

Class IV.]

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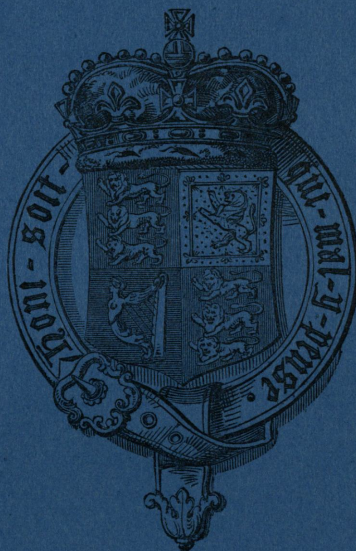
OFFICIAL



Descriptive and Illustrated

CATALOGUE.

By Authority
of the



Royal
Commissioners.

CLASS IV.

VEGETABLE AND ANIMAL SUBSTANCES USED
IN MANUFACTURES.

LONDON:

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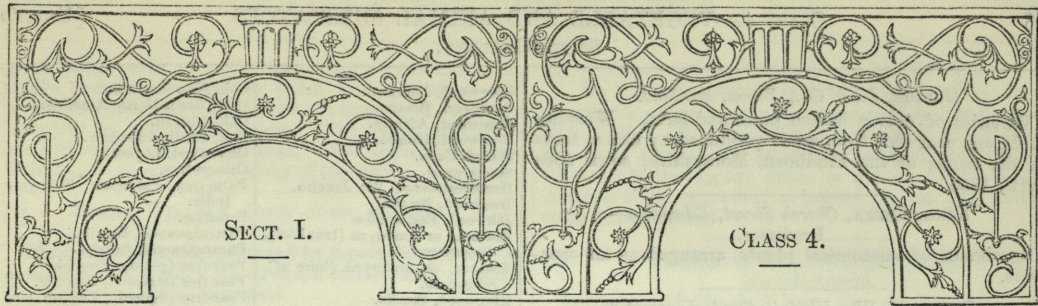


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VEGETABLE AND ANIMAL SUBSTANCES USED IN MANUFACTURES.

INTRODUCTION.

THE present Class concludes the first section relating to Raw Materials and Produce. Within the limits of the present Class are included a great variety of substances employed in the arts and in manufactures. The Class is subdivided generally into substances of vegetable, and substances of animal origin. The former division comprises gums and resins, oils, acids, dyes and colours, tanning materials, fibrous and cellular substances, timbers, and miscellaneous articles applied to various economical purposes. The latter division includes materials for textile fabrics and clothing for domestic, ornamental, and manufacturing purposes, for the production of chemical substances, and for pigments and dyes.

The objects included in Class 4 are placed in SOUTH GALLERY P, and succeed those belonging to the preceding Class in order of arrangement. The Class, although embracing a variety of substances, is not an extensive one, regard being had to the space occupied. Among the substances of vegetable origin of interest in the arts, are oils of various kinds, together with their solid and fluid principles; stearine and oleine, varnishes made by the solution of a variety of resinous substances in alcohol or wood spirit; specimens of wax, and of the same in a manufactured state. Interesting series of dyes and colours are also exhibited. The beautiful colours derived from various lichens by a curious chemical process, are shown with their application to textile fabrics, and gum. The splendid colours yielded by safflower, indigo, and other vegetable substances are also illustrated. This Class is particularly rich also in its illustrations of the fibrous materials used for cordage and clothing. Specimens are shown of China grass, a fibrous product from *Urtica nivea*; of New Zealand flax; of hemp of various growths—Indian, Egyptian, Belgian, American, and Russian; and of flax from various countries. The fibrous substance commercially known as jute, is also illustrated. The fibrous material obtained from the husk of the cocoa-nut is exhibited in its various stages of manufacture and in its applications to the production of fabrics. Specimens illustrative of the application of new processes to the preparation of flax for spinning have also a place in this Class, and appear to promise useful results in the employment of this material in textile manufactures. Corks of different kinds, and new fibrous substances applicable to textile purposes and for paper, are also shown. The specimens of different timbers used for construction and ornament have great technical interest. The botanical names, habitats, and uses of the trees producing these woods are attached to their description in the Catalogue. This will enable the merchant to supply himself with accurate information upon a variety of fancy woods hitherto only recognized under their commercial appellations. In the space generally occupied by the preceding Class will also be found illustrations of timbers used for these and similar purposes. The preservation of timber is illustrated by several series of specimens indicating the progress of decay, and its arrestation in wood equally exposed.

The substances derived from the animal kingdom include specimens of whalebone in different stages of manufacture; wools of various kinds in the raw state, and as cleansed from some impurities. Mohair, horse-hair, in various conditions of manufacture; down and feathers. Some interesting results of the attempt to breed the silkworm in England, are exhibited in raw silks obtained, and in manufactured specimens. Raw and thrown silks of their natural colour and variously dyed are also shown. Animal oils, gelatine, glues, and pigments and dyes of animal origin are also included in the objects contained within this Class.

The four Classes comprised within this section deserve and demand attentive study. The objects comprised by them form the materials out of which all that is beautiful and useful in this great collection has been created, and indicating in their various states the preliminary application of human industry to their preparation for further usefulness. The study of them is a valuable introduction to that of the other Classes, in which constructive industry is illustrated as contrasted with that preparative series of operations exhibited by the objects included within the first section. The consideration of results is more generally interesting than that of the processes leading to them; but the latter study is unquestionably the most instructive. To the philosophic inquirer into the objects of this Exhibition, this section will probably appear the most interesting of all, as the development of raw material in all the varied forms assumed in those sections is observed in Machinery, Manufactures, and Fine Arts.—R. E.

1 GRIGOR, J., & Co., *Forres, Scotland*.
Varieties of native Scotch pines and larch. Weeping birch, one year old, from seeds produced by native trees on the banks of the Findhorn, Morayshire; sown 20th April, 1850.

2 KING, EMMA, *Church Street, Edmonton*—
Producer.
Specimens of anatomical plants, arranged as an ornament.

2A COOKE, E. W., *Victoria Road, Kensington*.
Preserved pitcher plants.

3 STEVENS, WILLIAM, *1 Rock Place, Tottenham Road, Kingsland*—Inventor.
Preserved flowers, retaining their natural form; intended to form cabinet illustrations of botany.

3A CROWCHER, C., jun., *Chapel Place, Liverpool Road*.
Specimen of calcined straw.

4 PURSEY, WILLIAM HENRY, *14 Spring Street, Sussex Gardens, Paddington*—Manufacturer.
Flowers used as ornaments for garnishing meats, &c.; cut out of vegetables, such as carrots, turnips, beet-roots, &c.

[This curious art gives exclusive employment to several persons in the Metropolis.]

5 ROCK, MARY, *6 Stratford Place, Hastings*.
Ornamental stand, formed chiefly of a species of grass which grows on the cliffs at Hastings, and is used for ladies' work-baskets, table-mats, &c. The stand contains specimens of Hastings pebbles.

[The Hastings pebbles are from the calciferous grit of the Tilgate beds which form the "White Rock" of Hastings, but are often elsewhere seen in more tabular masses, resting on a very compact conglomerate, enveloping large rolled pebbles of variously-coloured quartz, and Jasper and smaller ones of pure white quartz and flinty slate.—D. T. A.]

5A TILLEY, Lieut., *Fivehead, Taunton*.
Anatomized leaves, &c.

6 HARRISON, RICHARD & JOHN, *Hull*.
Specimens of English and Foreign Woods.

Alder, English.
Apple-tree, English.
Ash, English.
Ash, American.
Barwood, African.
Beech, English.
Beech, Dutch.
Birch, English.
Birch, American.
Birch, Russian.
Blackwood, East Indian.
Blackthorn, African.
Butternut, American.
Boxwood, Turkey.
Boxwood, Brazilian.
Boxwood, European.
Brazilletto, Jamaica.
Brazilwood, Pernambuco.
Camphorwood, Brazils.
Camwood, African.
Canarywood, Brazils.
Canazuetta.
Cedar of Lebanon.
Cedar, Havannah.
Cedar (pencil), North America.
Cedar (red), New South Wales.
Cedar (white), New Brunswick.
Cherry-tree, English.
Chesnut (horse), English.
Cocus, West Indies.
Cocus (cut endwise), West Indies.
Coromandel, Ceylon.
Cotton-tree.
Cypress, Egypt.
Cypress, English.
Ebony (black), African.
Ebony (green), West Indies.

Ebony (marble), Ceylon.
Elm, English.
Elm Pollard, English.
Elm (rock), American.
Fustic, South American.
Giraffwood.
Greenheart, Demerara.
Gunwood (blue), New South Wales.
Gunwood (red), New South Wales.
Hackmatack, Canada.
Harewood, English.
Hemlock, New Brunswick.
Hickory, United States.
Holly (white), English.
Hornbeam, English.
Pine and Fir, Baltic White.
Pine and Fir, American Spruce.
Swiss Pine.
Pine and Fir.
Pine (Pitch), United States.
Fir, Scotch.
Pine.
Larch, Scotch.
Pine Fir.
Pine Cowdie, New Zealand.
Plane tree Laceywood, Levant.
Plum-tree, English.
Poplar, English.
Quassia-wood, West Indies.
Quassia-wood, Brazils.
Red Sanders, or Rubywood, East Indies.
Rosetta, or Damsonwood, East Indies.
Rosewood, East Indian.

