							24
Salem and Beverly, Mass.....			510	800	4	16	811
Sandusky, Ohio.....	212,510	3,545					
San Francisco, Cal.....							154
Savannah, Ga.....							70
Superior, Mich.....	118,614	2,459					820
Vermont, Vt.....	30,032	7,822	368	2,802			24,308
Waldoboro, Me.....							30
Williamette, Oreg.....							681
Total.....	7,735,981	236,098	63,280	210,786	43,066	372,290	581,592

The entries by customs-districts of fish not from Canada and dutiable are shown below:

Districts.	Fish, not of American fisheries.		Mackerel, pickled.		Sardines and anchovies preserved in oil.	All other, not elsewhere specified.
	Herring, pickled.		Barrels.	Dollars.		
	Barrels.	Dollars.			Barrels.	Dollars.
Baltimore, Md.	338	2,686			309	869
Boston and Charlestown, Mass.	2	28			43,130	99
Brazos de Santiago, Tex.	1	12			417	186
Buffalo Creek, N. Y.	21	21				2,952
Cape Vincent, N. Y.						5
ChAMPLAIN, N. Y.	1	6				5
Cuyahoga, Ohio						20
Detroit, Mich.						11,383
Galveston, Tex.					1,682	
Genesee, N. Y.						6
Huron, Mich.	3	8	6	43	2	5
Key West, Fla.					67	1,118
Michigan, Mich.						52
New Orleans, La.	45	770			65,188	4,554
New York, N. Y.	14,428	185,926			578,923	11,379
Niagara, N. Y.						4,464
Oswegatchie, N. Y.						52
Philadelphia, Pa.	34	158	8	105	1,475	1,083
San Diego, Cal.						864
Sandusky, Ohio						238
San Francisco, Cal.					82,134	51,085
Superior, Mich.					4	310
Vermont, Vt.						200
Willamette, Oreg.						796
Total	14,873	189,615	14	148	773,331	91,654

The next table shows the amount of fish entered into consumption:

Description.	Quantity.	Dollars.
Fish, the product of the sea-fisheries of the Dominion of Canada, Newfoundland, &c., under treaty of May 8, 1871, act of March 1, 1875, and not dutiable:		
Fresh, for immediate consumption	pounds.. 13,453,033	315,858 10
Herring, pickled	barrels.. 61,791.50	207,090 55
Herring, dried or smoked	boxes.. 316,570.50	39,459 42
Mackerel, pickled	barrels.. 44,169.50	373,792 38
Salmon, pickled	do.. 21,677	62,393 09
Salmon, dried or smoked	pounds.. 37,069	3,704 00
Shell-fish and turtles		1,727 55
Other fish, pickled	barrels.. 16,004.25	90,796 00
Other fish, dried or smoked	pounds.. 5,645,357	229,061 00
Prepared or preserved in cans, or otherwise than in oil		19,237 76
Fish, dutiable:		
Herrings, pickled or salted	barrels.. 14,907	190,431 00
Fish, in oil or preserved, except anchovies or sardines		15,996 00
Mackerel	barrels.. 81	105 00
Other fish, pickled	do.. 385½	2,458 00
Other fish, pickled	pounds.. 690,856	48,200 00
Fish prepared in cans		7,271 60
Pickled salmon	barrels.. ½	9 00
Sardines and anchovies, packed in oil or otherwise in tin boxes:		
Whole boxes, 5 × 4 × 3½ inches		2,538 00
Half boxes, 5 × 4 × 1½ inches	3,813	48,044 60
Quarter boxes, 4½ × 3½ × 1½	264,285	661,597 25
In any other form	7,985,401	11,018 25
		722,997 50
Oysters, dried		13,447 00

The following table shows the amount of domestic exports of fish:

Description.	Quantity.	Dollars.
Fish, fresh .....		\$114,228
Dried or smoked .....	pounds 15,964,800	791,785
Pickled .....	do. 76,227	486,738
Other cured .....	do. 231,711,233	25,562,695
Oysters .....		260,620
		27,456,236

The following table shows the amount of exports by districts:

Districts.	Fish, dried or smoked.		Fish, fresh.	Fish, pickled.		Fish, other cured.	Oysters.	
	Cwt..	Dollars.	Dollars.	Barrels.	Dollars.	Dollars.	Bush.	Dolls.
Alaska, Alaska .....	13	66		2	16	142		168
Baltimore, Md. ....	355	1,395		670	4,745	31,521		27,384
Bangor, Me. ....	4	20				1,046		
Bath, Me. ....				361	696			
Belfast, Me. ....	6	20	84	42	258	47		
Boston and Charlestown, Mass.	78,815	319,408	222	26,150	171,078	117,225		7,115
Brazos de Santiago, Tex.	31	362	143	3	31	242		593
Buffalo Creek, N. Y. ....								2,239
Cape Vincent, N. Y. ....						60		3,987
Champlain, N. Y. ....				100	1,000			14,443
Corpus Christi, Tex. ....	2	21						4
Cuyahoga, Ohio .....	1	15				17		50
Detroit, Mich. ....	312	1,260	2,671			5,921		4,858
Duluth, Minn. ....				1	7			
Galveston, Tex. ....						13		
Genesee, N. Y. ....		4						467
Gloucester, Mass. ....	90	200		11,338	54,016	391		
Huron, Mich. ....						2,431		468
Key West, Fla. ....			60,200			13,547		
Machias, Me. ....	98	187						
Minnesota, Minn. ....						1,861	1,921	867
New Bedford, Mass. ....	67	329						
Newburyport, Mass. ....	2,371	9,796						
New Haven, Conn. ....	27	78						
New Orleans, La. ....	36	195		9	68	2,193	39	10
New York, N. Y. ....	64,002	368,779		24,357	188,415	313,642		
Norfolk, Va. ....						19	164,552	10,287
Oregon, Oreg. ....				299	2,709	693,155	320	
Oswegatchie, N. Y. ....	12	72				2,582		
Oswego, N. Y. ....						500	24,914	
Passamaquoddy, Me. ....				2,312	6,000			
Pensacola, Fla. ....				9	18	16	1,049	792
Philadelphia, Pa. ....				333	2,415	191,442		
Plymouth, Mass. ....	1,500	6,000						
Portland, Me. ....	2,590	10,845		8,650	44,155	25,413	178	7
Providence, R. I. ....	557	1,942		2	19			
Puget Sound, Wash. ....						168	1,550	
Salmon and Beverly, Mass. ....	5,643	20,085	27	461	2,900	82	1,000	31,574
Saluria, Tex. ....				327	2,607	1,060,435		5
San Francisco, Cal. ....	448	3,149		51	211			
Savannah, Ga. ....	1	8	2					
Vermont, Vt. ....	2,667	17,609	51,589	118	621	9,255	6,169	
Willamette, Oreg. ....				632	4,693	7,719	200	
Total .....	159,648	791,785	111,338	76,227	486,738	2,486,225	260,620	45,661
Additions to Niagara and Vermont, taken from Canadian reports. ....	331	189,151					170,610	8,162
Grand total .....		980,936					431,230	53,823



