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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

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SECTION C.

METHODS OF PREPARATION.

I. PREPARATION AND PRESERVATION OF FOOD.

1. PRESERVATION DURING LIFE (see under E, 3).
2. PRESERVATION OF FRESH MEATS.

Refrigerators.

Ice-boxes and refrigerators.

- Allegretti iceberg-refrigerator. Allegretti Refrigerator Company,
[New York.]
- Allegretti refrigerator show-case. “ “

Banta refrigerator.

Banta horizontal refrigerator.

- Banta refrigerator show-case. Process patented July 1, 1867. G.
A. Banta, New York City.
- Zero refrigerator. Alexander M. Lesley, New York.

Refrigerator-cars.

(Accessory.) The ice-trade:

- Ice cutting and handling apparatus.
- Methods of manufacturing artificial ice.
- Ice-houses.

Other accessories of preservation.

- Meat-hooks.
- Skewers, &c.
- Carving-tools.

3. PRESERVATION BY DRYING.

Sun-drying apparatus.

Beach dryers.

Flake-drying:

- Newfoundland flakes.
- Massachusetts flakes.

- 12495. Codfish-flake (with covers). Model. Coast of Maine. E. Skillings,
Portland, Me.

Smoke-drying apparatus.

Herring smoke-houses.

12105. Model of smoke-house used in preparation of herring (*Clupea harengus*). Lubec, Me. U. S. Fish Commission.

12105½. Model of smoke-house used in preparation of salmon (*Salmo salar*). Lubec, Me. U. S. Fish Commission.

Halibut smoke-houses.

Sturgeon smoke-houses.

Aboriginal drying-houses.

Methods of drying haliotis, used by the Indians of California.

4. PRESERVATION BY CANNING AND PICKLING.

Salting fish.

Knives (see under B, 2).

Scaling apparatus.

26039. Kelsey & Hosmer's fish-dresser. Sandusky, Ohio. Patented Sept. 15, 1873. Kelsey & Hosmer, Sandusky, Ohio.

Tables, tubs, &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.

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 "brillantime."

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.

III. PREPARATION OF THE SKIN AND ITS APPENDAGES.

11. CURRYING OF LEATHER.

Processes of currying.

Dipping.

Graining.

Scraping.

Dressing.

Implements employed by carriers.

“Head-knives.”

“Pommels.”

“Stretching-irons.”

“Round-knives.”

“Cleaners.”

“Maces.”

“Horses” or trestles.

“Dressers.”

“Treading-hurdles.”

Eskimo and Indian currying methods and implements.

Methods of dressing gut and sinew.

12. LEATHER DRESSING.

Processes of tanning leather.

Soaking.
Liming.
Tanning.

Processes of tawing or oil-dressing leather.

Soaking.
Liming.
Oiling.

Apparatus of leather-dressing, recent and aboriginal.

13. FUR-DRESSING.

Processes of fur-dressing.

Currying. (See under 12.)
Scouring.
Tanning.
Lustering.
Plucking and dyeing.

14. FEATHER-DRESSING.

Method of preparing ornamental feathers.

Scouring.
Bleaching.
Washing.
Azuring.
Sulphuring.
Scraping.
Dyeing.

(Art of plumagery.)

15. MANUFACTURE OF QUILL ARTICLES.

Manufacture of quills for pens.

Sand-bath drying and steaming.
Polishing.
Dyeing.
Shaping.

Manufacture of tooth-picks.

Manufacture of floats and other articles.

Manufacture of quill brush-bristles.

16. HAIR AND WOOL WORK.

VI. PREPARATION OF HARD TISSUES.

17. IVORY CUTTING AND CARVING.

Manufacture of handles, trinkets, billiard-balls, &c.

Turning and sawing.

Polishing.

Bleaching.

Manufacture of organ and piano keys.

Sawing.

Strip-sawing.

Polishing.

Bleaching, &c.