Rosewood, Mexican.
Rosewood, Brazils.
Rosewood, African.
Rosewood, Honduras.
Sabiñu, Cuba.
Sandalwood.
Horseflesh-wood, Rio Janeiro.
Ironwood, Brazils.
Jakwood, East Indies.
Kiaboca, or Amboyna (trunk of), Singapore.
Kiaboca, or Amboyna (burr of), Singapore.
Kingwood, Brazils.
Kingwood, African.
Laburnum, English.
Lancewood (red), Cuba.
Lignum-vite, St. Domingo.
Lemon-tree, Sicily.
Lime-tree, English.
Locust-tree, North America.
Logwood, Bay of Campeachy.
Mahogany, Cuba.
Mahogany, St. Domingo.
Mahogany, Jamaica.
Mahogany, Honduras.
Mahogany, Bahama.
Mahogany, Panama.
Mahogany, African.
Mahogany, South Australia.
Maple, English.
Maple (Birds-eye), American.
Maracaybo, Bay of.
Mosatahiba, Rio Janeiro.
Mulberry, Valparaiso.
Niagara-wood, from the Falls.
Oak, English.
Oak Pollard, English.
Oak, Memel.
Oak, Canada.
Oak (wainscot), Riga.
Oak, Dutch.
Oak, Botany Bay.

Oak, New Zealand.
Oak (live), North American.
Oak, African.
Oak, South American.
Olive-wood, Leghorn.
Orange-tree.
Palm tree, Palmetto, Palmyra, India.
Paraiboo.
Partridge-wood, Brazils.
Pheasant-wood, Brazils.
Pear-tree (plain), English.
Pear-tree (stained), English.
Pear-tree (figured), English.
Pine and Fir, American White.
Pine and Fir, American Red.
Pine and Fir, Baltic Red.
Sapanwood, Siam.
Satinwood, St. Domingo.
Satinwood, East Indian.
Satinwood, Porto Rico.
Sassafras-wood.
Saul, East Indies.
Snake-wood, Surinam.
Sycamore, English.
Teak, Moulmein.
Teak, African.
Tamboukie.
Totario.
Tulip-wood, Brazils.
Tulip-wood, Botany Bay.
Tulip-wood, French.
Valparaiso wood.
Violet-wood, Brazils.
Walnut, English.
Walnut (black), Mexican.
Walnut (black), American.
Willow, English.
Yellow-wood, East Indies.
Yew, English.
Zebra-wood, Brazils.
Several specimens of unknown wood.

7 BURNETT, Sir W., M.D., K.C.B., F.R.S., *53 King William Street, London Bridge*.

* Specimens of Burnettized and un-Burnettized timber, canvas, cotton, and woollen cloth, and raw hides, tested to demonstrate the efficacy of the process. Specimens of antiseptic and disinfecting solutions, and a drawing of the hydraulic apparatus employed for the preparation of timber.

8 FITCH, F. C., *Steeple Bumpstead, Chelmsford*.
Specimens of English woods.

8A AULDJO, Mrs. T. RICHARDSON, *Noel House, Kensington*—Exhibitor.

Table made from wood found in a villa near Pompeii. In the summer of 1835, Colonel Robinson, at that time director of the Royal Manufactory of Gunpowder of Naples, having occasion to make some excavations near Pompeii, in connection with the water supply to the gunpowder works at Torre dell'Annunziata, came upon the remains of a Roman villa. On examination it appeared to have been under process of repair when overwhelmed by the same catastrophe which destroyed Pompeii A.D. 79. At the principal entrance was found a large beam of wood, squared and ready probably to be used as the lintel of the door. It was apparently completely charred, and was strongly impregnated with the odour of carbonic acid gas. On being touched, however, the outer parts crumbled into dust, but the centre proved to be sound and as black as jet. This is now exhibited as a specimen of some of the oldest wood probably in existence, for, from the size of the beam, the tree from which it was prepared must have been at least 200 years old when cut down. This remnant of the beam was kept for two years exposed to the air, to free it from the strong smell of carbonic acid gas, and was then sawn into veneers, of which two tables were made. They were mounted in London on pedestals designed from a bronze candelabrum in the Royal Museum at Naples.

9 SANDERS, W. WILSON, *Wandswoth*—
Proprietor.

Collection of woods, amounting to upwards of 700 specimens, from various parts of the world, arranged geo-

graphically; with scientific name, native or local name, native country, weight per cubic foot, principal uses or peculiarities; with specimens of veneers of the more beautiful or interesting woods. The block specimens are without varnish of any kind. The veneers are varnished so as to show the beauty of the woods.

9A EVANS, WILLIAM, *Castle Street, Swansea*—
Inventor.

Piece of Welsh oak, prepared by a peculiar process, as a substitute for fancy wood, and a cannon lock of peculiar form attached to the wood.

10 STOWE, HENRY, *Buckingham*—Inventor.

Specimens of wood, stained without heat or moisture; the process being equally applicable to it when carved.

14 HOLTZAPFFEL & Co., 64 *Charing Cross, and 127 Long Acre*—Proprietors.

Specimens of woods commonly employed in turnery.

15 GILLOW & Co., 176 *Oxford Street, and Lancaster*—Proprietors.

Specimens of St. Domingo mahogany.

16 ENDERSON, HENRY JOHN, 140 *Præd Street, Paddington*—Producer.

Grained imitation of bird's-eye maple and other fancy woods, on deal. Imitation of inlaid marbles and fancy woods, on slate.

19 SCOTT, E. & Co., 83 *Dean Street, Soho*.

Walnut and rosewood veneers.

20 NEWTON, CHARLES HENRY, *Plough Bridge, Rotherhithe, Surrey*—Manufacturer.

Specimens of English and Foreign woods, prepared on one side and rough on the other, to show the application of the patent desiccating process in the seasoning of woods. By this process, wood is seasoned and made fit for use in a few weeks. The moisture is evaporated by rapid currents of hot air, by which decay and dry rot are, in a great measure, prevented.

21 BETHELL, JOHN, 8 *Parliament Street, Westminster*—Inventor and Patentee.

Specimens of wood saturated with oil of tar, by the process called "creosoting."

Creosoted sleepers, which have been in use for years on the Northern and Eastern, and London and North Western Railways. A piece of unprepared wood, showing the ravages of the *teredo navalis*. A piece showing those of the *limnoria terebrans*, with a few holes bored by the teredo.

Two slices, cut from creosoted piles, which have been four years in the sea, at Lowestoft harbour.

Specimens of fish, prepared for manure, by the creosote oil.

[Several plans have been patented, having for their object the prevention of timber from decay by injecting certain fluid substances into its pores, and by chemical and mechanical action preventing the growth of fungi—viz., Mr. Kyan's patent, in 1832, for impregnation with corrosive sublimate; Sir W. Burnett's, in 1836, for injecting chloride of zinc; Mr. Bethell's, in 1838, for impregnation with oil of tar; and Mr. Payne's, in 1841, for impregnation with metallic oxides or alkalies.—S. C.]

21A SAMUELS, DAVID, 71 *Lebon Street, West Ham, Essex*—Inventor and Manufacturer.

Picture frame of various English woods.

22 CLASSON, J., *Industrial Depot, Northumberland Buildings, Dublin*.

Calenders, &c., made of bog-yew, bog-oak, and other fancy woods, the growth of Ireland. Specimens of Irish woods, peat, and peat charcoal. Scouring powders.

23 BROTHERTON, WILLIAM, & Co., *Hungerford Wharf*—Importers and Manufacturers.

Samples of rape seed, the produce of Holland and the East Indies. Rape seed bruised previous to extracting the oil. The oil as extracted, refined, and purified. Olive oil in its original state; as refined for machinery. Almond oil as extracted; as refined for the finer descriptions of mechanism.

24 BARCLAY & SON, 170 *Regent Street*—Manufacturers.

Specimens of bleached wax; wax candles, white and coloured; sperm candles, white and coloured; stearine candles; candles of mixed materials; wax and composition mortars for night lights and for heating dishes; with sundry small articles.

25 FREEMAN, MESSRS., 3 *Wigmore Street, Cavendish Square*—Manufacturers.

Fine transparent wax and spermaceti lights, with plated wicks, and other candles and night lights. Materials in the manufactured state. Refined oils, &c.

26 BAUWENS, L. F., *Grease Works, Wakefield*—Manufacturer.

Products of various patent processes used in extracting pure oils and greases from the refuse soap-suds of woollen, silk, and other manufactories.

27 ROSE, WILLIAM ANDERSON, 66 *Upper Thames Street*—Manufacturer.

Palm-oil grease, for fast trains. White grease, for machinery, &c. Liquid grease, for mining purposes.

Clarified machinery oil, will not gum or clog. Clarified burning oil, to burn equal to sperm oil. Body, carriage, and oak varnishes.

Ironwork black, equal to black japan, dries in half-an-hour.

Red, blue, yellow, and purple paints supplied to Messrs. Fox, Henderson, & Co., for decorating the Exhibition Building.

White zinc antioxiide paint for ironwork, stucco, &c.

28 HILLAS, FLEMING, 5 *Ordnance Row, Lewisham Road, Greenwich*—Inventor.

Purified animal, vegetable, and fish oils for lubrication and perfumery.

29 MILLER, TAVERNER JOHN, *Dorset Wharf, Westminster*—Importer and Manufacturer.

Spermaceti oil in its original state, as imported from the South Seas.

Rough spermaceti, when separated by filtration and pressure from the oil.

Filtered spermaceti oil, used for illuminating purposes and for lubricating machinery.

Block of refined spermaceti, the inside being hollow, to exhibit its natural crystallization.

Bust formed of refined spermaceti, a new application of the article.

[The sperm whale, *Physeter macrocephalus*, called also cachalot, is a carnivorous cetacean, living chiefly on cuttlefish, and having its mouth armed with teeth instead of whalebone. It is gregarious, and inhabits the open oceans of both eastern and western hemispheres, ranging between 60° N. L. and 60° S. L., but abundant and pursued chiefly in the region of the line-currents between 7° N. L. and 7° S. L. It grows to a large size, the male to 60 feet in length, the female to half that dimension. The former yields 70 to 90 barrels of sperm-oil, the latter 20 to 30. The spermaceti is contained in cellular cavities, occupying the anterior and upper parts of the unwieldy head; from 200 to 500 gallons of this "head-matter" are yielded by a whale. One-sixth of the entire produce is the usual proportion. This matter is placed

in hair bags, submitted to strong pressure, melted, and boiled with a weak solution of potash and in alcohol, then cast into moulds, when it becomes the crystalline substance called spermaceti, which is itself a peculiar species of stearine. *Cetine* is its purified state.—E. F.]