The following table shows the amounts of domestic exports of fish by countries:

Countries.	Fish, dried or smoked.		Fish, fresh.	Fish, pickled.		Fish, other cured.	Oysters.
	Cwt.	Dollars.	Dollars.	Barrels.	Dollars.	Dollars.	Dollars.
Argentine Republic							812
Belgium				6	60	779	12
Brazil				50	541	309	1,841
Central American States	195	1,316		121	857	5,039	240
Chili							3,429
China	45	343					2,572
Denmark				2,312	6,000		
Danish West Indies	170	624		395	2,302	2,489	402
France							13,367
French West Indies and French Guiana	19,939	84,228	27	2,714	18,480	7,286	34
French Possessions in Africa and adjacent islands							612
French Possessions, all other	22	163		270	2,197	13,654	50
Germany	86	380		170	1,042	72,536	18,420
Great Britain: England	242	942		746	4,151	1,587,157	118,634
Scotland				1,030	4,700	5,544	2,657
Nova Scotia, New Brunswick, and Prince Edward Island	9,592	41,352		2,046	12,137	50	5,693
Quebec, Ontario, Rupert's Land, and the Northwest Territory	2,992	18,900	53,660	219	1,628	21,787	56,516
British Columbia	87	695		2	16	2,453	1,849
Newfoundland and Labrador	70	350				220	68
British West Indies and British Honduras	5,084	27,769	86	5,540	33,066	25,289	1,491
British Guiana	940	4,886	222	1,478	9,289	1,090	809
Hong-Kong	104	689				291,606	58
British Possessions in Africa	815	3,474		81	866		183
British Possessions in Australasia				626	4,652	207,463	33,143
Hawaiian Islands	90	644		926	7,352	17,701	2,992
Haiti	62,387	372,025		29,737	225,949	31,344	482
Italy	10	60					
Japan	55	406				2,523	43
Liberia	371	1,238		430	3,117	3,048	
Mexico	42	443	113	4	43	5,967	3,494
Netherlands	1	7		6	56		72
Dutch West Indies	24,994	77,818		2,102	11,416	3,435	437
Peru	72	315				14,315	
Portugal				1	10		20
Azore, Madeira, and Cape Verde Islands	611	3,295		13	141	360	
Portuguese Possessions in Africa and adjacent islands	22	90					66
Russia, Asiatic							27
San Domingo	3,490	19,503		2,112	16,534	6,757	14
Cuba	18,483	87,687	60,200	588	5,146	65,491	3,905
Porto Rico	5,729	24,077		1,258	8,137	8,112	145
Spanish Possessions in Africa and adjacent islands							384
Sweden and Norway	196	760		20,516	101,492	4,400	
United States of Colombia	1,997	12,142		715	5,232	13,980	224
Uruguay						1,117	2,157
Venezuela	710	5,160		13	129	7,256	1,381
All other islands and ports, not elsewhere specified	5	33				4,551	181
Total	159,648	791,785	114,138	76,227	486,738	2,486,225	200,620
Additions taken from Canadian reports		189,151					170,610
Grand total		980,936					431,230

One thousand nine hundred and three barrels of pickled herring, valued at \$9,088, passed through Boston to Sweden and Norway as a foreign export.

Miscellaneous fish to the value of \$32,120 goes as foreign export to England (\$22,098), Nova Scotia and New Brunswick (\$5,795), the French West Indies (\$3,932), Quebec, Ontario, &c. (\$215), and Australasia (\$80). Of this amount Boston sends the most (\$31,905) and Portland the remainder (\$215).

The following table shows the foreign exports of fish:

Countries.	Fish, not of American fisheries.			
	Herring, pickled.		Sardines and anchovies, preserved in oil.	All other, not elsewhere specified.
	Barrels.	Dollars.	Dollars.	Dollars.
Central American States .....			1,296	48
China .....				805
France .....			1,811	2,033
French Possessions, all other .....			659	7
Germany .....				636
Great Britain: England .....				33,956
Nova Scotia, New Brunswick, and Prince Edward Island .....			193	606
Quebec, Ontario, Manitoba, Rupert's Land, &c .....			16,930	
British Columbia .....			288	529
British West Indies and Honduras .....			187	
British Possessions: Hong-Kong .....				470
British Possessions in Australasia .....				4,333
Hawaiian Islands .....				95
Mexico .....	2	22	2,366	181
Peru .....				473
San Domingo .....			521	
Cuba .....			25	91,489
United States of Colombia .....			56	133
Venezuela .....			477	
Total .....	2	22	24,780	135,854

#### FURS.

The value of the import of undressed fur-skins is shown in the next table:

##### *Imports of fur-skins undressed.*

Argentine Republic .....	\$32,026
Belgium .....	2,082
China .....	77
France .....	2,696
French West Indies and French Guiana .....	204
Germany .....	2,044
England .....	359,351
Scotland .....	1,922
Nova Scotia, New Brunswick, &c .....	3,435
Quebec, Ontario, &c .....	789,591
British Columbia .....	162,558
Newfoundland and Labrador .....	72
British West Indies and British Honduras .....	270
British Possessions in Australasia .....	491
Japan .....	114,657
United States of Colombia .....	4,056
Uruguay .....	134
Total .....	1,561,666

The value of the imports of furs and dressed fur-skins is shown in the following table:

England .....	\$1,085,376
France .....	781,769
Germany .....	378,643
Quebec, Ontario, &c .....	76,694
Belgium .....	60,751
Sweden and Norway .....	8,252
Scotland .....	5,538
Netherlands .....	3,319
United States of Colombia .....	375
Carried forward .....	2,490,747

Brought forward.....	\$2,400,747
Nova Scotia, New Brunswick, &c.....	281
British Possessions in Australasia.....	239
Russia on the Baltic and White Seas.....	178
China.....	115
Spain.....	63
Newfoundland and Labrador.....	52
Austria.....	43
British West Indies and British Honduras.....	38
Hong-Kong.....	17
Cuba.....	14
Total.....	2,401,778

Furs are imported chiefly to New York (\$2,142,947), Philadelphia (\$93,713), Boston (\$72,625), Montana and Idaho (from the Hudson's Bay Territory, of course) (\$69,051), and San Francisco (\$11,874).