Other processes.18. PREPARATION OF HORN AND HOOFF.¹**Steaming.¹****Pressing.¹**19. PREPARATION OF WHALEBONE.¹**Cutting and other processes.¹****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.**

¹These 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.¹
21. PREPARATION OF FISH-SCALE WORK.
22. PREPARATION OF NACRE.
23. PREPARATION OF CORAL.
24. PREPARATION OF OTHER HARD TISSUES.

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.²
 Leaning-knives.²
 Mincing-horse and mincing-knives.
 Mincing-tub.
 Mincing-machine.
 Blubber-fork.³

¹These 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.

²Arranged with the knives.

³Arranged 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.

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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.

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.

VIII. LIMES.

46. BURNING OF LIME.

Models of kilns for burning shells.

IX. PRESERVATION OF THE ANIMAL FOR SCIENTIFIC USES.

47. APPARATUS FOR MAKING AND PRESERVING ALCOHOLIC SPECIMENS.

Tanks and jars.

Agassiz collecting-tank.

Army collecting-tank.

Museum storage-tank, Agassiz model.

Anatomical jars.

Self-sealing jars used in collecting.

Vials.

Syringes for injecting.

Inflatable bags.

Preservative mixtures.

Alcohol.

Glycerine.

Preservative mixtures.

Carbolic acid.
 Chloral hydrate.
 Picric acid.
 Osmic acid.

Labels.

Metallic labels.
 Parchment labels.
 Indelible ink, pencils, &c.

48. APPARATUS FOR PRESERVING AND MAKING SKELETONS.

Preparation of the bones.

Macerating-vats.
 Boiling-vats.
 Cleaning and bleaching preparation.

Mounting of the bones.

Scraping-tools.
 Articulating-tools.

49. APPARATUS FOR MAKING CASTS. MODELING.

Materials.

Clays.
 Plasters.
 Glues.
Papier-maché and *carton-pierre*.
 Gelatine.
 Paraffine.
 Collodion.

This apparatus and material is in constant use by the assistants in the National Museum and the Fish Commission. It is thought scarcely necessary to exhibit it.

Frames and modeling tools.**Molds:**

Of plaster.
 Of gelatine.
 Of paper.
 Of paraffine.

50. APPARATUS AND METHODS OF MAKING AND MOUNTING SKINS.
TAXIDERMISTRY.

Tools.

Flaying-tools.
Scraping-tools.
Taxidermists' tools for stuffing :
 Forceps.
 Pliers.

Preservatives and insect-powders.

Arsenic and arsenical soap.
Corrosive sublimate.
Salt, alum, &c.
Persian insect-powder.
Tobacco, snuff, used as preservatives.

Frames, &c.

Wooden frames.
Wire frames.
Plaster model-bodies.

51. (ACCESSORY.) PHOTOGRAPHIC AND OTHER DELINEATING APPARATUS.

Photographic apparatus.

Lenses.
Cameras and fittings.
Camera tripods and stands, with model.
Fish Commission stands.

— Model of Fish Commission camera-stand. U. S. Fish Commission.
This stand is employed in taking photographs of large fishes. It enabling the photographer to operate his camera vertically.

Plates, and their results:
 Wet plates.
 Dry plates.
 Dark closets.

Camera-obscuras.

Mechanical delineators.

Methods of heliotyping and engraving illustrations.

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— . Zero refrigerator. Alexander M. Lesley, New York.

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Methods of manufacturing artificial ice.

Ice-houses. °

Other accessories of preservation.

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Skewers, &c.

Carving-tools.

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Beach dryers.

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Newfoundland flakes.

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Portland, Me.

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ANIMAL RESOURCES AND FISHERIES OF UNITED STATES. 169
Smoke-drying apparatus.

Herring smoke-houses.

12105. Model of smoke-house used in preparation of herring (*Clupea harengus*). Lubec, Me. U.S. Fish Commission.

12105}. 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.

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Salting fish.

Knives (see under B, 2).

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Model of oyster-canning factory.

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170 ANIMAL RESOURCES AND FISHERIES OF UNITED STATES.
5. PREPARATION OF BAIT.

Bait-mills, knives, choppers, &c. (see, also, under B, 2 and 3).

26011. Voss' improved bait-mill. (Patented January 17, 1876.) A. Voss, Gloucester, Mass.

Bait-tubs, vats, &c.