- 30 EWEN, JAMES, 17 *Garlick Hill, City*—
Manufacturer.

Samples of clarified fats.

- 31 DURANT, RICHARD, jun., 11 *Cophall Court*—
Proprietor.

Samples of raw silk, the produce of the various silk-producing countries, Italy, China, India, Turkey, &c.

- 32 DODGE, MRS. CATHERINE, *Godalming, Surrey*—
Producer.

Silk produced by the silkworm, fed upon the leaves of the white mulberry, at Godalming, it being a first production.

Specimens of the silk manufactured.

- 34 HANDS & LEAVESLEY, *Coventry*—Silk Dyers.

Specimens of dyed silks.

- 35 DOXAT & Co., *Bishopsgate Street Without*—
Importers.

Sample of Italian raw silk.

- 36 HOWE, JOSEPH, & Co., *Coventry*—Dyers.

Specimens of self-colours dyed from thrown silk:—yellow gum; specimens of shade dyeing: showing permanency of colours for several years.

- 37 JACQUEMOT, JOHN MARK, 36 *Old Broad Street*—
Importer.

Skeins of raw silk, the produce of a filature near Geneva, Switzerland.

- 38 BEESTON, J. S., 5 *Swailes Cottages, Hammersmith*—
Inventor.

Specimens of raw silk. Travelling cap, intended for comfort and for the protection of the head against concussion.

- 40 SECTIONAL COMMITTEE ON VEGETABLE KINGDOM.

Samples of the ordinary flax and hemp of commerce.

French flax; Flemish flax; Dutch flax; Friesland flax; Archangel flax; Riga flax; English flax; Egyptian flax; New Zealand flax.

Petersburg clean hemp; Petersburg half-clean hemp; Riga Rein hemp; Riga Pass hemp; American hemp; Egyptian hemp; brown India hemp; India scum hemp; Manilla hemp; Italian hemp; Jute hemp.

- 41 TRENT, E. W., *Park Hawk Works, Old Ford*.

New Zealand flax, rope, &c.

- 42 WRIGHT, LEMUEL WELLMAN, 75 *Cheapside*—
Inventor and Manufacturer.

Specimens of China grass (*Urtica nivea*) as it comes from India (Assam) and China; and in various stages from the raw material, as manufactured in India and China.

Also flax and China grass as prepared in this country, for spinning into yarns for finer purposes. Specimens of broad cloth, in which it is mixed with wool in various proportions. Specimens of various kinds of paper made from wheat straw.

- 43 DONLAN, M. J. J., 4 *St. Peter's Square, Hammersmith*—
Inventor.

The seeds of flax and hemp chemically prepared, by which their germinating powers are said to be augmented. Flax straw, produced from prepared seed, and flax straw produced from seed not prepared, sown on the same

day, and on the same land; also samples of flax in different stages of preparation, produced from unsteeped flax straw.

Samples of the ligneous or woody particle from the flax straw; these, when mixed with other ingredients, are used for the feeding and fattening of cattle.

Samples of sail-cloth, produced from unsteeped flax straw. Sail-cloths produced by these processes are said to have been used during five years without being affected with mildew, heating, or premature decay.

Samples of the Phormium tenax, or New Zealand flax, in different stages of preparation, and sail-cloth manufactured from the same.

[The *Phormium tenax*, or New Zealand flax, is a plant of very different nature from the common flax (*Linum usitatissimum*). The former is an endogen, the latter an exogen. The New Zealand flax is a liliaceous plant.—E. F.]

Samples of fine textures, threads, &c., produced from unsteeped flax straw, brought into a similar state to cotton incorporated with German wool; and also specimens of similar manufacture, produced from the Phormium tenax, or New Zealand flax plant.

The above specimens are said to have been produced by new and peculiar processes.

- 44 GILLMAN, EDWARD, *Twickenham*—Agent for
Tao Nui, a New Zealand Chief.

Specimens of the most useful of the New Zealand woods.

Gum of the Kawri tree (*Dammara australis*) called Tino; a good varnish can be made from this substance.

Bark of the Hinau tree (*Dicera dentata*); used by the New Zealanders to prepare the flax for dyeing.

Flax (*Phormium tenax*), prepared for dyeing by steeping in a strong decoction of the Hinau bark.

Flax dyed black, by kneading and rubbing in black mud from a freshwater river.

Shrimp net (*Kotutu*), made from shreds of flax, the pulp of the leaf not removed.

Flax partially disengaged from the leaf; also the shell (*Kuku*) used for the purpose.

Flax in the first stage of preparation (*Muka*).

Small cord made from the flax in the first stage of preparation.

Flax prepared for weaving, by soaking it for two days in water, then twisting it into hanks, and beating it with a mallet on a stone. Mantles wove from flax.

- 45 HIVES & ATKINSON, *Leeds*—Importers and
Manufacturers.

Samples of flax grown in the Courtrai district, Belgium; line, sliver-roving, and yarn, from the flax.

Fine cloth, manufactured from 280 warp and 320 weft.

[The preparation of flax at Courtrai differs in no essential respect from the ordinary method adopted at home. But the bundles, instead of being steeped in stagnant pools, are sunk in the clear waters of the River Lys. It is said that the waters of this stream have a peculiar effect in producing flax fibre of extraordinary whiteness and purity. The bundles, after having been steeped, are untied and spread out on grass to be dried. On the completion of this process, the flax is again made up into bundles and undergoes its preparation for the market.—R. E.]

Samples of flax from the Lokeren district, Belgium; line, sliver-roving, and yarn, 50 leas to 200 leas, from the flax.

[The total annual production of flax in Belgium amounts, by a recent estimate, to about forty millions of pounds. Its total value is calculated at about two millions and a half sterling. This flax is of very superior quality, and is principally employed in the manufacture of the finest class of fabrics. Attempts are being now made on a large scale to cultivate this important plant in

England and Ireland. Belgium exports about five millions of pounds of flax to England. The flax grown in the Courtrai district is universally considered to be of the finest quality.—R. E.]

Samples of yellow flax, grown by John Warnes, Esq., Trimmingham, Norfolk; of blue flax, grown in Yorkshire. Line, sliver-roving, and yarn, from 50 leas to 200 leas, from the flax.

Piece of brown cloth and piece of bleached cloth, 100 warp and 150 weft.

Specimen of Chinese reed.

Samples of China grass (a kind of nettle) in the raw state; softened; prepared for cutting and heckling; half-bleached and full-bleached line from this grass; sliver-roving from full-bleached line; tow; 250 leas spun from full-bleached line; 100 leas from tow; dyed line, yarn, and tow from the same.

Piece of cloth, 200 leas warp and 200 leas weft.

["China grass" is known botanically under the name, *Urtica nivea*. It is extensively imported into this country from Assam, and from China.—R. E.]

46 CATOR, NELSON, & Co., *Selby*—Manufacturers.

Line stumps, or the raw flax plant with the seed attached, as pulled and dried: grown in Yorkshire.

Flax manufactured from the line stumps, and prepared for the flax-spinners. The seed is taken off, the stumps then retted by an artificial process, and afterwards broken and scutched by machinery.

47 TURNER, T., *Crewkerne*—Producer.

Prepared flax, grown at Clapton, near Crewkerne. Flax seed.

49 LOVELACE, S., *Crewkerne*.

Flax, and its seed. Produce of seed, 17 bushels per acre.

51 ROBERTSON, HENRY, 7 *Salisbury Street, Strand*—Producer.

A vegetable fibre, indigenous to the British Isles, applicable to the manufacture of fine thread and paper.

53 PICCIOTTO, MOSE HAIM, 8 *Crosby Square, Bishopsgate Street*—Importer.

Specimens of fine flax, prepared in Italy by a peculiar process, applicable to all sorts of flax, steeped or unsteeped. By this process coarse produce may be brought to a great degree of fineness.

54 MASON, GEORGE, *Yately, Hartford Bridge, Hants*—Producer.

1. Flax grown, steeped, and scutched at Yately, North Hants. 2. Produced in South Hants. 3. Produced at Cobham, Surrey. 4. Flax grown and scutched at the Farnborough workhouse. 5. Flax scutched by prisoners in county gaol, Winchester. 6. Refuse tow manufactured at Yately. 7. Coarse tow. 8. Models of tools used and made at Yately.

55 MARSHALL & Co., *Leeds*—Importers and Manufacturers.

Head of Chinese grass, *Urtica nivea* (*Ma*, Chinese name), from Canton province, in China; prepared and dressed fibre, from various samples of sewing thread made from it, and pieces of drill made from yarn spun from the same.

[*Urtica nivea* is the white-leaved nettle of China, mis-called a "grass."—E. F.]

New application of machinery to manufacture.

Head of Courtrai flax (*Linum usitatissimum*): dressed line, and various samples of sewing thread made from the same, exhibited for quality and finish.

56 GATENBY & PASS, *Manchester*—Manufacturers.

Reeds applied for weaving textile fabrics, manufactured by steam power. They are said to improve the appearance of the cloth, and allow coarser yarns to pass through the same reeds than can be effected by the ordinary means.

56A BARSHAM, JOHN, *Kingston-on-Thames*—Inventor and Manufacturer.

The outer shell or husk of the cocoa nut (*Cocos nucifera*).

Fibre separated from the same by a patent process.

Brushes, manufactured from the fibre, instead of bristles.

Door mat manufactured from the fibre.

The fibre is cheap, and is preferable to bristles for durability.

57 NIGHTINGALE, WM. & CHARLES, 64 *Wardour Street, Soho*—Importers and Manufacturers.

Bed feathers and downs, mostly used in England: the produce of the country, of Ireland, and of the northern portions of Europe and America.

Horsehair and the hair of other animals, English and American, in various stages of manufacture for the purposes of weaving, stuffing, brush and sieve making, &c.