The value of fur-skins and furs entered into consumption is shown in the following table:

Fur-skins of all kinds, not dressed in any manner.....	\$1,544,893 89
Furs, and manufactures of:	
Dressed, on the skin.....	1,044,930 23
Dressed, partially on the skin.....	198 10
Dressed, not on the skin, hatters', and others.....	1,229,322 64
Hares', undressed, and not on the skin.....	8,178 00
Hats, caps, muffis, and tippets of fur, and all other manufactures of fur, or of which fur shall be the component of chief value.....	97,942 87
Total.....	3,925,467 73

Sheep and lamb skins tanned with the wool on are imported to the Lake ports to the amount of \$22,232.

The domestic export of furs amounts to \$3,836,579. The amount of this export, by customs-districts, and by countries, is shown in the following table:

Districts.	Furs and fur-skins.	Countries.	Furs and fur-skins.
	Dollars.		Dollars.
Alaska, Alaska.....	20,900	Belgium.....	605
Baltimore, Md.....	16,300	France.....	8,297
Boston and Charlestown, Mass.....	138,468	Germany.....	1,099,380
Champlain, N. Y.....	28,640	Great Britain: England.....	2,606,253
Detroit, Mich.....	829	Scotland.....	2,200
Duluth, Minn.....	16	Nova Scotia, New Brunswick, and Prince Edward Island.....	1,250
Huron, Mich.....	600	Quebec, Ontario, Rupert's Land, and the Northwest Territory.....	32,044
New York, N. Y.....	2,777,050	British Columbia.....	37,617
Niagara, N. Y.....	210	British Possessions in Australasia.....	200
Oswegatchie, N. Y.....	1,728	Japan.....	437
Philadelphia, Pa.....	757,986	Netherlands.....	200
Puget Sound, Wash.....	16,707	Venezuela.....	219
San Francisco, Cal.....	29,337	Total.....	3,788,802
Vermont, Vt.....	21	Additions taken from Canadian reports.....	47,777
Willamette, Oreg.....	10	Grand total.....	3,836,579
Total.....	3,788,802		
Additions to Niagara and Vermont, taken from Canadian reports.....	47,777		
Grand total.....	3,836,579		

Fur-skins, undressed, are sent as foreign exports to the amount of \$118,089: to England \$105,020, Germany \$9,214, France \$3,227, and

Hong-Kong \$625. All passes through New York, except the Hong-Kong shipment, which goes through San Francisco.

There is also a foreign export of furs to the value of \$52,199: to Quebec, &c., \$37,518, England \$8,025, Mexico \$2,667, France \$2,136, and Germany \$1,296. It passes almost entirely through New York.

#### WOOL.

The importation of unmanufactured wool amounts to 42,171,192 pounds, valued at \$7,156,944. The value of manufactures of wool (exclusive of hats) is \$25,601,922. The details of this importation are given below:



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The imports of adhesive felt are valued at \$28,273. This substance comes chiefly to New York and San Francisco. The import of roofing felt amounts to \$5,299.

The exports of wool and woolen manufactures, by customs-districts and countries, is shown below:

Districts.	Wool, and manufactures of.				
	Wool, raw and fleece.		Carpets.		Other man- ufactures of.
	Pounds.	Dollars.	Yards.	Dollars.	Dollars.
Alaska, Alaska					85
Baltimore, Md					5
Boston and Charlestown, Mass.	2,505	762			3,922
Brazos de Santiago, Tex.					3,456
Cape Vincent, N. Y.					365
Champlain, N. Y.	6,500	1,900	11,570	9,875	82,327
Corpus Christi, Tex.					2,625
Detroit, Mich.	2,175	870	120	462	190
Duluth, Minn.					455
Machias, Me.			100	125	225
Miami, Ohio.	58,219	18,293			
Newburyport, Mass.					1,981
Oregon, Oreg.	10,200	4,621	1,404	1,407	91,310
Portland, Me.					25,982
Richmond, Va.			4,345	3,475	6,982
Salem and Beverly, Mass.			2,480	829	19,255
San Diego, Cal.					6,293
Savannah, Ga.					924
Superior, Mich.			130	474	19,379
Waldoboro', Me.			30	30	8,135
Willamette, Oreg.					23
Wilmington, N. C.					1,241
Total	79,509	26,446	24,179	16,377	275,460
Additions to Niagara and Vermont, taken from Canadian reports		670,098			161,106
Grand total		696,454			436,566

Countries.	Wool, and manufactures of.				
	Wool, raw and fleece.		Carpets.		Other man- ufactures of.
	Pounds.	Dollars.	Yards.	Dollars.	Dollars.
Argentine Republic.					336
Brazil					1,063
Central American States					309
China					4,233
France					300
French West Indies and French Guiana					110
Miquelon, Langley, and St. Pierre Islands					950
French Possessions in Africa and ad- jacent islands					23
French Possessions, all other					1,297
Germany			50	75	24,510
Great Britain: England	10,200	4,621	4,345	3,475	51,214
Scotland					108
Nova Scotia, New Brunswick, and Prince Edward Island	2,505	762	2,480	829	45,950
Quebec, Ontario, Rupert's Land, and the Northwest Territory	66,894	21,063	15,120	10,492	93,978
British Columbia					15,897
Newfoundland and Labrador					64
British West Indies and British Honduras			495	495	2,297
British Guiana					1,297
Hong Kong					3,233
Hawaiian Islands					4,432
Haiti			25	25	199

Countries.	Wool, and manufactures of.				
	Wool, raw and fleece.		Carpets.		Other manu- factures of.
	Pounds.	Dollars.	Yards.	Dollars.	Dollars.
Italy .....					332
Japan .....			100	150	2,940
Liberia .....			138	121	
Mexico .....			55	60	11,469
Netherlands .....					170
Dutch West Indies .....					127
Portugal .....					275
Azore, Madeira, and Cape Verde Islands .....					1,214
Portuguese Possessions in Africa and adjacent islands .....					100
Cuba .....			10	21	2,225
United States of Colombia .....			85	96	1,153
Uruguay .....					1,040
Venezuela .....			676	538	1,404
All other islands and ports, not elsewhere specified .....					142
Total .....	79,599	26,446	23,479	16,377	275,460
Additions taken from Canadian reports .....		670,008			161,106
Grand total .....		696,454			436,566

The foreign export of woolen manufactures amounts to \$373,753, that of unmanufactured wool to \$472,519 (3,088,957 pounds), chiefly to Canada (\$445,134), France (\$23,835), and England (\$3,550).

## SILK.

The imports of raw silk are shown in the following table:

Silk, raw.	Pounds.	Dollars.
China .....	44,281	233,390
France .....	133,168	1,017,339
Germany .....	2,192	18,403
England .....	179,891	1,113,832
Italy .....	2,282	19,979
Japan .....	819,056	4,371,836
Hong-Kong .....	5,360	18,108
	1,186,170	6,732,937

Raw silk comes entirely to San Francisco (861,166 pounds), New York (324,328), and Philadelphia (676).