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 "brillamtime."

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Preparation of, or flocking for walli-paper, from
. refuse quills.

Preparation of fibers for manufacture of plush car-
pets.

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.

II. PREPARATION OF aes AND ITS APPEND-

11. CURRYING OF LEATHER.

Processes of currying.

Dipping.

Graining.

Seraping.

Dressing.

Implements employed by carriers.

“ Head-knives.”

“ Pommels.”

“Stretching-irons.” ,

“ Round-knives.”

“Cleaners.”

“Maces.”

“Horses” or trestles.

‘¢ Dressers.”

“ Treading-hurdles.”

Eskimo and Indian currying methods and imple-
ments.

Methods of dressing gut and simew.

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12. LEATHER DRESSING. ‘

Processes of tanning leather.

Soaking.

Liming.

Tanning.

Processes of tawing or oil-dressing leather.

Soaking.

Liming.

Oiling.

Apparatus of leather-dressimng, 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.

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ANIMAL RESOURCES AND FISHERIES OF UNITED STATES. 173

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.}

Steaming.

Pressing.

19. PREPARATION OF WHALEBONE.!

Cutting and other processes.!

Manufacture of whip-makers' stock and whips.
Manufacture of umbrella-makers' bome.
Manufacture of ribbon-weavers' bome.
Manufacture of hat and bonnet makers' bome.
Manufacture of suspender-makers' bome.
Manufacture of stock-makers' bome.
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.

1These 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.

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Other whalebone manufactures. as

20. PREPARATION OF TORTOISE-SHELL.'

21. PREPARATION OF FISH-SCALE WORK.

22. PREPARATION OF NACRE.

23. PREPARATION OF CORAL. |

24, PREPARATION OF OTHER HARD TISSUES.

Y. OILS AND GELATINES.

25. EXTRACTION OF WHALE-OIL (WITH MODELS OF TRY-WORKS,
CLARIFYING-VATS, ETC.).

Preparation of bedy-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.?

Leaning-knives.?

Mincing-horse and mincing-knives.

Mincing-tub.

Mincing-machine.

Blubber-fork.*

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* Arranged with the knives,

Arranged with the hooks.

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ANIMAL RESOURCES AND FISHERIES OF UNITED STATES. 175
Instruments and appliances of rendering whalec-oil.

' Try-pots.

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This model is accompanied by miniature models of all the implements used in trying out the blubber, viz:

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- . Bailer.
- . Cooler.
- . Deck-pot.
- . Casks.

SSS SS

26. EXTRACTION OF OTHER MAMMAL OILS.

27. EXTRACTION OF BIRD AND REPTILE OILS.

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- 43. MANUFACTURE OF FORMIC ACID.
- 44. MANUFACTURE OF CARBAZOTATES.

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VII. MANUFACTURE OF FERTILIZERS.

45. PREPARATION OF GUANO.

Model of fish-guano works.

Grinders and pulverizers.

Mixers.

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VU. LIMES.

46. BURNING OF LIME. i

Models of kilns for burning shells.

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Tanks and jars.

Agassiz collecting-tank.

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Museum storage-tank, Agassiz model.
Anatomical jars.

Self-sealing jars used in collecting.
Vials.

Syringes for injecting.
Inflatable bags.
Preservative mixtures.

Alcohol.
Glycerine.

—e

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ANIMAL RESOURCES AND FISHERIES OF UNITED STATES. 177

cy 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.

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Articulating-tools.

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Materials.

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Plasters.

Glues.

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Gelatine.

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Of paper.
Of paraffine.

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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 APPARATUS.

Photographic apparatus.

. Lenses.

Cameras and fittings.

Camera tripods and stands, with model.

Fish Commission stands.

——. Model of Fish Commission camera-stand. U.S. Fish Commission.

This stand is employed in taking photographs of large fishes. It enabling the photographer to operate his camera vertically.

Plates, and their results:

Wet plates.

Dry plates.

Dark closets.

Camera-obscuras.

Mechanical delineators.

Methods of heliotyping and engraving illustrations.

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