58 MORRELL, HENRY, 149 *Fleet Street*—Manufacturer.

Specimens illustrating the manufacture of lead pencils: Black lead (*plumbago*), exported from Germany and other parts. Specimen of purified lead, and lead cut into plates. Cedar wood from North America, cut into veneer and bottoms and tops for pencils.

1st stage.—Bottoms grooved and machine for grooving.

2nd stage.—Bottoms, showing the plate of lead inserted and tool used for cutting off.

3rd stage.—Tops, and tops glued on to bottoms.

4th stage.—Rounding machine and pencils in stages of rounding to completion.

Paring tool to finish the ends. Specimens of rough and finished ends.

Stamping machine and pencils stamped, &c.

Pencils in various packages and sorts.

Specimens illustrating the manufacture of sealing wax:

1.—The resins. Stick lac, a secretion from trees punctured by an insect (*Coccus lacca*), in the form of a reddish-brown resinous substance, having a crystalline fracture, enclosing the insect. Shellac produced from it. Lac dye, exported from the East Indies to England, and again exported into Germany, Russia, &c.

2. The colouring matter.—Mercury. Sulphur. Sulphuret of mercury or vermilion, the colouring matter used for red sealing wax.

Rough sealing wax. Stick of sealing wax moulded, partly polished, and finished and stamped. Sealing-wax in packages, and of various qualities.

Specimens illustrating the manufacture of wafers:

Wafer tongs. Sheets of wafer, as produced from tongs by the wafer composition being baked in them. Punches for cutting wafers of various sizes, with samples of the wafers cut.

59 HEAL & SON, *Tottenham Court Road*—Importers and Dressers.

Specimens of bed feathers; Irish, English, Russian, Hudson's Bay, and Dantzic, in the raw state, and steamed and dressed.

Specimens of Russian down, in the raw state, and steamed and dressed.

Specimens of Greenland eider-down dressed.

An eider-down quilt, composed of a fine satin centre, and surmounted by a border of white satin, richly embroidered with flowers and ornaments. Executed by James Houldsworth and Co., of Manchester.

A quilt of fine Greenland eider down, covered with rich blue and gold brocaded silk, designed and adapted to lay across the foot of a bed.

- 60 BLYTH, HAMILTON, & BLYTH, 52 Little Britain, London, and Henry Street, Liverpool—Importers and Manufacturers.

English and Dantzic goose bed feathers, in a raw state, white and grey; and in a dressed and purified state.

English black horse-hair in a curled and manufactured state; and in the raw state.

- 62 BARKER, THOMAS, & Co., Breems Buildings, Chancery Lane—Inventors and Manufacturers.

Spirits of turpentine, prepared by a new process, so as to render paint inodorous as soon as dry. Mastic varnish, for paintings, preventing bloom, &c.

Specimens of wood painted and varnished with applications of the same. Several varieties of other essential oils, manufactured and purified by the above process. Hair dyes, essences, extracts, and perfumes.

- 63 MANNING, JAMES, 18 Coles Terrace, Barnsbury Road, Islington.

Varnish composed of various gums and pure spirits of wine: the materials are put into a glass barrel and made without the aid of heat. Portraits, &c., varnished to show its clearness.

- 64 PENNEY, HENRY, 4 York Place, Baker Street—Manufacturer.

Colourless linseed oil and copal varnish.

A door on which the varnish has been applied.

- 65 SMITH, BEN. THOS. & CHAS., 12 Church Street, Mile End New Town—Manufacturers.

Emerald green.

Chrome yellow, three shades. Ultramarine, three qualities (imported from Nuremberg). Chinese red. Pure blue. Oxalic acid, two qualities. Oxalate of potash. Chromate of potash. Nitrate of lead. Oxymuriate of tin. Colours of various kinds.

- 66 JEWESBURY, H. W., & Co., Mincing Lane—Brokers.

Varieties of cochineal from Honduras, Mexico, Teneriffe, Java, and the West Indies.

[Cochineal is an insect, the dried body of which yields the beautiful red dye for which it is valued in commerce and the arts. The insect is obtained in large quantities from Mexico, the British West Indies, the United States, and Guatemala. It is bred with great care, and feeds on the *Cactus cochinealifer*. Upwards of a million pounds were imported ten years since into the United Kingdom, and in every pound are contained not fewer than 70,000 insects! Cochineal, from its resemblance to seed, was formerly considered to be really a vegetable product. In the cactus stove at Kew the insect may be seen alive feeding upon the cactus of its native habitat.—R. E.]

Varieties of lac-dye from Calcutta.

[“Lac-dye” is a term commercially applied to a colouring matter extracted from stick-lac. The latter is considered to be the resinous secretion of a tree on being punctured by an insect common in many districts of Eastern India. This insect is called *Coccus lacca*, and is found in enormous numbers in the forests of the mountains on the sides of the Ganges. The insect, when about to deposit its eggs, attaches itself to the branches of trees, and soon becomes enveloped in a layer of gummy matter which hardens on exposure. The insect dies, and her body shrivels into an oval bag containing a minute drop of red fluid. This is extracted from the lac, and, when formed into small masses, becomes the lac-dye of commerce. In 1848, 1,221,308 lbs. were imported into the United Kingdom.—R. E.]

- 68 SMITH & SON, 14 Corbet Court, Spitalfields.

Lichens from which archil and cudbear can be produced by steeping them in prepared ammoniacal solutions, so that the orcine they contain may, by combination with water, ammonia, and oxygen, develop colouring matter:—

No. 1. Angola Orchilla weed (*Roccella montagnei*), from Angola, coast of Africa. 2. Thick Lima Orchilla weed (*R. tinctoria*), from Lima, South America. 3. Lima Orchilla weed (*R. fuciformis*) from Lima, South America. 4. Canary Orchilla weed (*R. tinctoria*), from the Canary Islands. 5. Canary rock moss (*Parmelia perlata*), from the Canary Islands. Pustulatus moss (*Gyrophora pustulata*), from Norway.

Eight samples of archil and two of cudbear, all made from Angola lichen, and used for dyeing and printing woollen, silk, cotton, mixed fabrics, and leather, all shades of crimson, violet, blue, and chocolate; used also in making stone blue and lake pigments.

Samples Nos. 8, 9, and 10. Blue, violet, and red archil weed and liquor, as taken from steeping backs, used for dyeing leather and silk. 11 and 12. Red and purple archil liquor, for printers' use. 13. Extract of red archil, for printers' use. 14 and 15. Red and blue archil paste, for dyeing wool and silk. 16 and 17. Cudbear, of two qualities, for dyeing wool and silk.

Specimens of woollens, silks, velvets, cottons, mixed fabrics and leathers, dyed and printed with archil and cudbear, also of stone blue and lake made with archil.

[Lichens are flowerless plants of very low organization, living on air and growing usually on the ground, or on the surface of rocks and trees, in the form of crusts or branching leathery expansions. Many kinds of lichens are available for dyeing. The species of *Roccella* are most useful, but various kinds of *Lecanora* (as *L. perella*, which is the Perelle d'Auvergne, and *L. tartarea*, the cudbear), *Variolaria*, *Urceolaria*, *Isidium*, *Lepraria*, *Parmelia*, *Sticta*, *Solorina*, *Gyrophora*, *Usnea*, *Evernia*, *Alectoria*, *Ramalina*, and *Cenomyce*, many of which are not at present used, would produce colouring matter.—E. F.]

- 70 COVEY, CHARLES, 60 Back Lane, Dublin.

Samples of Irish manufacture in starch, indigo blues, vegetable gums, and blacking.

- 72 ROBINSON, JAMES, & Co., Huddersfield—Inventors and Manufacturers.

Archil paste and cudbear, patent process. Liquid archil for dyeing and printing.

Samples of worsted yarn dyed in best cudbear.

- 74 BRUCE, G., 52 Nelson Street, Liverpool—Inventor.

Black varnish, for painting and preserving wood and iron-work, either for land or marine purposes. Blue-coloured composition for covering wood or iron, with or without a thin priming of paint. Red composition for the use of agriculturists, machinists, engineers, ship and steamboat builders. Green and stone-coloured composition, applicable to general purposes. Spirit varnish for wood-work.

- 75 LONG & REYNOLDS, Hackney—Manufacturers.

Carthamus tinctorius (*Indicus*), safflower. The colouring matter shown in the liquid and dry state. Used for the purposes of dyeing silk, cotton, &c. Specimens of its effects on those materials.

[The colouring matter yielded by this plant is obtained exclusively from the flowers. It is of a beautiful pink colour, and is employed by dyers to produce the peculiar colour called *ponceau*. It does not, however, bear exposure to light well. Safflower is also employed in the preparation of the most costly descriptions of rouge. About 6,000 cwt. are imported annually into Britain, the greater part from the East Indies.—R. E.]

76 SAUNDERS & GATCHILL, *Dublin*.
Chicory and woad.

76A SADLER, J., *Gloucester Terrace, Regent's Park*.
Cochineal.

77 BURCH, WILLIAM, *Sewardstone Mill, Woodford, Essex*—Manufacturer.

A series of substances and combinations used in the art of dyeing; showing, in various states, the woods, roots, flowers, metals, &c., from which dyeing colours are obtained, with aqueous decoctions and dried extracts. Various acids, and solutions of metals in acids; dyeing precipitates caused by the action of various metallic solutions on vegetable colouring matters; and samples of the general effect of the colouring matters on cotton, silk, and wool.

Samples of London skein silk, woollen, and cotton dyeing, in colours and shades.

Samples of cotton, dressed as hard silk, and of fast cotton dyeing for Lisle thread gloves. The woollen dyes by P. J. Chabot, of Spitalfields; the silk dyes, by Reynolds & Son, Temple Street, Hackney Road (for further specimens by the above dyers, see Class 18).

Opaque or precipitant colours used in oil painting and printing, and as water-colours on paper, book muslin, &c.

An illustration of the art of block printing.

Various gums and substances used in dyeing, printing, painting, dressing, &c., and in the preparation of colouring matters.