A foreign export of raw silk (38,515 pounds), valued at (\$209,709), goes to England (37,018 pounds), France (1,000), and Quebec. It passes chiefly through New York.

The import of manufactures of silk is shown below :

Countries.	Silk, manufactures of.		
	Dress and piece goods.	Hosiery.	Other manufactures of.
	Dollars.	Dollars.	Dollars.
Austria .....			9
Belgium .....	9,000	10	44,217
Brazil .....	11		
China .....	672		89,249
France .....	10,608,762	3,060	2,098,170
Germany .....	4,169,604	39,861	1,178,266
England .....	1,667,826	35,559	1,567,508
Scotland .....	9,247	450	5,973
Ireland .....			312
Nova Scotia, New Brunswick, &c. ....	77		57
Quebec, Ontario, &c. ....	610		2,273
British Columbia .....	6		160
British Guiana .....			237
British East Indies .....	82		889
Hong-Kong .....	37		4,518
British Possessions in Australasia .....			51
Hayti .....			69
Italy .....	329		411
Japan .....	174		8,925
Mexico .....	4		69
Netherlands .....	284,235		6,591
Russia on the Baltic and White Seas .....			541
Spain .....			127
Cuba .....	68		278
Porto Rico .....			24
Sweden and Norway .....			64
Turkey in Africa .....			359
United States of Colombia .....	82		10
Total .....	16,750,826	78,940	5,000,393

Almost the entire imports of this class come to New York.

The amount of silk and manufactures of silk entered into consumption is shown in the following table :

Description.	Amount.	Dollars.
Silk.		
Cocoons .....		992,633 00
Raw, or as reeled from the cocoons .....	1,186,245 pounds.	6,793,710 00
Waste .....		168,256 00
Worms' eggs .....		1,012,624 00
Manufactures of all kinds .....		16,239,655 79
Manufactures, such as velvet, of which silk is the component of chief value .....		5,510,178 87

The import of silk waste amounts to \$166,646. New York receives \$84,114; San Francisco, \$81,232.

The import of silk-worm eggs and cocoons amounts to \$1,235,283. San Francisco receives \$10,818,417; New York, \$216,836.

The foreign export of silk manufactures amounts to \$199,593.

#### IVORY.

The amount of ivory and manufactures of ivory entered into consumption is shown in the following table :

Ivory, manufactured .....	\$339,863
Ivory, manufactures of, not otherwise provided for .....	34,067
Ivory or bone dice, draughts, chess-men, chess-balls, and bagatelle-balls...	2,253
Total .....	376,166



The total import of ivory amounts to \$379,402. New York receives \$333,727, Boston \$21,938, Baltimore \$20,043, Philadelphia \$2,749, San Francisco \$965.

## HORN.

The total value of the importation of horns, horn-tips, and horn-strips is \$285,368, of which \$240,487 comes to New York, \$35,352 to Boston, \$4,720 to the Lake ports, and \$4,119 to Baltimore.

## WHALEBONE.

Unmanufactured whalebone entered into consumption to the amount of 1,880 pounds, valued at \$1,379. The consumption of manufactured whalebone is valued at \$851.

## SHELL.

Shells of every description, including, doubtless, both tortoise shell and shells of mollusks, entered into consumption, \$162,768.76.

## CORAL.

Unmanufactured coral entered into consumption to the amount of \$718.14; coral cut or unmanufactured to the amount of \$28,649.

## LEATHER.

The following table shows the amounts and values of leather and leather articles entered into consumption:

## Hides and skins:

Goat-skins, Angora, and sheep-skins, with the wool on (less the value of the wool) .....	\$7,419 15
Goat-skins, raw .....	3,181,072 40
All other hides, raw or uncured, whether dry, salted, or pickled; and skins, except sheep-skins, with the wool on .....	11,795,029 93
Leather, tanned, not manufactured .....	4,588,491 46
Manufactures of leather .....	3,449,979 76
Parchment .....	8,938 00
Preparations of viscera:	
Manufactures of bladders .....	106 00
Gold-beaters' molds and skins:	
Entered into consumption .....	14,236 00
Imported (this whole import comes to New York) .....	13,634 00
Sinews, nerves, &c., crude .....	3,798 00
Catgut and whiptgut unmanufactured, catgut strings and gut-cord for musical instruments, also gut and whiptgut for whip and other cords, entered into consumption .....	163,109 39

The total entry of catgut strings amounts to \$146,210. Of this, New York receives \$117,952, Baltimore \$12,218, San Francisco \$5,635, Boston \$5,111, New Orleans \$2,898, and Philadelphia \$1,644.

Wool pelts, less the value of the wool, are imported to the value of \$8,736. This import is entered entire at Boston.

## HIDES AND SKINS.

The following shows the value of importations of hides and skins:

Argentine Republic .....	\$2, 071, 161
Austria .....	26, 846
Belgium .....	513, 677
Brazil .....	1, 138, 819
Central American States .....	43, 716
Chili .....	10, 921
China .....	822
France .....	237, 777
French West Indies and French Guiana .....	3, 543
French Possessions in Africa .....	36, 595
All other French Possessions .....	1, 972
Germany .....	234, 153
England .....	1, 988, 186
Nova Scotio, New Brunswick, &c. ....	14, 303
Quebec, Ontario, &c .....	493, 530
British Columbia .....	23, 288
Newfoundland and Labrador .....	2, 327
British West Indies and Honduras .....	17, 577
British Guiana .....	808
British East Indies .....	1, 272, 617
British Possessions in Africa .....	154, 746
British Possessions in Australasia .....	627
All other .....	26, 364
Hawaii .....	50, 861
Haiti .....	7, 219
Italy .....	679
Japan .....	121
Mexico .....	1, 529, 702
Netherlands .....	126, 857
Dutch West Indies and Dutch Guiana .....	93, 778
Portugal .....	23, 467
Azores, Madeira, and Cape Verde Islands .....	48, 122
San Domingo .....	19, 977
Cuba .....	65, 783
Porto Rico .....	13, 826
Spanish Possessions elsewhere .....	14, 679
Turkey in Africa .....	562
United States of Colombia .....	1, 033, 079
Uruguay .....	1, 790, 057
Venezuela .....	703, 694
All unnumbered ports in Africa .....	126, 853
	14, 963, 701

The next table shows the ports at which hides and skins are entered by the importers:

Districts.	Hides and skins, other than furs.	Districts.	Hides and skins, other than furs.
Baltimore, Md .....	\$184, 422	Niagara, N. Y. ....	\$92, 891
Boston and Charlestown, Mass .....	3, 498, 294	Oswegatchie, N. Y. ....	80, 309
Brazos de Santiago, Tex .....	667, 139	Oswego, N. Y. ....	5, 829
Buffalo Creek, N. Y. ....	195, 482	Panlico, N. C. ....	238
Cape Vincent, N. Y. ....	22, 623	Paso del Norte, Tex. ....	9, 261
Champlain, N. Y. ....	7, 129	Pearl River, Miss. ....	471, 104
Chicago, Ill. ....	690	Plymouth, Mass. ....	9
Corpus Christi, Tex. ....	157, 135	Providence, R. I. ....	778
Detroit, Mich. ....	49, 019	Puget Sound, Wash. ....	25, 897
Landfield Corn. ....	251	Richmond, Va. ....	45
Galveston, Tex. ....	7, 559	San Francisco, Cal. ....	26
Gloucester, Mass. ....	80	Savannah, Ga. ....	86, 446
Huron, Mich. ....	11, 531	Superior, Mich. ....	191
Minnesota, Minn. ....	4, 365	Vermont, Vt. ....	68
New Bedford, Mass. ....	29, 065	Willamette, Oreg. ....	111, 979
Newburyport, Mass. ....	7, 337	Wilmington, N. C. ....	1, 025
New Haven, Conn. ....	87		
New Orleans, La. ....	66, 879	Total .....	14, 963, 701
New York, N. Y. ....	9, 326, 876		

The next table shows the importation of manufactured leather and articles made therefrom :

Countries.	Leather, and manufactures of.				
	Leather of all kinds.		Gloves of kid, and all other of skin or leather.		Other manufactures of.
	Pounds.	Dollars.	Doz. prs.	Dollars.	Dollars.
Austria .....	36	49	55	290	677
Belgium .....	5,374	7,007	6,377	41,024	492
Brazil .....	195	130			104
China .....	633	422			7,255
Danish West Indies .....	15	9			15
France .....	4,633,915	3,093,685	231,093	1,356,022	142,501
Germany .....	658,708	442,568	258,870	1,196,100	126,119
England .....	1,199,696	778,065	99,063	543,517	242,549
Scotland .....	382	255	47	319	722
Ireland .....					100
Nova Scotia, New Brunswick, &c. ....			2	9	1,088
Quebec, Ontario, &c. ....	583,873	82,854	12	105	10,948
British Columbia .....					755
British West Indies and British Honduras .....					5
British East Indies .....	354,143	176,193			759
British Possessions in Africa, &c. ....	12	15			50
British Possessions in Australasia .....	480	567			177
Hawaii .....					7
Hayti .....	1,821	1,214			
Italy .....	1,963	1,348	310	1,333	119
Japan .....					496
Mexico .....	2,785	1,284	16	93	1,242
Netherlands .....	1,533	1,022	1	11	
Azore, Madeira, and Cape Verde Islands .....					5
Russia on the Baltic and White Seas .....	400	465			427
Spain .....			16	97	23
Cuba .....	424	283			112
Sweden and Norway .....	60	62			80
Turkey in Africa .....					2
United States of Colombia .....	805	162			264
Uruguay .....	115	12			
Venezuela .....	55	42			31
Total .....	7,447,423	4,589,713	595,862	3,128,919	587,014

The exports of leather are as follows :

	Quantity.	Value.
Leather of all kinds, not elsewhere specified .....	pounds.. 25,122,936	\$2,480,427
Morocco and other fine leather .....		6,016,373
Boots and shoes .....	pairs.. 300,484	1,280,225
Saddlery and harness and other manufactures .....		414,630
Total .....		456,673
		10,647,728

The foreign exports of hides and skins amount to \$44,415. This export is made from New York and Boston to France (\$13,976), Nova Scotia and New Brunswick (\$12,068), England (\$10,668), and Germany (\$7,515). That of leather amounts to \$106,762 (382,765 pounds), chiefly to England and Canada; of leather gloves \$13,372 (2,286 dozen pairs), chiefly to Canada and France; and other manufactures, \$17,857, to British Columbia, Scotland, Mexico, England, Canada, and France.

The tables below show the amounts of exports by countries and by districts:

Countries.	Leather, and manufactures of.						
	Boots and shoes.		Leather of all kinds, not elsewhere specified.		Morocco, and other line.	Saddlery and harness.	Manufactures of, not elsewhere specified.
	Pairs.	Dollars.	Pounds.	Dollars.	Dollars.	Dollars.	Dollars.
Argentine Republic.....	144	255	850	246		388	1,419
Austria.....			192,523	40,525			1,113
Belgium.....			1,839,757	560,390	26,813	50	6,432
Brazil.....	2,938	3,238				394	565
Central American States.....	11,782	16,077				10,136	184
Chili.....						493	201
China.....	75	165	19,223	6,744		112	3,056
Danish West Indies.....	8,961	9,338	7,926	1,766	45	1,133	1,455
France.....			64,969	18,140	1,375	1,990	
French West Indies and French Guiana.....						367	
Miquelon, Langley, and St. Pierre Islands.....	1,357	2,403	4,474	1,079	95		
French Possessions in Africa and adjacent islands.....	192	204				576	416
French Possessions, all other.....	4,103	6,723	1,976	463		276	101,601
Germany.....	18,938	25,797	6,120,639	1,515,938	11,138	573	78,396
Great Britain: England.....	1,153	1,756	15,718,808	3,575,241	1,210,026	12	39,301
Scotland.....	1,104	4,910	184,751	45,312	3,240		152
Gibraltar.....							
Nova Scotia, New Brunswick, and Prince Edward Island.....	41,091	48,723	43,402	11,140	5,342	4,000	8,279
Quebec, Ontario, Rupert's Land, and the Northwest Territory.....	18,074	33,890	91,331	26,356	175	6,911	6,336
British Columbia.....	17,896	31,294	12,132	3,253		7,599	2,502
Newfoundland and Labrador.....	240	500	153,261	32,796	1,285		
British West Indies and British Honduras.....	56,093	66,633	28,399	7,740	2,139	3,316	5,302
British Guiana.....	370	462	32,416	8,992	1,125	105	692
Hong-Kong.....	78	179	8,630	2,152		149	977
British Possessions in Africa.....	472	1,313	5,719	4,430	522	96	1,217
British Possessions in Australasia.....	398	702	15,973	4,360	7,953	17,685	8,019
Hawaiian Islands.....	21,188	32,341	9,176	2,428		7,811	5,231
Haiti.....	12,165	13,670	250	127	688	1,097	453
Italy.....			3,310	1,100			
Japan.....	658	1,262	325,698	71,953		2,962	7,888
Liberia.....	2,453	4,584					144
Mexico.....	38,793	53,383	4,077	1,675	102	4,446	8,010
Netherlands.....	2,198	2,662	14,291	64,330	2,767		16,766
Dutch West Indies.....	4,473	4,799	16,668	4,253	20	873	1,824
Peru.....	546	948				750	993
Portugal.....							1,007
Azore, Madeira, and Cape Verde Islands.....	2,231	3,061	2,518	572	498		
East, Asiatic.....	1,327	2,642	3,100	800		487	513
San Domingo.....	7,712	8,962			181	324	1,033
Cuba.....	3,958	4,785	3,867	1,279	2,075	3,348	19,056
Porto Rico.....	550	622	280	112	378	1,790	949
Spanish Possessions in Africa and adjacent islands.....			519	170			264
Sweden and Norway.....			9,421	2,687			
Turkey in Europe.....							5,268
Turkey in Asia.....							80
United States of Colombia.....	15,625	24,914	2,155	608		9,227	2,519
Uruguay.....					771		
Venezuela.....	424	532	407	123	1,402	4,630	2,255
All other islands and ports, not elsewhere specified.....	744	898	100	93			
Total.....	900,481	114,680	25,122,936	6,016,373	1,280,225	94,085	361,988
Additions taken from Canadian reports.....		133,842					380,312
Grand total.....		548,472					742,300