78 MOORE, JOHN, *Littlecott Farm, Pewsey, Wilts*—Proprietor.

Southdown ewe (stuffed), bred by the exhibitor, seven years old, but never shorn. Length of the wool 25 inches, weight 36lbs.

80 HENDERSON, RICHARD, *Wooler, Northumberland*—Proprietor.

Fleeces of Cheviot wool, grown at an elevation of 2,600 feet above sea level.

81 DORRIEN, C., *Chichester*.
Samples of wool.

84 REBOW, J. G., *Wivenhoe Park, near Colchester*—Proprietor.

Southdown sheep's wool.

85 MILLNER, ROBERT, *Dublin*—Proprietor.

Fleeces, long wool, wether and ewe, and male and female hoggets; grown in the counties Meath and Galway. Fleeces, long and short wool, hogget, wether and ewe, mountain grown in the county Wicklow.

85A SECTIONAL COMMITTEE ON ANIMAL KINGDOM.

Various kinds of wool.

86 MANNINGS, GEORGE, *Wedhampton, near Devizes*—Manufacturer.

Diamond teg matching wool, for combing; and diamond clothing wool, from Southdown fleeces, the produce of the county of Wilts.

88 SANDS, WM., & Co., *Mortimer Street, Leeds*.

Specimens of "burry" wool in the original state, with specimens of the same cleaned by machinery.

[By "burry" wool is meant, in the language of commerce, wool containing a quantity of "burs" or thorny particles derived probably from the spinous and other thorn-bearing plants of Australia. These it is necessary to remove previous to the preparation of the wool for textile purposes, and by ingenious machinery this is successfully accomplished.—G. T.]

91 PRELLER, C. A., *31 Abchurch Lane*—Patentee and Manufacturer.

English wether and hog wool.

Mohair and fine Australian wool, in the raw state as imported; washed; and carded and balled.

Tops, being the long fibres in slivers, to be spun into yarn for the manufacture of worsted stuffs, shawls, and hosiery.

Noils, being the shorter fibres used by blanket and cloth manufacturers.

Yarn, No. 70, spun from the Australian wool (commonly called Botany) tops. The peculiar process of combing by which the above tops have been manufactured is patented.

[By the ordinary process the combs are heated to a high temperature, and oil is applied to the wool before being drawn out in the sliver. On the present plan the heat employed is not so great, but more equable, and the use of oil can be dispensed with. The tops are thus preserved clean and white, and better suited therefore for all fine fabrics. The specimens now exhibited are produced without oil.—G. T.]

91A CAHILL, M., *Ballyraggit, Kilkenny*—Producer.

Fleece of Leicester wool, from Grove, County Kilkenny. Peat charcoal, for deodorizing.

94 IRVING, G. VERE, *Newton by Leadhills, Lanarkshire*,
Producer.

Fleece of an aged ewe of the black-faced Highland breed, unladen.

95 GOOD, FLOODMAN, & Co., *Hull*—Importers.
White Iceland wool.

95A BREADALBANE, Marquis of, *Taymouth, Aberfeldy, Scotland*—Proprietor and Producer.

Specimens of woollen yarn, made from the wool of the bison.

97 LIPPERT, DAVID, *66 Albion Street, Leeds*—Importer.

Fleeces of German wool.

[Wool is a kind of hair, characterised by an imbricated scaly surface, when viewed under the microscope, on which depends its remarkable felting property and its consequent value in manufacture.

Most quadrupeds possess the woolly variety of hair as an under-clothing, but in a small proportion, and hidden by the smooth exterior coarser kind of hair. In the wild sheep (*Ovis ammon* and *Ovis musimon*) the woolly variety is developed in excess; and in the domesticated varieties the fleece has become improved by care and breeding until its original coarse character has disappeared.—R. O.]

101A SMITHSON, —.

Samples of wool.

103 HORAN, H., *7 Stud Street, Islington*—Manufacturer.

Prepared Greenland whalebone of different colours, for covering whip handles, walking sticks, and telescopes, and various other purposes, with portions of black and white whalebone as cut from the palate.

[The whalebone or *Baleen*, as it has been called, consists of numerous parallel laminae, descending perpendicularly from the palate of the *Balæna mysticetus*. Its object, in the economy of the animal, is to form an efficient strainer for its food, which is taken in with the water; and the latter, when the mouth is partially closed, is expelled, leaving the small crustacea and other animals, which constitute the nourishment of the whales, entangled, as it were, in the laminae of whalebone. Although all the species of *Balæna* possess this substance, it is furnished

in the largest quantities and of the finest quality by the *Balæna mysticetus*, which is the object of incessant and eager pursuit, not only for the value of this substance, but for the immense supply of oil which is obtained from the thick layer of blubber or cutaneous fat in which the body is enveloped. The length of the largest pieces of baleen in a whale 60 feet long, is frequently as much as 12 feet; and the laminæ are ranged in two series, each containing about 300 in number.—T. B.]

104 WESTALL & Co., 69 Aldersgate Street—
Proprietors.

1. Fins of whalebone from Greenland (*Balæna mysticetus*).
2. Fins from the north-west coast of America.
3. Fins from the South Pacific Ocean.
4. White fins, from the western coast of Australia (*Balæna Australis*).
5. Finner, of the hump-backed whale (*Balenoptera Boops*).
6. Thirty-four specimens of whalebone.

[The fins or plates of "baleen" or whalebone are of an inequilateral triangular form, the largest, which are of most value in commerce, being arranged in a single longitudinal series on each side of the upper jaw of the "whalebone whales" (*Balænidæ*), descending vertically, and ending in a fringe of bristles: the smaller plates are arranged in oblique series, internal to the marginal ones. The base of each plate is hollow and is fixed upon a pulp developed from a vascular germ, which is attached to a broad and shallow depression occupying the whole of the palatal surface of the maxillary bones. The plates are so disposed as that their fringed terminations are directed downwards, and inclining towards the back part of the mouth, and they prevent the escape of the small marine animals which constitute the food of the great whales (*Balæna*), and for the prehension of which this singular substitute for the teeth is adapted. The baleen plates are smallest at the two extremities of the series; the large intermediate ones sometimes attain the length of 15 feet, being above a foot broad at their base. There are about 200 plates in the outer row on each side of the mouth in the "true whale" (*Balæna mysticetus*). Each plate consists of a central coarse fibrous substance and an exterior compact fibrous layer: but this reaches to a certain extent only, beyond which the central part projects in the form of a fringe of bristles. The chemical basin of baleen is albumen, hardened by a small proportion of phosphate of lime. The baleen plates of the finners or hump-backed whales (*Balenoptera*) are smaller, and of less value than those from the true whales (*Balæna mysticetus*).—R. O.]

105 CLAUSSEN, PETER, 26 Gresham Street, London—
Inventor and Patentee.

Samples of flax prepared by the exhibitor's process, intended to show the universal applicability of flax fibre to the purposes of textile manufactures.

The first set of samples are intended to show the various processes resorted to in the preparation of flax into a material capable of being spun alone, or mixed with various proportions of cotton upon any of the ordinary cotton-spinning machines. The samples show, 1st, the flax in the straw as pulled from the ground, cut into appropriate lengths by suitable machinery. 2nd. As it appears after having undergone the first process of saturation in a solution of soda required to remove the glutinous substance adhering to the fibres. 3rd. The fibres as seen after the removal of the "shove," or woody part of the plant. 4th. The flax transformed into a cotton-like substance by the expansive force of carbonic acid gas produced by the action of an acid upon the soda, taken

up by the fibres in the previous stage. The 5th, 6th, and 7th shows the same bleached, dried, carded, and ready for spinning. The remaining articles in this series are samples of mule and throstle yarn of various numbers, some of which are composed entirely of flax, and others of various proportions of flax and cotton. Both these descriptions of yarn are exhibited, bleached and dyed in various colours for the purpose of showing that flax, prepared upon this process, is capable of receiving the same opaque dye as cotton, and, in the mixed yarns, no difference can be distinguished in point of colour or of shade between the two materials. Samples of grey and bleached, dyed and printed cloth woven from the yarns, prepared as above, are also exhibited. The yarns formed of a mixture of flax and cotton are termed "flax-cotton" yarns.

The second series of samples consists of yarns formed of various proportions of flax and wool called "flax-wool yarns," the flax being prepared, in many respects, in the same manner as when required for spinning on cotton machinery. The mixed woollen and flax yarns were spun on the ordinary woollen machinery. Samples of flannel and of woollen cloths, milled and dyed, woven from these mixed yarns, of various colours.

The third series contains samples of flax prepared for spinning alone or combined with short silk upon the ordinary silk machinery. The flax so prepared is shown, dyed various colours, and possessing, unlike the samples prepared for the cotton machinery, the brilliancy of colour which is peculiar to silk. The yarns formed of equal or other proportions of flax and silk, which are termed "flax-silk yarns," are shown dyed; and, as in the case of the "flax-cotton," no difference of shade or colour is perceptible in the two materials. A quantity of silk, woven from "flax-silk" yarns, is also shown in this series.

In the fourth series, samples illustrative of the exhibitor's mode of preparing flax for spinning upon the ordinary flax machinery, and for its manufacture into linen fabrics.

A fifth series consists of various samples of hemp, jute, and the fibrous substances prepared, either in whole or in part, as above; and samples of cloth woven upon the Chevalier Claussen's circular loom for the purpose of showing the applicability of the invention to articles of hosiery.

The advantages claimed as arising from the process, illustrated in the fourth series for preparing flax for the linen manufactures, are its simplicity, rapidity, certainty, and cheapness. By this process a fibre nearly free from colour is procured, so that the after process of bleaching is greatly facilitated: the fibre is also pure when produced, so that the same weight, or nearly so, of yarn, can be spun from a given weight of fibre; and the loss in bleaching is very small, as it consists only of the removal of accidental impurities received in the process of manufacture.

The three first series of samples are intended to show the applicability of the flax fibre for textile manufactures, other than linen or cambrics. It can also be spun alone, on cotton machinery, by the ordinary cotton process.

It has long been a desideratum with woollen manufacturers of all classes to obtain a material cheaper than wool, possessing the same felting or "milling" properties. Cotton and China grass have not this property. The flax fibre is said to be stronger than the wool, and to mill equally with it. The sample shown was milled from 54 inches wide (as it fell from the loom) to 28, its present width. To prove its felting properties fully, hats have been made from the fibre mixed with an insignificant portion of rabbits' hair.

1. Flax-seed and flowers (in wax).
2. Flax-straw with the seed-bolls on.
3. Flax-straw rippled or deprived of the seed-bolls.
4. Flax-straw as prepared by the farmer (by the exhibitor's machine). By this operation the straw is freed from the greater portion of the wood, and is reduced to one-third of its original bulk and weight, and the fibre is left uninjured, and in a fitter state for the next process.

5. Flax straw, as above, after having undergone the alkaline part of the process.

6. Flax-straw, as above, after having undergone the acid part of the process.

7. The fibre, as above, unbleached, scutched.

8. Flax-straw prepared, unbleached, and scutched.

9. Flax-straw prepared whole by processes 5 and 6, or not having undergone the breaking process described in No. 4.

10. Flax-straw, prepared and bleached as above, in the straw.

11. Flax, prepared, bleached, and scutched in the straw whole.

12. Flax-straw, prepared, broken by the exhibitor's machine (No. 4) and bleached in the bulk.

13. The same scutched.

14. Flax split according to the exhibitor's natural colour.

15. The same, bleached.

16. Linen yarns spun from fibre prepared by the above processes, *i. e.*, from fibre, natural colour, whole; from the same, split; from fibre, bleached in the straw, whole; from the same split.

17. Linen cloths woven from each of the above-described yarns.

Short Fibre.

18. Flax-straw cut into lengths for producing fibre to spin on cotton machinery, wool or silk, whole.

19. The same, having been partially deprived of its refuse (process No. 4), cut into short lengths.

20. The same, after the alkaline process.

21. The same, after the acid process.

22. The same, fibre split.

23. Flax-fibre, separated from the refuse, unbleached.

24. The same, separated from the refuse, bleached in the straw.

25. The same, unbleached and carded, fit for spinning on cotton machinery.

26. The same, bleached and carded for cotton machinery.

27. The same, in slivers.

28. The same, in rovings.

29. The same, in yarn.

Flax Cotton.

30. Flax-cotton—half cotton and half flax in wool,—as above.

31. The same, slivers.

32. The same, rovings.

33. The same, yarns, mule, and throstle.

34. Cloths, all flax, spun and woven on cotton machinery.

35. The same, flax and cotton, spun and woven on cotton machinery.

36. Flax-cotton yarns, dyed by the ordinary cotton processes, showing that flax fibre takes colour exactly in the same manner as cotton.

37. Flax cloths, dyed and printed.

38. Flax-cotton cloths, dyed and printed.

Flax Silk.

39. Fibre prepared for spinning on silk machinery.

40. Slivers of flax and short silk, mixed in various proportions.

41. Rovings made from such slivers.

42. Yarns made from such rovings.

43. Cloths made from such yarns.

44. Flax fibre (pure) dyed by the ordinary process for dyeing silk, showing the greater brilliancy of the flax when prepared by the patent process.

45. Flax-silk cloths dyed and printed.

Flax Wool.

46. Flax fibre for mixing with wool (carded).

47. Flax and wool mixed together in equal parts.

48. Slubbings from the same.

49. Yarns from such slubbings.

50. Cloths produced from such yarns, woven on the exhibitor's circular loom.

51. Flax and wool mixed for flannels.

[4.]

52. Yarns produced from the same.

53. Cloth produced from the same.

54. The same dyed.

55. Various samples of cloths produced from flax, flax-cotton, flax-silk, flax-wool, woven on Chevalier Claussen's circular loom, and intended to show the applicability of the invention to hosiery, &c.

56. Various samples of hemp, and other fibrous plants, prepared either in whole, or in part, as above.

106 ROYAL BELFAST FLAX IMPROVEMENT SOCIETY.
Specimens of flax.

107 ROYLE, J. FORBES, M.D., F.R.S., *Acton Green*—
Collector.
Specimen of cotton.

108 PUCKRIDGE, FREDERICK, 5 and 6 *Kingsland Place*—
Manufacturer.

Goldbeater's skin. The raw material, or skin of the gut of oxen. The material in its various conditions, as used for other purposes. The raw material manufactured into goldbeater's skin. Mould of skins, as used in France and Belgium.

[Goldbeater's skin is a membrane separated from animal intestine, attenuated by beating with a hammer, and subsequently prepared so as to resist putrefaction.]

109 STAIGHT, T., 12 *Walbrook*—Manufacturer.

Turning and carving in ivory. Carved ivory chessmen, the Crusaders.—Registered. Carvings in pearl.

111 TEBBITT, W., 4 *North Crescent, Bedford Square*—
Manufacturer.

Ornamented box, calculated to contain four packs of playing cards, manufactured entirely from the two shells known in commerce as the mother-of-pearl and the New Zealand green-ear; surrounded by an elegant specimen of pierced work, intended as a border for the cover of a drawing-room table book; the cover to be of blue velvet.

[The mother-of-pearl shell is a bivalve of the genus *Avicula*. Several species are used in commerce. The "New Zealand green-ear" is a univalve of the genus *Haliotis*, of which a kind lives in the seas of the Channel Islands, and is used also for the purposes of inlaying.—E. F.]

Lady's visiting card-case; subject, Belisarius.
Taper candlestick; shoe-slip; door-handle; paper-knives; umbrella-hooks; and a ten-inch rule.

The whole made by hand, and wrought exclusively by English workmen.

114 MARKWICK, M., 32 *King William Street*—
Manufacturer.

Patent epithems for medical, surgical, and veterinary purposes. "Impermeable spongio-piline," for applyng heated fluids to the body, in lieu of poultices and fomentations. Water-dressing, and piline.

116 BURKE, W. H., 9 *Gresham Street West*.
India-rubber manufactures.

116A REA, EDWARD, 117 *Wardour Street*—
Manufacturer.

Lac insects, or *coccus lacca*; lac stick, Siam and Bengal. Products—Seed lac, orange and ruby; shell lac, orange and ruby, lump and button. Lac lake and lac dye, shell lac, lacquers, &c. Polish, varnishes, sealing wax, &c.; white lac, lac wax, yellow and white. Gum elemi; thus, or frankincense; sandrac; mastic, and varnishes. Dragon's blood, grass-tree gum, gum kauri, or Australian copal, gum animi; copal; damur; rosin, rough turpentine, Canada balsam, varnish resin, oil varnish, colourless paper varnish, resin varnish, &c.; purified rough turpentine, and spirits of turpentine, varnish, &c.

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[Gum elemi and frankincense are furnished by plants of the order *Amyridea*, a family allied to the orange tribe; they are tropical.

Gum sandrac, or sandarack, is the product of a North African tree allied to the juniper, probably the *Calitris quadrivalvis*.

Mastich is derived from species of pistachia, natives of the Mediterranean region; they belong to the cashew-tribe (*Anacardiaceæ*), a family furnishing many varnishes.

Dragon's blood is produced by the *Dracena draco*, a liliaceous plant; the *Callitris draco*, a palm; and the *Pterocarpus Draco*, a sandalwood tree, of the pea tribe; from the wood of the first and last named, and from the fruit of the second; they are all tropical.

Grass-tree gum is from *Xanthorrhæa*, an Australian plant of the lily tribe. Gum animi is from the *Hymenæa courbaril*, and copal from other tropical species of the same genus, belonging to the pea tribe.

The balsams and turpentine are resinous secretions from trees of the pine tribe. Canada balsam is from the *Abies balsamea*, or balm of Gilead fir. Damur is from *Damara*, a New Zealand pine.—E. F.]

117 SIMPSON, HUMPHREY, & VICKERS, 23 Little Britain—Importers and Manufacturers.

Various specimens of isinglass, cut and uncut.

Isinglass is the swimming bladder of sturgeons caught in the Caspian and Aral seas, and in all large rivers in Siberia; an inferior kind is also taken from fish found in the rivers of South America, in the Demerara and Berbice rivers, and in the East Indies. Formerly isinglass was torn up by hand, or cut with scissors; it is now rolled and cut by machinery.

118 DAWSON & MORRIS, 96 Fenchurch Street—Importers and Manufacturers.

Russian and Brazil isinglass.

119 SWINBORNE, T. C. & G., & Co., Coggeshall, and 1 Great Tower Street, London—Manufacturers.

Refined isinglass and gelatines.

Clarifying isinglass and gelatines.

Glues, and manufacturer's gelatines.

120 WATT, W., & SON, Dumfries, Scotland—Manufacturers.

Glue made from pieces of hides and skins, principally used by cabinet-makers and joiners.

121 ABBOTT & WRIGHT, Needham Market, Suffolk—Manufacturers.

Two cakes of crown glue, manufactured from the hides and feet of cattle.

122 NIMMO, THOMAS, & Co., Linlithgow, Scotland—Manufacturers.

Specimens of glue:—Strong, for the use of joiners, &c.; refined, for paper-makers, &c.; and extra-refined gelatine.

123 NEUBER, WILLIAM HENRY, 549 New Oxford Street—Inventor.

Registered placard holder.
Samples of liquid glue; and water varnish.
Glass and china articles mended with the liquid glue.
Specimens of drawings and paper-hangings varnished with the water varnish.

125 DUFVILLE, W., Broughton House, Islington.

Culinary articles: wrapped in gelatine, &c.

125A MULLER, F., Hackney.

Gelatine and glue.

126 KITCHIN, J., Commercial Sale Rooms, Mincing Lane.
Shumac, in the leaf, and ground, from Palermo, used in tanning sheep and calf skins, moroccos, &c.

126A CURTIS BROTHERS & Co., 19 Coleman Street—Factors.