Districts.	Leather, and manufactures of.						
	Boots and shoes.		Leather of all kinds, not elsewhere specified.		Moroceño, and other fine.	Saddlery and harness.	Manufactures of, not elsewhere specified.
	Pairs.	Dollars.	Pounds.	Dollars.	Dollars.	Dollars.	Dollars.
Alaska, Alaska			50	10			
Baltimore, Md	3,599	6,120	516,145	202,137	411	1,530	1,370
Bangor, Me	63	60					
Boston and Charlestown, Mass	25,585	33,433	3,312,403	666,173	1,119,981	5,040	26,821
Brazos de Santiago, Tex	25,823	32,218	125	27		1,233	153
Buffalo Creek, N. Y							2,319
Cape Vincent, N. Y	75	109					1,934
Champlain, N. Y	1,650	1,658	57,566	16,639		234	3,316
Corpus Christi, Tex	8,457	14,976	95	90		550	341
Cuyahoga, Ohio			70	21			215
Detroit, Mich	1,444	3,342				792	4,077
Duluth, Minn							29
Eric, Pa			60	16			
Genesee, N. Y	72	145	905	250		808	
Huron, Mich							662
Key West, Fla						65	
Machias, Me			50	8			44
Minnesota, Minn	3,286	4,708				4,739	
New Bedford, Mass			227	62			
New Haven, Conn			280	112			5,268
New London, Conn						375	56
New Orleans, La	4,288	4,068				170	232
New York, N. Y	129,857	267,856	19,026,309	4,499,578	159,506	44,305	274,390
Niagara, N. Y					175	60	140
Norfolk, Va							144
Oswegatchie, N. Y	3,755	3,013	5,065	1,535			4,628
Oswego, N. Y							32
Passamaquoddy, Me	26,828	30,021				2,418	5,192
Philadelphia, Pa	2,116	2,126	1,736,280	518,679	20	522	689
Portland, Me							895
Puget Sound, Wash	25	87				264	862
Sahria, Tex	3,119	4,279	30	15	102	140	24
San Francisco, Cal	49,515	80,915	445,571	103,103		30,248	24,851
Savannah, Ga	3,135	3,581	40	23			36
Vermont, Vt	7,792	20,915	27,665	7,895		368	3,268
Willamette, Oreg						314	
Total	300,484	414,630	25,122,936	6,016,373	1,280,225	94,085	361,988
Additions to Niagara and Vermont, taken from Canadian reports		133,842					380,312
Grand total		548,472					742,300

## HAIR.

The amounts of hair and manufactures of hair entered into consumption are shown in the following table:

Hair, and manufactures of.	Pounds.	Value.
Hair, unmanufactured:		
Human hair, cleaned or drawn		\$40,652
Human hair, not cleaned or drawn		41,627
Horse-hair, used for weaving, cleaned or uncleaned, drawn or undrawn	121,588	90,198
Horse-hair, all, and cattle-hair, cleaned or uncleaned, drawn or undrawn, unmanufactured	2,226,692	391,439
Cleaned hair, unmanufactured, not otherwise specified		54,501
Hogs' hair		15,057
Curled hair, other than hogs', for beds or mattresses		16
Hair, manufactured:		
Manufactures of human hair		14,825
Hair-cloth, and other manufactures not otherwise provided for		98,661
Hair bracelets, braids, chains, &c		1,481
Hair-pencils		3
Total		743,413

The imports of hair, by countries, are as shown below:

Countries.	Hair, and manufactures of.		Horse-hair for weaving.		Hair of all other kinds, not manufactured.	
	Hair, human, and manufactures of.	Hair, other, and manufactures of, not elsewhere specified.				
	Dollars.	Dollars.	Pounds.	Dollars.	Pounds.	Dollars.
Argentine Republic .....			596,741	104,240	144,220	26,380
Belgium .....	57	335			659	413
Brazil .....			161,715	33,405	429,969	71,943
China .....	832					
France .....	18,742	6,574	9,278	7,594	34,903	7,981
Germany .....	39,741	26,956	59,126	51,338	45,323	20,490
England .....	13,972	119,442	21,167	17,862	403,786	58,989
Scotland .....		8,610				
Ireland .....						
Nova Scotia, New Brunswick, &c. ....			1,192	224	12,218	454
Quebec, Ontario, &c. ....	2,179				10,387	802
Hong-Kong .....		601				
British Possessions in Australasia .....		37				
Italy .....	1,481					
Japan .....	71					
Mexico .....			3,926	576	178,143	28,741
Cuba .....					2,067	443
Porto Rico .....					138	52
Netherlands .....					6,110	598
United States of Colombia .....					9.	20
Uruguay .....					235,315	49,112
Turkey in Africa .....		41				
Total .....	77,075	162,596	851,146	215,239	1,494,324	266,298

The imports are made chiefly to New York, Boston, and Philadelphia. Twenty-one thousand and three pounds of horse-hair for weaving, valued at \$4,201, pass through Boston to England as a foreign export; also manufactures of human hair to the value of \$19,329, chiefly to England, and other hair manufactures (\$3,597) chiefly to Belgium.

#### BRISTLES.

The amount of bristles entered into consumption is placed at 353,287 pounds, valued at \$545,011. The imports of bristles by countries is shown below:

Countries.	Bristles.	
	Pounds.	Dollars.
China .....	1,871	713
France .....	43,332	48,064
Germany .....	193,329	472,149
England .....	11,324	15,534
Total .....	450,656	536,460

Almost the entire import of bristles is entered at New York (449,910 pounds), a small quantity going to Boston (137) and New Orleans (9). There is a foreign export of bristles from New York to Canada amounting to 4,612 pounds (\$3,236).