Substances used for tanning leather: oak bark (*Quercus pedunculata* and *sessiliflora*?), English tree, in the rough, cleaned, chopped, and ground; coppice, in the rough, chopped and ground; Flemish tree and coppice, cleaned and chopped; Dutch tree, cleaned and chopped. Larch bark (*Abies larix*), Scotch, in the rough and ground. Mimosa bark (*Acacia*), New South Wales, in the rough and ground. Babool bark (*Acacia arabica*), Calcutta. Cork tree bark (*Quercus Suber*), Larache and Rabat. Hemlock spruce (*Abies canadensis*), United States, in the rough and ground. Sumach (*Rhus coriaria*), Sicily. Valonia (*Quercus ægilops*), Smyrna. Valonia (*Camata*), Dragomestra, Morea. Divi-divi (*Cassalpinia coriaria*), Maracaibo, Rio de la Hache, Savanilla. Myrobalans (*Terminalia*), Calcutta. Terra Japonica (*Nauclea Gambir*), Singapore, in import package, and loose. Cutch (*Acacia Catechu*), Pegu, in import package and loose.

[The active principle for which all these articles are valued in the process of tanning leather is *tannin*, or *tannic acid*. It exists in greater or smaller proportions in each vegetable product named, being found principally in the bark. Except for the purposes of chemistry and medicine, tannin is not extracted from these substances, which are consequently employed, in a more or less comminuted state, in the conversion of the gelatine of the hides, &c., into tannate of gelatine, or leather.—R. E.]

127 FRENCH, BEAL, 51 Crutched Friars—Importer and Manufacturer.

Cork, raw material; cork, manufactured by hand.

[Cork is the exterior bark of *Quercus suber*, a species of oak native, cultivated in Spain, Portugal, and the south of France. A tree is ready for barking when it reaches 15 years in age, and between that and 30 years may be barked several times.—E. F.]

128 HOLT, EDWARD, 24 White Rock Place, Hastings—Inventor and Manufacturer.

Mosses, arranged in the form of a vase, collected from various places in East Sussex, with a description of the uses of the plants.

Sea-weeds, zoophytes and corallines, found on the rocks and coast of Hastings and St. Leonards, ornamentally displayed, in a gilt frame; the various uses of the plants, for medicinal and other purposes, briefly described.

130 FIELD, J. C. & J., 12 Wigmore Street.
Samples of stearine.

131 GROVES, NICHOLAS, 58 Watling Street, Dublin—Manufacturer.

Parchment and glue, Irish manufacture.

134 BREADALBANE, Marquis of.

Specimens of woods grown in Perthshire and Argyllshire, and of veneer from the Scotch fir, dug from a peat bog in Glenorchy, Argyllshire. (Ground floor, Area A. 34, and C. 3.)

135 FAUNTLEROY, ROBT., & SONS, Potters Fields, Tooley Street, London.

Classification of specimens of foreign hard-woods, for cabinet work, turnery, dyeing, and machinery; also, of elephants' tusks, sea-horse teeth, mother-of-pearl shells, &c.

Names.	Place of Produce.	Purposes.
1. Amboyna, or Kiabooka (<i>Pterospermum indicum</i>).	E. Indies, Borneo, Amboyna.	Cabinet-work.
2. African black wood (<i>Cocobolo prieto</i>).	Africa, Madagascar, &c.	Turning.
3. Angica	The Brazils	Cabinet-work and turning.
4. Barwood (<i>Baphia nitida</i>).	Africa, (W. Coast) Guiana (Demerara).	Dyeing and turning. Machinery and turning.
5. Beefwood, or Bully tree (<i>Robinia panicocosa</i>).	N. S. Wales	Turning and brush-making.
6. Botany Bay Oak (<i>Casuarina stricta</i>).	Turkey	Turning, machinery, and wood engraving, &c., &c.
7. Boxwood (<i>Buxus balearica</i>).	England, Spain, &c.	Turning.
Boxwood (<i>Buxus sempervirens</i>).	America	
Boxwood	East Indies	
8. Brazil wood (<i>Cesalpinia braziliensis</i>).	The Brazils	
9. Braziletto (<i>Cesalpinia Bahamensis</i>).	Jamaica and the Bahamas	Dyeing and turning.
10. Cam wood (<i>Baphia nitida</i>).	Africa, West Coast	
11. Camphor wood (<i>Camphora officinalis</i>).	China, Borneo, &c.	Cabinet-work.
12. Canary wood (<i>Laurus indica</i>).	The Brazils, &c.	Cabinet-work and turning.
13. Cedar (pencil) (<i>Juniperus virginiana</i>).	The United States.	Pencils, and cabinet-work.
14. Cedar (Cuba) (<i>Cedrela odorata</i>).	West Indies, Havana	Cabinet-work.
15. Cocus wood (<i>Amerimum ebanus</i>).	Jamaica	
Cocus wood	Cuba	Turning, &c.
16. Coromandel or Calamander (<i>Diospyros hirsuta</i>).	East Indies (Ceylon, Manilla, &c.)	Cabinet-work and turning.
17. Ebony (black) (<i>Diospyros melanoxylon</i>).	Africa, W. Coast	
Ebony (black) (<i>Diospyros ebenum</i>).	Mauritius and Madagascar.	Turning and cabinet-work.
Ebony (black) (<i>Diospyros ebenaster</i>).	Ceylon	
Ebony (black) (<i>Diospyros melanoxylon</i>).	Bombay, &c., Sumatra, &c.	
18. Ebony (Green) (<i>Amerimum ebanus</i>).	Jamaica and the Bahamas.	Dyeing and turning.
19. Fustic (<i>Maclura tinctoria</i>).	W. Indies (Cuba, also Savanilla.)	
Fustic (<i>Rhus Cotinus</i>).	Ionian Islands (Zante.)	Dyeing.
20. Hickory (billets) (<i>Carya alba</i>).	The United States	Handspikes, fishing-rods, &c.
21. Ironwood (<i>Sideroxylon</i> , &c.).	East Indies.	Machinery and turning.
22. Jackwood (<i>Artocarpus integrifolia</i>).	The Brazils	Cabinet-work and turning.
23. Kingwood		Turning and cabinet-work.
24. Lancewood spars (<i>Guateria virgata</i>).	West Indies (Cuba, Jamaica).	Gig shafts, archery bows, &c.
25. Letterwood, or Snakewood (<i>Brosimum aubletii</i>).	Guiana and the Brazils.	Turnery and archery bows.
26. Lignum vitæ (<i>Guaiacum officinale</i>).	(West Indies (St. Domingo, Jamaica, Porto Rico, Cuba, Honduras, the Bahamas)	Sheaves for ships' blocks, turning, and machinery.
Lignum vitæ (<i>Guaiacum officinale</i>).	Australia	Turning.
27. Logwood (<i>Hamaterylon campechianum</i>).	West Indies, also Central America.	Dyeing.
28. Madagascar red wood	Madagascar	Turning and cabinet-work.
29. Maple (bird's-eye and Rock) (<i>Acer saccharinum</i>).	North America	
Maple (Russian) (<i>Acer tataricum</i>).	Siberia, &c.	Cabinet-work.
Maple (English) (<i>Acer campestre</i>).	England	
30. Nicaragua wood (<i>Cesalpinia Hamaterylon</i> , &c.).	Central America, &c.	Dyeing.
31. Nutmeg wood (<i>Areca catechu</i>).	The Brazils (Para)	
32. Palm-tree (black) (<i>Cocos niperere</i>).	East and West Indies	
Palm-tree (red and brown)		
Palm-tree (prickly brown) (<i>Cocos guianensis</i>).		Turning and cabinet-work, umbrella and parasol sticks, &c.
33. Partridge wood (brown and red) (<i>Heisteria cocinea</i>).	The Brazils and West Indies	
34. Pheasant wood (<i>Heisteria cocinea</i>).		
35. Princes wood (<i>Cordia Gerardanthus</i>).	West Indies (Jamaica).	

Names.	Place of Produce.	Purposes.
36. Purple wood (<i>Copaifera rubiflora</i>)	The Brazils and West Indies	Turning and cabinet-work, umbrella and parasol sticks, &c.
37. Queen wood, or Jugca wood (<i>Laurus chloroxylon</i>)		
38. Red sanders wood (<i>Pterocarpus santalinus</i>).	East Indies (Calcutta, &c.)	Dyeing and turning.
39. Rosewood (<i>Triptolomea</i>)	The Brazils (Rio de Janeiro and Bahia)	
Rosewood (<i>Amyris balsamifera</i>).	Honduras, &c.	Cabinet-work, turning, and brush-making.
Rosewood (<i>Dalbergia latifolia</i>)	East Indies	
40. Rosetta wood		
41. Sabicu	Cuba	Ship-building and furniture.
42. Sandalwood (<i>Santalum album</i>)	East Indies	Perfumery and cabinet-work.
43. Sapanwood (<i>Cesalpinia Sapan</i>)		Dyeing.
44. Sapodilla (<i>Fagara pterota</i>).	Honduras	Machinery and turning.
45. Satin wood	East Indies	
Satin wood (<i>Chloranthus, &c.</i>)	(West Indies (St. Domingo, Porto Rico, & the Bahamas))	Brush-making, cabinet-work, and turning.
46. Tulip wood	The Brazils	Cabinet-work and turning.
47. Walnut wood (<i>Juglans regia</i>).	Italy and Belgium	Cabinet-work and gun-stocks.
48. Yew tree (<i>Taxus baccata</i>)	England and Spain	Archery bows and turning.
49. Zebra wood (<i>Omphalobium Lambertii</i>).	The Brazils	Cabinet-work and turning.
An elephant's head, with tusks and grinders complete.	Africa, W. Coast	
Elephants' tusks		
Elephants' tusks	Africa — Cameroon, Gold Coast, Angola, and The Cape	Cutlery, turning, carving, &c.
Elephants' grinders	Calcutta, East Indies, and Alexandria	
Sea-horse, or Hippopotamus, teeth (curved and straight).	Africa	
Sea-cow, or walrus, teeth	East Indies and Africa	Dentists and turning.
Sea-unicorns' horns	Hudson's Bay	
Mother-of-Pearl shells (white edge).	Singapore	
Mother-of-Pearl shells (yellow)	Manilla	
Mother-of-Pearl shells (black)	Tahiti	Button-making, turning, and fancy work.
Mother-of-Pearl shells (Bombay)	Bombay	
Mother-of-Pearl shells (Buffalo)	S. America	
Coquillo nuts (<i>Attalea funifera</i>), a kind of palm tree, which yields the fibres now in use for coarse brooms, &c.	Brazils	Turning.
Corozo, or Corusco nuts (<i>Phytelephas macrocarpa</i>)	Colombia	

IN THE NAVE.—A circular slab of Honduras mahogany, 7 ft. 6 in. in diameter.
GROUND FLOOR. S. 11, 12, 13, and 14.

136 Cross, J. SAMUEL, 57 Bunhill Row—Proprietor.
English-grown woods, with their botanical names and some of their various uses.

FOREST AND PARK WOODS.

No.	Botanical Name.	Popular Name.	Habitat—Uses.
1	Robinia Pseudacacia	Acacia Locust-tree	Chair-making; cricket-stumps and turnery; posts, &c.
2	Thuja occidentalis, or T. orientalis.	American Arbor Vitæ or Chinese	Asia and America (scarce).—Fancy cabinet-work, inlaying, &c.
3	Fraxinus excelsior.	Ash	Europe and North of Asia.—Every description of carriage building, agricultural implements, and felloes for wheels; handles of every kind; various turnery; bent for hoops and measures, &c.

FOREST AND PARK WOODS—continued.			
No.	Botanical Name.	Popular Name.	Habitat—Uses.
4	<i>Pyrus aucuparia</i>	Ash, Mountain	<i>Europe and Asia.</i> —Pattens, clogs, hat-blocks, broom-sticks, brush-boards, rollers for silk goods, and various toys and turnery; makes the best charcoal for copper-smiths and gunpowder; the bark used in light tanning.
5	•	Ash, Drooping	
6	<i>Alnus glutinosa</i>	Alder . . .	
7	<i>Populus tremula</i>	Aspen, see Poplar.	<i>Europe.</i> —Foundations of large edifices, and building in general; oil-mill stampers, cabinet, chair, and bedstead
8	<i>Fagus sylvatica</i>	Beech . . .	
			making; saddle tree and last making; cut for screws; plane making, and tool handles; wheelers' work, and fellos for wheels; large letters for printing, brush-boards, and bottoms of ships and barges; turnery, firewood for pastry-cooks, and glass-bending.
9	<i>Fagus sylvatica</i>	Beech, White	<i>North America.</i> —The same purposes.
10	<i>Betula alba</i> . .	Birch . . .	Bottoms of pattens and clogs, turnery, reels, and toys.
11	<i>Buxus sempervirens</i> .	Box . . .	<i>European and Turkey.</i> —Wood engraving, turnery, fancy work, &c.
12	<i>Abies Cedrus</i> .	Cedar of Lebanon.	Valuable as an ornamental tree; available for fancy box-making, cabinet and other fancy work.
13	<i>Æsculus Hippocastanum</i> .	Chestnut, Horse.	Inlaying cabinet work, Tonbridge ware, brush-boards, stained ornamental work, and common buildings.
14	<i>Castanea vesca</i> .	Chestnut, Spanish.	<i>Europe.</i> —Carving, interior of ecclesiastical and other buildings, cabinet-work, &c.
15	<i>Pyrus Malus</i> . .	Crab . . .	(Very hard).—Engineering purposes, turnery, &c.
16	<i>Cornus sanguinea</i>	Dogwood . .	Chiefly for skewers (small).
17	<i>Ulmus</i> . . .	Elm . . .	<i>Europe.</i> —For bottoms of ships and barges, ships' blocks, gun-carriages, mast caps, piles for foundations, railway sleepers, wheelwrights' and millwrights' purposes; bored for pipes and pumps; large turnery, and culinary purposes; naves for wheels; collins, bellows, scale-board making, &c.
18	• . .	Elm, Dutch, or Sand.	Press-making, &c.
19	<i>Ulmus montana</i>	Elm Wych .	Boat-building, and some of the above-mentioned uses.
20	<i>Abies Larix</i> . .	Larch Fir .	Cabinet-work, building purposes, railway sleepers, fencing, posts, gates, &c.; the bark used for tanning.
21	<i>Pinus sylvestris</i> .	Scotch Fir .	} Chiefly used for building purposes, railway sleepers, fencing, &c.
22	<i>Abies Picea</i> . .	Silver Fir .	
23	<i>Abies excelsior</i> .	Spruce Fir .	
24	• . .	Pine Fir .	
25	<i>Corylus Avellana</i>	Hazel . . .	Hoop handles, small turnery, fishing-rods, cotton-reels, pea-sticks, &c.
26	<i>Carpinus Betulus</i>	Hornbeam .	Cogs for mill-wheels, mallets, skittles, and hard-turnery.
27	<i>Ilex Aquifolium</i>	Holly . . .	Engraving blocks for silk and calico printing, fancy cabinet-work, whip-sticks, small turnery.
28	<i>Cytisus Laburnum</i> .	Laburnum .	Used for turnery.
29	<i>Tilia europæa</i> .	Lime . . .	Carving purposes, musical instruments, piano-forte keys, cutting-boards, &c.
30	<i>Syringa vulgaris</i>	Lilac . . .	} Fancy cabinet-work, veneering; chair, musical instrument, and frame making.
31	<i>Acer campestre</i> .	Maple . . .	
32	<i>Cerasus avium</i> .	Merry, or Wild Cherry	Chair-making, &c

FOREST AND PARK WOODS—continued.			
No.	Botanical Name.	Popular Name.	Habitat—Uses
33	<i>Quercus pedunculata</i> .	Oak . . .	Ship-building timbers as, futtocks, knees, stem and stern posts, top-timbers, floors, and planks for covering the frame; barge and boat-building, dock-gates, and large buildings generally; railway carriage building, liquor-back making, and engineers', wheelwrights', and carpenters' purposes; railway sleepers, piles, coffins, and furniture generally; stocks and spokes for wheels, posts, rails, and cleft-pales for fencing, &c.; the red for fancy cabinet-work; the bark the principal ingredient in tanning leather.
34	<i>Quercus cerris</i>	Turkey Oak .	(Scarce.)
35	<i>Quercus ilex</i> . .	Evergreen Oak	(Scarce.) Used by millwrights, &c., for cogs for water-wheels.
36	<i>Platanus</i> . . .	Plane Tree .	Rough buildings, brush-boards, and many purposes for which beech is used.
37	<i>Populus canescens</i> . . .	Poplar, or Abele.	} Breaks of railway carriages, and used in paper-mills; leather-cutters' boards, and rough buildings, and some times for life-boats.
38	<i>Populus nigra</i> . .	English Poplar.	
39	<i>Populus fastigiata</i>	Lombardy Poplar.	} Musical instruments, churns, turnery, bread plates, carving, chair-making, brush-boards, &c.
40	<i>Acer Pseudo-platanus</i> .	Sycamore . .	
41	<i>Salix caprea</i> . .	Sallow, see Willow.	} (Scarce.) Used as lime-tree.
42	<i>Pyrus domestica</i>	Service . . .	
43	<i>Liriodendron tulipifera</i> .	Tulip-wood .	(Very scarce.) Fancy cabinet and box-making.
44	<i>Cratægus Oxyacantha</i> .	Whitethorn .	(Hard.) Used by millwrights for cogs.
45	<i>Prunus spinosa</i> .	Blackthorn .	(Small.) Whip-stocks and walking sticks.
46	<i>Rhamnus catharticus</i> .	Buckthorn .	(Scarce and small.)
47	<i>Salix</i> . . .	Willow . . .	} Cricket-bats and small turnery; split and wove for ladies' bonnets, foundations of hats, &c.
48	• . .	Willow, Weeping.	
49	<i>Taxus baccata</i> .	Yew . . .	Fancy cabinet-work and inlaying; bows for archery; rustic chairs, whip-stocks, &c.

ORCHARD WOODS.

50	<i>Amygdalus communis</i> .	Almond . .	} Chair-making, turnery, &c.
51	<i>Pyrus Malus</i> . .	Apple . . .	
52	<i>Cerasus</i> . . .	Cherry . . .	
53	• . .	Damson . . .	
54	<i>Sambucus nigra</i>	Elder . . .	
55	<i>Juniperus communis</i> .	Juniper . .	} Shoemakers' pegs, &c.
56	<i>Mespilus germanica</i> .	Medlar . .	(Scarce.)
57	• . .	Mulberry . .	Fancy work and turnery.
58	<i>Pyrus communis</i>	Pear . . .	Blocks for engraving on silk, cotton, &c., paper-staining, chair-making, &c.
59	<i>Prunus domestica</i> .	Plum . . .	Fancy cabinet-work.
60	<i>Juglans regia</i> . .	Walnut . .	Furniture and fancy cabinet work; gun and pistol stocks.
61	<i>Juglans nigra</i> . .	Black Walnut	} The same purposes.
62	<i>Cydonia vulgaris</i>	Quince . . .	
63	• . .	Wild Pear . .	
			Best wood for receiving a black stain.

NOTE.—The woods not marked with their uses are valuable for their fruit-bearing or ornamental properties.

- 137 MURRAY, Sir WM. KEITH, Bart., *Dunnottar, Stonehaven*—Proprietor.
Plank of Scotch fir (*Pinus sylvestris*).
Section of Scotch elm (*Ulmus montana*).
- 138 DILLON, Viscount C. H.—Proprietor.
Slabs of yew, oak, and fir, from trees found in the bogs.

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It is hoped that all the errors which have been pointed out in the first issue of the Catalogue have been corrected; and it is particularly requested that any inaccuracies or deficiencies still existing may be communicated to the Catalogue Office at the Exhibition Building without delay, with a memorandum of the Class and Number where they occur.

Alphabetical Indexes are in course of preparation, and will be published shortly.

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