## QUILLS.

The amount of quills entered into consumption, prepared and unprepared, is valued at \$1,051. The value of toothpicks entered into consumption is \$15,441.

## FEATHERS.

The value of feathers entered into consumption is shown below:

Feathers and down for beds and feather-beds .....	\$12,531 50
Ornamental feathers, ostrich, vulture, cock, &c., crude .....	631,450 20
Feathers, dressed, colored, or manufactured .....	15,352 00

The total entries of feathers amount to \$11,313, of which New York receives \$10,431, and San Francisco \$727, with trifling entries at other ports. There are also feather-beds to the value of \$1,404, coming chiefly to New York and Philadelphia.

## GLUE AND GELATINE.

The import of hide-cuttings for glue-stock amounts in value to \$320,722, of which New York receives \$163,593, Boston \$156,448, and Baltimore \$681. Hoofs and other glue-stock of that description are valued at \$10,650, of which \$10,188 comes to the Lake ports.

The import of common glue amounts to 1,112,527 pounds, valued at \$26,345.60.

The consumption of gelatine and similar products, of which a portion is probably of vegetable origin, is valued at \$90,971.

Isinglass or fish-glue entered into consumption to the value of \$32,236 (75,267 pounds).

The total import of fish sounds and glue is given at \$16,125; \$11,727 comes to Boston, and \$4,398 to other ports.

Glue is exported to the amount of 81,685 pounds, valued at \$16,039.

## SPONGES.

The total import of sponges is valued at \$91,742. New York receives \$74,524, Philadelphia \$2,452, and San Francisco \$1,693.

## OILS, FATS, AND SOAPS.

The following quantities entered into consumption:

Oils.	Amount.	Dollars.
Cod-liver oil, brown or crude, from provinces, not dutiable .....	gallons 129,263	81,607 00
dutiable .....	do 13,732	15,434 00
Total .....	142,995	97,041 00
Cod-liver oil, refined, medicinal .....		17,290 00
Whale or fish oil from provinces, not dutiable .....	gallons 19,620	10,982 00
dutiable .....	do 26,711	11,237 00
Total .....	46,331	22,219 00
Neat's-foot, and all animal, not otherwise provided for .....	gallons 2,597.50	1,124 23
Seal .....	do 410	80 00
Tallow .....	pounds 25,522	1,938 00
Total .....		2,142 03

Oils.	Amount.	Dollars.
Spermaceti and wax.....pounds..	16,371	6,302 00
Stearine.....do.....	595	150 00
Tallow, and all other, and tapers.....do.....	1,231	253 00
Glycerine.....do.....	1,936,214	124,923 00
Grease.....do.....	3,116,974	117,074 22
Soap-grease.....do.....	112,587	5,010 00
Common soap.....do.....	3,791,688	219,089 64
Fancy soap.....do.....	197,818	75,766 45

The total import of grease amounts to \$116,070; New York receives \$58,340, Boston, \$56,057.

Soap-grease is imported to the value of \$5,384. Boston receives \$2,384, New York \$1,469, the Lake ports \$894, and Philadelphia \$637.

The total import of sperm oil is \$5,590, all coming to San Francisco.

The next table shows the exports of oils and fats:

Oils, fats, &c.	Amounts.	Dollars.
Whale and other fish oil.....gallons..	1,026,628	442,165
Sperm oil.....do.....	634,901	879,865
Spermaceti.....pounds..	153,552	41,027
Neat's-foot and other animal oils.....gallons..	19,932	19,720
Lard oil.....do.....	549,429	281,551
Tallow.....pounds..	91,472,803	7,883,616
Soap.....do.....	1,616,163	259,634
Tallow candles.....do.....		638,952
Total.....		10,820,530

There is a foreign export of whale and other fish oils, apparently from the British Provinces through Boston to Belgium; this amounts to 43,103 gallons, valued at \$26,669. A small foreign export of dutiable oils of this description goes to Quebec, Ontario, &c. (1,459 gallons), the British West Indies (236), and Brazil (10). This whole export amounts to 1,705 gallons, valued at \$791. It passes through Boston (1,365 gallons) and New York (340).

The imports of whale and fish oil by countries and by districts are shown below:

Countries.	Whale oil and fish oil, not of American fisheries.	
	Gallons.	Dollars.
DUTY.		
Nova Scotia, New Brunswick, &c.....	130,562	79,403
Quebec, Ontario, &c.....	2,142	1,339
Newfoundland and Labrador.....	6,001	3,516
Total.....	138,705	84,058
DUTIABLE.		
Danish West Indies.....	2,745	2,814
Germany.....	4,128	3,672
England.....	11,161	21,664
British Columbia.....	10,915	4,447
Newfoundland and Labrador.....	150	161
British West Indies and British Honduras.....	2,554	877
Hawaii.....	2,609	1,070
Netherlands.....	4,767	5,377
Asiatic Russia.....	12,400	3,941
Sweden and Norway.....	120	92
Total.....	51,882	41,615



Districts.	FREE.		DUTIABLE.	
	Whale and fish, not of American fisheries.		Whale and fish, not of American fisheries.	
	Gallons.	Dollars.	Gallons.	Dollars.
Boston and Charlestown, Mass .....	82,007	45,782	2,570	771
Champlain, N. Y. ....	72	97		
Gloucester, Mass .....	1,360	593		
Huron, Mich .....	2,670	1,242		
New York, N. Y .....	40,680	31,870	23,238	33,694
Passamaquoddy, Me .....	10,160	3,480		
Philadelphia, Pa .....			120	92
Portland and Falmouth, Me .....	2,090	895		
Puget Sound, Wash .....			4,535	1,831
Salem and Beverly, Mass .....	269	129		
San Francisco, Cal .....			18,821	6,483
Willamette, Oreg .....			2,598	1,124
Total .....	138,708	84,088	51,882	44,015

## PERFUMERY MATERIALS.

The next table shows the quantity entered into consumption of materials used by perfumers :

Description.	Ounces.	Dollars.
Castor or castoreum .....		3,482
Civet .....		1,218
Civet and musk in natural pod .....	5,991	33,336
Ambergris .....		694
Total .....		38,710

## COLORING MATERIALS.

The next table shows the quantity entered into consumption of substances used by color-makers :

Description.	Pounds.	Dollars.
Cochineal .....	1,304,370	648,621
Lac, crude, seed, button, and stick .....	47,063	9,592
Lac-dye .....	454,781	26,243
Total .....		674,456

The total import of cochineal is 1,324,165 pounds, valued at \$649,325.

The next table shows the quantity of cochineal imported, by countries :

*Imports of cochineal.*

Countries.	Pounds.	Dollars.
Belgium .....	19,881	9,867
Central American States .....	13,115	5,296
France .....	11,316	7,065
England .....	342,109	180,035
British West Indies and British Honduras .....	11,219	6,500
Australasia, British Possessions .....	972	467
Mexico .....	111,763	52,466
Spanish Possessions in Africa .....	314,290	174,394
United States of Colombia .....	499,500	213,235
Total .....	1,324,165	649,325

The next table shows the quantity of imports by customs districts:

Districts.	Pounds.	Dollars.
New York .....	919, 870	431, 063
New Haven .....	284, 133	157, 345
Boston .....	60, 157	31, 303
Philadelphia .....	45, 918	23, 851
San Francisco .....	14, 087	5, 763
Total .....	1, 324, 165	649, 325

In addition to the above, we find that 66,986 pounds, valued at \$52,938, pass through New York to England (foreign exports).

#### WAX.

The next table shows the quantity entered into consumption of wax and manufactures thereof.

Description.	Amount.	Dollars.
Wax, and manufactures of:		
Bees-wax .....	pounds. 19, 687	3, 198
Sealing-wax .....		3, 688
Manufactures of, not otherwise provided for .....		6, 356
Total .....		12, 553

The total import of wax amounts to \$16,844, of which New York receives \$11,764 and Philadelphia \$3,330.

The total export of wax amounts to 276,891 pounds, valued at \$22,876.

The total export of bone-black, ivory-black, and lamp-black (the latter not of animal origin), amounts to 515,488 pounds, valued at \$22,876.

#### CHEMICAL PREPARATIONS, MEDICINES, ETC.

The following table shows amounts entered into consumption:

Articles.	Pounds.	Dollars.
Phosphorus .....	56, 474	11, 295
Ammonia (crude) .....	1, 341	131
Sugar of milk .....		14, 653
Albumen and lactarine .....		57, 965
Animal carbon .....		396
Cattle-fish bone .....	54, 215	9, 482
Cantharides .....	14, 206	11, 843
Resinets, raw and prepared .....		12, 913
Total value .....		117, 801

The total import of resinets is valued at \$11,944, of which New York receives \$11,470 and San Francisco \$398.

#### BONES.

The value of the import entries of "bones, crude, and not manufactured, burned, calcined, ground, or steamed, and bone-dust and bone-ash for

the manufacture of fertilizers," is placed at \$82,882. The amount entered into consumption is \$56,935.

The principal import is through the Lake ports, which enter to the value of \$52,469. Baltimore, the seat of many extensive fertilizer factories, receives to the value of \$23,857, New York \$4,937, and Boston \$1,475.

The total export of bones and bone-dust amounts to 7,072,000 pounds, valued at \$121,493.

#### GUANO AND OTHER FERTILIZERS.

The import entry of guano, except from bonded islands, is placed at 25,482 tons, valued at \$873,790.

The export of guano amounts to 954 tons, valued at \$41,530. 2,757 tons, valued at \$77,190, goes as a foreign export to Ireland (1,537 tons), England (680), and Cuba (535). It passes through Petersburg, Va. (1,437 tons), Beaufort, S. C. (779), and New York (541).

Other fertilizers are imported to the value of \$157,471. Of this amount Baltimore receives \$48,230, New York \$18,897, Philadelphia \$9,613, and other ports \$80,647.

Manures, probably mostly animal, are exported, to the value of \$1,076,602.

#### SPECIMENS OF NATURAL HISTORY.

The following entered into consumption:

Specimens of natural history, botany, and mineralogy for cabinets, &c., and not for sale .....	\$12, 191
Skeletons and other preparations of anatomy .....	4, 040
Bird-skins .....	11
Stuffed birds.....	1, 097
Fossils.....	375
Total .....	17, 714

The following table shows the countries from which guano is imported:

Countries.	Guano (except from bonded islands).		Countries.	Guano (except from bonded islands).	
	Tons.	Dollars.		Tons.	Dollars.
Chili.....	1, 832	55, 139	Mexico.....	18, 481	741, 124
France.....	16	790	Venezuela.....	4, 463	65, 276
Scotland.....	4	317	All other countries and ports in South America.....	1	12
British West Indies and British Honduras.....	615	7, 123	Total.....	25, 582	873, 390
Haiti.....	100	3, 178			
Peru.....	70	143			

Guano is brought chiefly to New York (16,738 tons), Baltimore (7,732), Philadelphia (673), Norfolk (300), San Francisco (122), and New Orleans (16).

### 300 ANIMAL RESOURCES AND FISHERIES OF UNITED STATES.

The two following tables show the aggregate imports and exports for the years 1875, 1876, and 1877.

#### *Net imports.*

Articles.	1875.	1876.	1877.
Living animals .....	\$2,062,542	\$1,715,264	\$1,625,495
Fish .....	2,802,395	2,520,258	2,253,620
Hides, skins, furs undressed, hair, &c .....	20,541,768	15,185,194	16,840,299
Furs .....	2,987,865	2,881,329	2,348,380
Wool unmanufactured .....	10,379,438	7,929,139	6,684,425
manufactures of .....	44,216,371	32,607,152	25,328,169
Silk, raw .....	4,471,396	5,405,608	6,583,228
manufactures of .....	24,107,665	23,487,418	21,630,566
Leather and manufactures of .....	10,166,909	8,208,150	8,117,655
Hair manufactures .....	879,419	348,621	216,745
Oils, animal and vegetable .....	1,906,949	1,508,387	1,699,829
Guano .....	525,667	704,818	796,200
Provisions not included .....			
	\$125,048,384	\$102,500,718	\$94,124,611

#### *Net exports.*

Articles.	1875.	1876.	1877.
Living animals .....	\$2,672,505	\$2,436,287	\$3,325,293
Provisions:			
Meats .....	39,217,176	49,592,894	67,288,758
Butter and cheese .....	15,166,599	13,379,579	17,125,243
Eggs and condensed milk .....	139,308	126,849	132,230
Fish .....	3,165,065	3,715,184	4,139,706
Hides, skins, furs, and hair .....	9,555,747	7,615,565	6,607,716
Wool, unmanufactured .....	62,754	13,845	26,446
manufactures of (not including hats and caps) .....	154,401	336,389	291,857
Leather and manufactures of (including trunks) .....	7,438,192	10,142,576	8,298,383
Oils and fats:			
Animal oils, including whale oil .....	1,420,324	1,975,972	1,623,301
Lard .....	22,900,322	22,429,485	25,562,665
Tallow .....	5,692,203	6,734,378	7,883,616
Soap (and starch) .....	1,136,173	1,209,695	1,093,234
Manures .....	616,376	922,221	1,118,132
Total .....	\$109,330,345	\$120,630,859	\$144,516,470
Annual average for three years .....			

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